

NEET
Previous Year's Questions
(PYQs of 2015-2025)

XII

PHYSICS
CHEMISTRY
BIOLOGY

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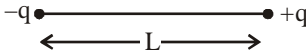
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Electric Charges and Fields

- Q.1** An electric dipole is placed at an angle of 30° with an electric field intensity $2 \times 10^5 \text{ NC}^{-1}$. It experiences a torque equal to 4 N m . The charge on the dipole, if the dipole length is 2 cm is : **[NEET-2016]**
 (1) 8 mC (2) 2 mC (3) 5 mC (4) 7 mC
- Q.2** Suppose the charge of a proton and an electron differ slightly. One of them is $-e$, the other is $(e + \Delta e)$. If the net of electrostatic force and gravitational force between two hydrogen atoms placed at a distance d (much greater than atomic size) apart is zero, then Δe is of the order of **[Given : mass of hydrogen $m_h = 1.67 \times 10^{-27} \text{ kg}$]** **[NEET 2017]**
 (1) 10^{-23} C (2) 10^{-37} C (3) 10^{-47} C (4) 10^{-20} C
- Q.3** A toy car with charge q moves on a frictionless horizontal plane surface under the influence of a uniform electric field E . Due to the force $q\vec{E}$, its velocity increases from 0 to 6 m/s in one second duration. At that instant the direction of the field is reversed. The car continues to move for two more seconds under the influence of this field. The average velocity and the average speed of the toy car between 0 to 3 seconds are respectively **[NEET-2018]**
 (1) $1 \text{ m/s}, 3.5 \text{ m/s}$ (2) $1 \text{ m/s}, 3 \text{ m/s}$
 (3) $2 \text{ m/s}, 3 \text{ m/s}$ (4) $1.5 \text{ m/s}, 3 \text{ m/s}$
- Q.4** A hollow metal sphere of radius R is uniformly charged. The electric field due to the sphere at a distance r from the centre: **[NEET-2019]**
 (1) increases as r increases for $r < R$ and for $r > R$
 (2) zero as r increases for $r < R$, decreases as r increases for $r > R$
 (3) zero as r increases for $r < R$, increases as r increases for $r > R$
 (4) decreases as r increases for $r < R$ and for $r > R$
- Q.5** Two parallel infinite line charges with linear charge densities $+\lambda \text{ C/m}$ and $-\lambda \text{ C/m}$ are placed at a distance of $2R$ in free space. What is the electric field midway between the two line charges ? **[NEET-2019]**
 (1) zero (2) $\frac{2\lambda}{\pi \epsilon_0 R} \text{ N/C}$
 (3) $\frac{\lambda}{\pi \epsilon_0 R} \text{ N/C}$ (4) $\frac{\lambda}{2\pi \epsilon_0 R} \text{ N/C}$
- Q.6** A spherical conductor of radius 10 cm has a charge of $3.2 \times 10^{-7} \text{ C}$ distributed uniformly. What is the magnitude of electric field at a point 15 cm from the centre of the sphere? $\left(\frac{1}{4\pi \epsilon_0} = 9 \times 10^9 \text{ Nm}^2 / \text{C}^2\right)$ **[NEET-2020]**
 (1) $1.28 \times 10^5 \text{ N/C}$ (2) $1.28 \times 10^6 \text{ N/C}$
 (3) $1.28 \times 10^7 \text{ N/C}$ (4) $1.28 \times 10^4 \text{ N/C}$
- Q.7** A charged particle having drift velocity of $7.5 \times 10^{-4} \text{ ms}^{-1}$ in an electric field of $3 \times 10^{10} \text{ Vm}^{-1}$, has a mobility in $\text{m}^2 \text{ V}^{-1} \text{ s}^{-1}$ of : **[NEET-2020]**
 (1) 2.5×10^6 (2) 2.5×10^{-6}
 (3) 2.25×10^{-15} (4) 2.25×10^{15}
- Q.8** Two point charge $-q$ and $+q$ are placed at a distance of L , as shown in the figure. **[NEET-2022]**

 The magnitude of electric field intensity at a distance R ($R \gg L$) varies as:
 (1) $\frac{1}{R^3}$ (2) $\frac{1}{R^4}$ (3) $\frac{1}{R^6}$ (4) $\frac{1}{R^2}$
- Q.9** The angle between the electric lines of force and the equipotential surface is: **[NEET-2022]**
 (1) 45° (2) 90° (3) 180° (4) 0°
- Q.10** An electric dipole is placed at an angle of 30° with an electric field of intensity $2 \times 10^5 \text{ NC}^{-1}$. It experiences a torque equal to 4 N m . Calculate the magnitude of charge on the dipole, if the dipole length is 2 cm . **[NEET-2023]**
 (1) 6 mC (2) 4 mC (3) 2 mC (4) 8 mC
- Q.11** A metal cube of side 5 cm is charged with $6 \mu\text{C}$. The surface charge density on the cube is: **[Re-NEET 2024]**
 (1) $0.125 \times 10^{-3} \text{ Cm}^2$ (2) $0.25 \times 10^{-3} \text{ Cm}^2$
 (3) $4 \times 10^{-3} \text{ Cm}^2$ (4) $0.4 \times 10^{-3} \text{ Cm}^2$
- Q.12** Two identical charged conducting spheres A and B have their centres separated by a certain distance. Charge on each sphere is q and the force of repulsion between them is F . A third identical uncharged conducting sphere is brought in contact with sphere A first and then with B and finally removed from both. New force of repulsion between spheres A and B (Radii of A and B are negligible compared to the distance of separation so that for calculating force between them they can be considered as point charges) is best given. As: **[NEET-2025]**
 (1) $\frac{3F}{5}$ (2) $\frac{2F}{3}$ (3) $\frac{F}{2}$ (4) $\frac{3F}{8}$

Electrostatic Potential and Capacitance

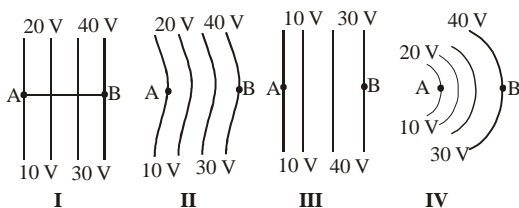
ELECTROSTATIC POTENTIAL

- Q.1** A conducting sphere of radius R is given a charge Q . The electric potential and the electric field at the centre of the sphere respectively are : **[AIPMT 2015]**
 (1) Zero and $\frac{Q}{4\pi \epsilon_0 R^2}$ (2) $\frac{Q}{4\pi \epsilon_0 R}$ and Zero
 (3) $\frac{Q}{4\pi \epsilon_0 R}$ and $\frac{Q}{4\pi \epsilon_0 R^2}$ (4) both are zero

Q.2 If potential (in volts) in a region is expressed as $V(x, y, z) = 6xy - y + 2yz$, the electric field (in N/C) at point (1,1,0) is : [AIPMT 2015]

- (1) $-(2\hat{i} + 3\hat{j} + \hat{k})$ (2) $-(6\hat{i} + 9\hat{j} + \hat{k})$
 (3) $-(3\hat{i} + 5\hat{j} + 3\hat{k})$ (4) $-(6\hat{i} + 5\hat{j} + 2\hat{k})$

Q.3 The diagrams below show regions of equipotential. A positive charge is moved from A to B in each diagram. [NEET-2017]



- (1) In all the four cases the work done is the same.
 (2) Minimum work is required to move q in figure(I).
 (3) Maximum work is required to move q in figure(II).
 (4) Maximum work is required to move q in figure(III).

Q.4 Two point charges A and B, having charges $+Q$ and $-Q$ respectively, are placed at certain distance apart and force acting between them is F . If 25% charge of A is transferred to B, then force between the charges becomes : [NEET-2019]

- (1) F (2) $\frac{9F}{16}$ (3) $\frac{16F}{9}$ (4) $\frac{4F}{3}$

Q.5 In a certain region of space with volume 0.2 m^3 , the electric potential is found to be 5 V throughout. The magnitude of electric field in this region is : [NEET-2020]

- (1) 0.5 N/C (2) 1 N/C (3) 5 N/C (4) zero

Q.6 A short electric dipole has a dipole moment of $16 \times 10^{-9} \text{ C m}$. The electric potential due to the dipole at a point at a distance of 0.6 m from the centre of the dipole, situated on a line making an angle of 60° with the dipole axis is : $\left(\frac{1}{4\pi\epsilon_0} = 9 \times 10^9 \text{ Nm}^2 / \text{C}^2 \right)$

- (1) 200 V (2) 400 V (3) zero (4) 50 V

Q.7 Two charged spherical conductors of radius R_1 and R_2 are connected by a wire. Then the ratio of surface charge densities of the spheres (σ_1/σ_2) is : [NEET-2021]

- (1) $\frac{R_2}{R_1}$ (2) $\sqrt{\left(\frac{R_1}{R_2}\right)}$ (3) $\frac{R_1^2}{R_2^2}$ (4) $\frac{R_1}{R_2}$

Q.8 Polar molecules are the molecules : [NEET-2021]

- (1) acquire a dipole moment only in the presence of electric field due to displacement of charges.
 (2) acquire a dipole moment only when magnetic field is absent.

- (3) having a permanent electric dipole moment.
 (4) having zero dipole moment.

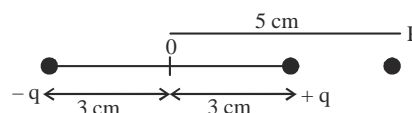
Q.9 Twenty seven drops of same size are charged at 220 V each. They combine to form a bigger drop. Calculate the potential of the bigger drop. [NEET-2021]

- (1) 1320 V (2) 1520 V (3) 1980 V (4) 660 V

Q.10 Two hollow conducting spheres of radii R_1 and R_2 ($R_1 \gg R_2$) have equal charges. The potential would be : [NEET-2022]

- (1) More on smaller sphere
 (2) Equal on both the spheres
 (3) Dependent on the material property of the sphere
 (4) More on bigger sphere

Q.11 An electric dipole is placed as shown in the figure.



The electric potential (in 10^2 V) at point P due to the dipole

is ($\epsilon_0 =$ permittivity of free space & $\frac{1}{4\pi\epsilon_0} = K$) :

[NEET-2023]

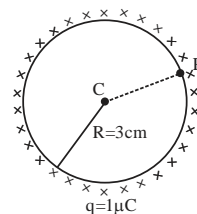
- (1) $\left(\frac{5}{8}\right)qK$ (2) $\left(\frac{8}{5}\right)qK$ (3) $\left(\frac{8}{3}\right)qK$ (4) $\left(\frac{3}{8}\right)qK$

Q.12 A thin spherical shell is charged by some source. The potential difference between the two points C and P

(in V) shown in the figure is : (Take $\frac{1}{4\pi\epsilon_0} = 9 \times 10^9 \text{ SI}$

units)

[NEET-2024]



- (1) Zero (2) 3×10^5 (3) 1×10^5 (4) 0.5×10^5

Q.13 Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**.

Assertion A: The potential (V) at any axial point, at 2 m distance (r) from the centre of the dipole of dipole moment vector \vec{P} of magnitude, $4 \times 10^{-6} \text{ C m}$,

is $\pm 9 \times 10^3 \text{ V}$. $\left(\text{Take } \frac{1}{4\pi\epsilon_0} = 9 \times 10^9 \text{ SI units} \right)$

Reason (R) : $V = \pm \frac{2P}{4\pi\epsilon_0 r^2}$, where r is the distance of any axial point, situated at 2 m from the centre of the dipole.

In the light of the above statements, choose the correct answer from the options given below:

- (1) A is false but R is true. [NEET-2024]
 (2) Both A and R are true and R is the correct explanation of A.
 (3) Both A and R are true and R is NOT the correct explanation of A.
 (4) A is true but R is false.

Q.14 The value of electric potential at a distance of 9 cm from the point charge 4×10^{-7} C is [Re-NEET 2024]

$$\left[\text{Given } \frac{1}{4\pi\epsilon_0} = 9 \times 10^9 \text{ Nm}^2\text{C}^{-2} \right]:$$

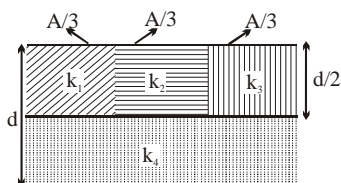
- (1) 4×10^2 V (2) 44.4 V
 (3) 4.4×10^5 V (4) 4×10^4 V

Q.15 An electric dipole with dipole moment 5×10^{-6} Cm is aligned with the direction of a uniform electric field of magnitude 4×10^5 N/C. The dipole is then rotated through an angle of 60° with respect to the electric field. The change in the potential energy of the dipole is : [NEET-2025]

- (1) 0.8 J (2) 1.0 J (3) 1.2 J (4) 1.5 J

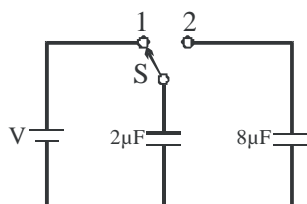
CAPACITANCE

Q.16 A parallel plate capacitor of area A, plate separation d and capacitance C is filled with four dielectric materials having dielectric constants k_1 , k_2 , k_3 and k_4 as shown in the figure. If a single dielectric material is to be used to have the same capacitance C in this capacitor, then its dielectric constant k is given by : [NEET-2016]



- (1) $k = k_1 + k_2 + k_3 + 3k_4$ (2) $k = \frac{2}{3}(k_1 + k_2 + k_3) + 2k_4$
 (3) $\frac{2}{k} = \frac{3}{k_1 + k_2 + k_3} + \frac{1}{k_4}$ (4) $\frac{1}{k} = \frac{1}{k_1} + \frac{1}{k_2} + \frac{1}{k_3} + \frac{3}{4k_4}$

Q.17 A capacitor of $2\mu\text{F}$ is charged as shown in the diagram. When the switch S is turned to position 2, the percentage of its stored energy dissipated is : [NEET-2016]



- (1) 75% (2) 80% (3) 0% (4) 20%

Q.18 A parallel plate capacitor of capacitance $20\mu\text{F}$ is being charged by a voltage source whose potential is changing at the rate of 3 V/s. The conduction current through the connecting wires, and the displacement current through the plates of the capacitor, would be, respectively : [NEET-2019]

- (1) zero, $60\mu\text{A}$ (2) $60\mu\text{A}$, $60\mu\text{A}$
 (3) $60\mu\text{A}$, zero (4) zero, zero

Q.19 The capacitance of a parallel plate capacitor with air as medium is $6\mu\text{F}$. With the introduction of a dielectric medium, the capacitance becomes $30\mu\text{F}$. The permittivity of the medium is : [NEET-2020]

$$(\epsilon_0 = 8.85 \times 10^{-12} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2})$$

- (1) $1.77 \times 10^{-12} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}$
 (2) $0.44 \times 10^{-10} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}$
 (3) $5.00 \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}$
 (4) $0.44 \times 10^{-13} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}$

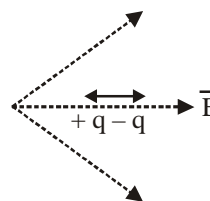
Q.20 A $40\mu\text{F}$ capacitor is connected to a 200 V, 50 Hz ac supply. The rms value of the current in the circuit is, nearly : [NEET-2020]

- (1) 2.05 A (2) 2.5 A (3) 25.1 A (4) 1.7 A

Q.21 In a guitar, two strings A and B made of same material are slightly out of tune and produce beats of frequency 6 Hz. When tension in B is slightly decreased, the beat frequency increases to 7 Hz. If the frequency of A is 530 Hz, the original frequency of B will be: [NEET-2020]

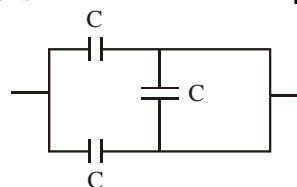
- (1) 524 Hz (2) 536 Hz (3) 537 Hz (4) 523 Hz

Q.22 A dipole is placed in an electric field as shown. In which direction will it move ? [NEET-2021]



- (1) towards the right as its potential energy will decrease.
 (2) towards the left as its potential energy will decrease.
 (3) towards the right as its potential energy will increase.
 (4) towards the left as its potential energy will increase.

Q.23 The equivalent capacitance of the combination shown in the figure is [NEET-2021]

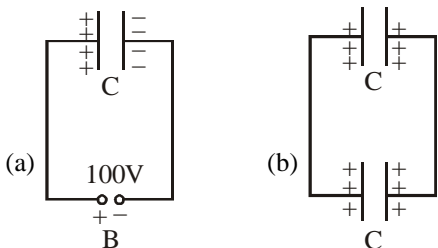


- (1) 2C (2) C/2 (3) 3C/2 (4) 3C

Q.24 A parallel plate capacitor has a uniform electric field ' \vec{E} ' in the space between the plates. If the distance between the plates is ' d ' and the area of each plate is ' A ', the energy stored in the capacitor is :
(ϵ_0 = permittivity of free space) [NEET-2021]

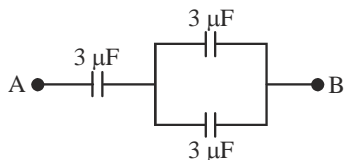
- (1) $\epsilon_0 E A d$ (2) $\frac{1}{2} \epsilon_0 E^2 A d$
(3) $\frac{E^2 A d}{\epsilon_0}$ (4) $\frac{1}{2} \epsilon_0 E^2$

Q.25 A capacitor of capacitance $C = 900 \text{ pF}$ is charged fully by 100 V battery B as shown in figure (a). Then it is disconnected from the battery and connected to another uncharged capacitor of capacitance $C = 900 \text{ pF}$ as shown in figure (b). The electrostatic energy stored by the system (b) is: [NEET-2022]



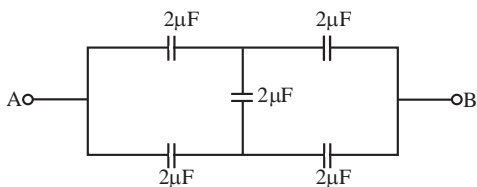
- (1) $3.25 \times 10^{-6} \text{ J}$ (2) $2.25 \times 10^{-6} \text{ J}$
(3) $1.5 \times 10^{-6} \text{ J}$ (4) $4.5 \times 10^{-6} \text{ J}$

Q.26 The equivalent capacitance of the system shown in the following circuit is : [NEET-2023]



- (1) $3 \mu\text{F}$ (2) $6 \mu\text{F}$ (3) $9 \mu\text{F}$ (4) $2 \mu\text{F}$

Q.27 In the following circuit, the equivalent capacitance between terminal A and terminal B is : [NEET-2024]



- (1) $4 \mu\text{F}$ (2) $2 \mu\text{F}$ (3) $1 \mu\text{F}$ (4) $0.5 \mu\text{F}$

Q.28 If the plates of a parallel plate capacitor connected to a battery are moved close to each other, then
A. the charge stored in it, increases.
B. the energy stored in it, decreases.
C. its capacitance increases.
D. the ratio of charge to its potential remains the same.
E. the product of charge and voltage increases.

Choose the most appropriate answer from the options given below: [NEET-2024]

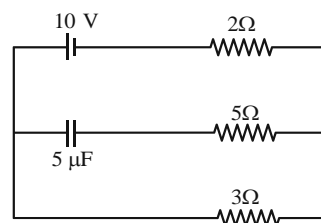
- (1) A, B and C only
(2) A, B and E only
(3) A, C and E only
(4) B, D and E only

Q.29 A 12 pF capacitor is connected to a 50 V battery, the electrostatic energy stored in the capacitor in nJ is [Re-NEET 2024]

- (1) 15 (2) 7.5
(3) 0.3 (4) 150

Q.30 The capacitance of a capacitor with charge q and a potential difference V depends on: [Re-NEET 2024]
(1) both q and v
(2) the geometry of the capacitor
(3) q only
(4) V only

Q.31 The steady state current in the circuit shown below is: [Re-NEET 2024]



- (1) 0.67 A (2) 1.5 A
(3) 2 A (4) 1 A

Q.32 The plates of a parallel plate capacitor are separated by d . Two slabs of different dielectric constant K_2 with thickness $\frac{3}{8}d$ and $\frac{d}{2}$, respectively are inserted in the capacitor. Due to this, the capacitance becomes two times larger than when there is nothing between the plates. (If $K_1 = 1.25 K_2$, the value of K_1 is : [NEET-2025]

- (1) 2.66 (2) 2.33
(3) 1.60 (4) 1.33

Current Electricity

Q.1 Two metal wires of identical dimensions are connected in series. If σ_1 and σ_2 are the conductivities of the metal wires respectively, the effective conductivity of the combination is : [AIMPT - 2015]

- (1) $\frac{\sigma_1 + \sigma_2}{\sigma_1 \sigma_2}$ (2) $\frac{\sigma_1 \sigma_2}{\sigma_1 + \sigma_2}$
 (3) $\frac{2\sigma_1 \sigma_2}{\sigma_1 + \sigma_2}$ (4) $\frac{\sigma_1 + \sigma_2}{2\sigma_1 \sigma_2}$

Q.2 A circuit contains an ammeter, a battery of 30 V and a resistance 40.8 ohm all connected in series. If the ammeter has a coil of resistance 480 ohm and a shunt of 20 ohm, the reading in the ammeter will be : [AIPMT - 2015]

- (1) 2A (2) 1A
 (3) 0.5A (4) 0.25A

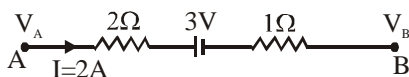
Q.3 A filament bulb(500W, 100V) is to be used in a 230 V main supply. When a resistance R is connected in series, it works perfectly and the bulb consumes 500W. The value of R is : [NEET Phase II - 2016]

- (1) 230 Ω (2) 46 Ω
 (3) 26 Ω (4) 13 Ω

Q.4 The charge flowing through a resistance R varies with time t as $Q = at - bt^2$, where a and b are positive constant. The total heat produced in R is : [NEET Phase I - 2016]

- (1) $\frac{a^3 R}{2b}$ (2) $\frac{a^3 R}{b}$ (3) $\frac{a^3 R}{6b}$ (4) $\frac{a^3 R}{3b}$

Q.5 The potential difference ($V_A - V_B$) between the points A and B in the given figure is [NEET Phase II - 2016]



- (1) -3V (2) +3V
 (3) +6V (4) +9V

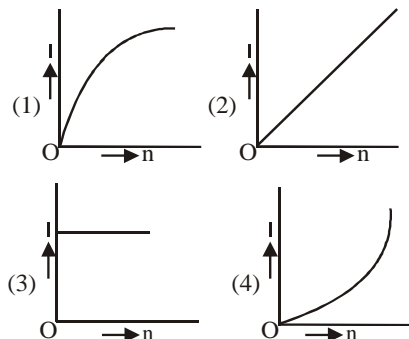
Q.6 The resistance of a wire is 'R' ohm. If it is melted and stretched to 'n' times its original length, its new resistance will be [NEET - 2017]

- (1) $\frac{R}{n}$ (2) $n^2 R$ (3) $\frac{R}{n^2}$ (4) nR

Q.7 A set of 'n' equal resistors, of value 'R' each, are connected in series to a battery of emf 'E' and internal resistance 'R'. The current drawn is I. Now, the 'n' resistors are connected in parallel to the same battery. Then the current drawn from battery becomes 10 I. The value of 'n' is [NEET - 2018]

- (1) 20 (2) 11 (3) 10 (4) 9

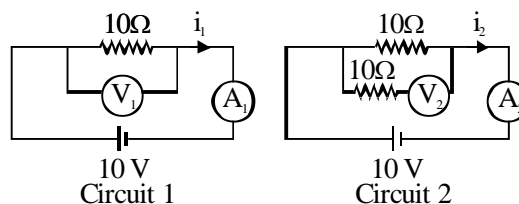
Q.8 A battery consists of a variable number 'n' of identical cells (having internal resistance 'r' each) which are connected in series. The terminals of the battery are short-circuited and the current I is measured. Which of the graphs shows the correct relationship between I and n ? [NEET-2018]



Q.9 A carbon resistor of (47 ± 4.7) k Ω is to be marked with rings of different colours for its identification. The colour code sequence will be [NEET-2018]

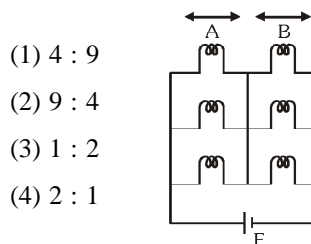
- (1) Yellow - Green - Violet - Gold
 (2) Yellow - Violet - Orange - Silver
 (3) Violet - Yellow - Orange - Silver
 (4) Green - Orange - Violet - Gold

Q.10 In the circuits shown below, the readings of the voltmeters and the ammeters will be [NEET-2019]



- (1) $V_2 > V_1$ and $i_1 = i_2$
 (2) $V_1 = V_2$ and $i_1 > i_2$
 (3) $V_1 = V_2$ and $i_1 = i_2$
 (4) $V_2 > V_1$ and $i_1 > i_2$

Q.11 Six similar bulbs are connected as shown in the figure with a DC source of emf E, and zero internal resistance. The ratio of power consumption by the bulbs when (i) all are glowing and (ii) in the situation when two from section A and one from section B are glowing, will be : [NEET-2019]



- (1) 4 : 9
 (2) 9 : 4
 (3) 1 : 2
 (4) 2 : 1

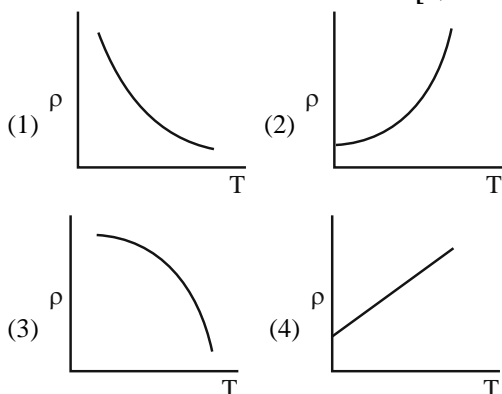
Q.12 Which of the following acts as a circuit protection device? [NEET-2019]

- (1) conductor (2) inductor
(3) switch (4) fuse

Q.13 The solids which have the negative temperature coefficient of resistance are: [NEET-2020]

- (1) insulators only
(2) semiconductors only
(3) insulators and semiconductors
(4) metals

Q.14 Which of the following graph represents the variation of resistivity (ρ) with temperature (T) for copper? [NEET-2020]



Q.15 A resistance wire connected in the left gap of a metre bridge balances a $10\ \Omega$ resistance in the right gap at a point which divides the bridge wire in the ratio 3 : 2. If the length of the resistance wire is 1.5 m, then the length of $1\ \Omega$ of the resistance wire is [NEET-2020]

- (1) 1.0×10^{-1} m (2) 1.5×10^{-1} m
(3) 1.5×10^{-2} m (4) 1.0×10^{-2} m

Q.16 The effective resistance of a parallel connection that consists of four wires of equal length, equal area of cross-section and same material is $0.25\ \Omega$. What will be the effective resistance if they are connected in series? [NEET-2021]

- (1) $0.5\ \Omega$ (2) $1\ \Omega$ (3) $4\ \Omega$ (4) $0.25\ \Omega$

Q.17 **Column-I** gives certain physical terms associated with flow of current through a metallic conductor. **Column-II** gives some mathematical relations involving electrical quantities. Match **Column-I** and **Column-II** with appropriate relations. [NEET-2021]

Column-I	Column-II
(A) Drift velocity	(P) $\frac{m}{ne^2\rho}$
(B) Electrical Resistivity	(Q) nev_d
(C) Relaxation Period	(R) $\frac{eE}{m}\tau$
(D) Current Density	(S) $\frac{E}{J}$

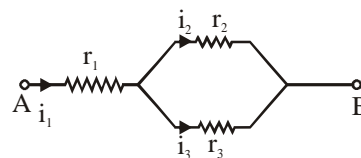
(1) (A) - (R), (B) - (S), (C) - (Q), (D) - (P)

(2) (A) - (R), (B) - (P), (C) - (S), (D) - (Q)

(3) (A) - (R), (B) - (Q), (C) - (S), (D) - (P)

(4) (A) - (R), (B) - (S), (C) - (P), (D) - (Q)

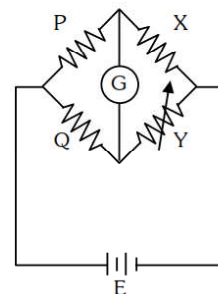
Q.18 Three resistors having resistance r_1 , r_2 and r_3 are connected as shown in the given circuit. The ratio $\frac{i_3}{i_1}$ of currents in terms of resistances used in the circuit is: [NEET-2021]



- (1) $\frac{r_2}{r_2 + r_3}$ (2) $\frac{r_1}{r_1 + r_2}$ (3) $\frac{r_2}{r_1 + r_3}$ (4) $\frac{r_1}{r_2 + r_3}$

Q.19 A wheatstone bridge is used to determine the value of unknown resistance X by adjusting the variable resistance Y as shown in the figure. For the most precise measurement of X , the resistances P and Q :

[NEET-2022]



- (1) should be approximately equal and are small
(2) should be very large and unequal
(3) do not play any significant role
(4) should be approximately equal to $2x$

Q.20 A copper wire of length 10 m and radius $(10^{-2}/\pi)$ m has electrical resistance of $10\ \Omega$. The current density in the wire for an electric field strength of 10 (V/m) is: [NEET-2022]

- (1) 10^6 A/m² (2) 10^{-5} A/m²
(3) 10^5 A/m² (4) 10^4 A/m²

Q.21 Two resistors of resistance, $100\ \Omega$ and $200\ \Omega$ are connected in parallel in an electrical circuit. The ratio of the thermal energy developed in $100\ \Omega$ to that in $200\ \Omega$ in a given time is [NEET-2022]

- (1) 2 : 1 (2) 1 : 4 (3) 4 : 1 (4) 1 : 2

Q.22 As the temperature increase, the electrical resistance [NEET-2022]

- (1) Decreases for both conductors and semiconductors
(2) Increases for conductors but decreases for semiconductors

- (3) Decreases for conductors but increase for semiconductors
 (4) Increases for both conductors and semiconductors.

Q.23 The energy that will be ideally radiated by a 100 kW transmitter in 1 hour is: [NEET-2022]

- (1) 36×10^4 J (2) 36×10^5 J
 (3) 1×10^5 J (4) 36×10^7 J

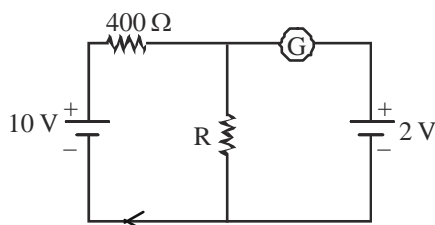
Q.24 10 resistors, each of resistance R are connected in series to a battery of emf E and negligible internal resistance. Then those are connected in parallel to the same battery, the current is increased n times. The value of n is : [NEET-2023]

- (1) 100 (2) 1 (3) 1000 (4) 10

Q.25 The resistance of platinum wire at 0°C is 2Ω and 6.8Ω at 80°C . The temperature coefficient of resistance of the wire is : [NEET-2023]

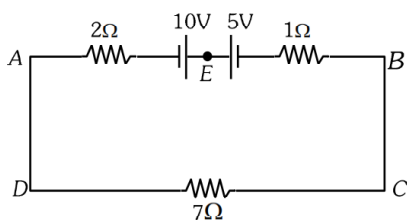
- (1) $3 \times 10^{-3} \text{ }^\circ\text{C}^{-1}$ (2) $3 \times 10^{-2} \text{ }^\circ\text{C}^{-1}$
 (3) $3 \times 10^{-1} \text{ }^\circ\text{C}^{-1}$ (4) $3 \times 10^{-4} \text{ }^\circ\text{C}^{-1}$

Q.26 If the galvanometer G does not show any deflection in the circuit shown, the value of R is given by : [NEET-2023]



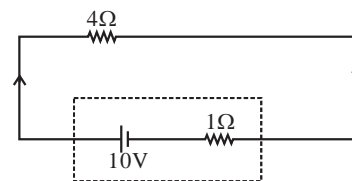
- (1) 50Ω (2) 100Ω (3) 400Ω (4) 200Ω

Q.27 The magnitude and direction of the current in the following circuit is : [NEET-2023]



- (1) 0.5 A from A to B through E
 (2) $\frac{5}{9}$ A from A to B through E
 (3) 1.5 A from B to A through E
 (4) 0.2 A from B to A through E

Q.28 The terminal voltage of the battery, whose emf is 10 V and internal resistance 1Ω , when connected through an external resistance of 4Ω as shown in the figure is: [NEET-2024]



- (1) 10 V (2) 4 V (3) 6 V (4) 8 V

Q.29 A wire of length ' l ' and resistance 100Ω is divided into 10 equal parts. The first 5 parts are connected in series while the next 5 parts are connected in parallel. The two combinations are again connected in series. The resistance of this final combination is: [NEET-2024]

- (1) 60Ω (2) 26Ω
 (3) 52Ω (4) 55Ω

Q.30 Two heaters A and B have power rating of 1 kW and 2 kW, respectively. Those two are first connected in series and then in parallel to a fixed power source. The ratio of power outputs for these two cases is: [NEET-2024]

- (1) 2 : 3 (2) 1 : 1 (3) 2 : 9 (4) 1 : 2

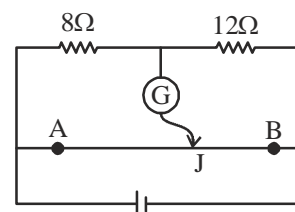
Q.31 A uniform wire of diameter d carries a current of 100 mA when the mean drift velocity of electrons in the wire is v . For a wire of diameter $\frac{d}{2}$ of the same material to carry a current of 200 mA, the mean drift velocity of electrons in the wire is [Re-NEET-2024]

- (1) $4v$ (2) $8v$ (3) v (4) $2v$

Q.32 A uniform metal wire of length l has 10Ω resistance. Now this wire is stretched to a length $2l$ and then bent to form a perfect circle. The equivalent resistance across any arbitrary diameter of that circle is : [ReNEET-2024]

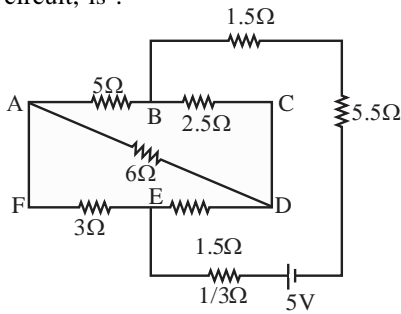
- (1) 10Ω (2) 5Ω
 (3) 40Ω (4) 20Ω

Q.33 The given circuit shows a uniform straight wire AB of 40 cm length fixed at both ends. In order to get zero reading in the galvanometer G , the free end of J is to be placed from B at: [ReNEET-2024]



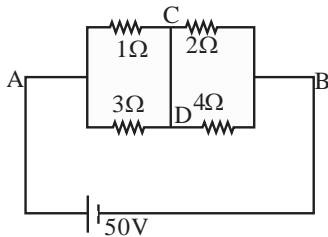
- (1) 32 cm (2) 8 cm
 (3) 16 cm (4) 24 cm

Q.34 The current passing through the battery in the given circuit, is : [NEET-2025]



- (1) 2.0 A (2) 0.5 A
(3) 2.5 A (4) 1.5 A

Q.35 A constant voltage of 50 V is maintained between the points A and B of the circuit shown in the figure. The current through the branch CD of the circuit is [NEET-2025]



- (1) 1.5 A (2) 2.0 A (3) 2.5 A (4) 3.0 A

Q.36 A wire of resistance R is cut into 8 equal pieces. From these pieces two equivalent resistances are made by adding four of these together in parallel. Then these two sets are added in series. The net effective resistance of the combination is : [NEET-2025]

- (1) $\frac{R}{64}$ (2) $\frac{R}{32}$ (3) $\frac{R}{16}$ (4) $\frac{R}{8}$

Moving Charges and Magnetism

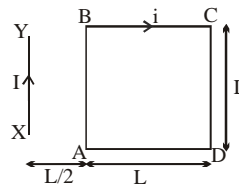
Q.1 A proton and an alpha particle both enter a region of uniform magnetic field B, moving at right angles to the field B. If the radius of circular orbits for both the particles is equal and the kinetic energy acquired by proton is 1 MeV, the energy acquired by the alpha particle will be : [AIPMT 2015, AIPMT Mains 2012]

- (1) 1.5 MeV (2) 1 MeV
(3) 4 MeV (4) 0.5 MeV

Q.2 A long straight wire of radius 'a' carries a steady current I. The current is uniformly distributed over its cross-section. The ratio of the magnetic fields B and B', at radial distances $\frac{a}{2}$ and 2a respectively, from the axis of the wire is : [NEET Phase I-2016]

- (1) 1 (2) 4
(3) 1/4 (4) 1/2

Q.3 A square loop ABCD carrying a current i, is placed near and coplanar with a long straight conductor XY carrying a current I, the net force on the loop will be : [NEET Phase I-2016]



- (1) $\frac{2\mu_0 i I L}{3\pi}$ (2) $\frac{\mu_0 i I L}{2\pi}$
(3) $\frac{2\mu_0 i I}{3\pi}$ (4) $\frac{\mu_0 i I}{2\pi}$

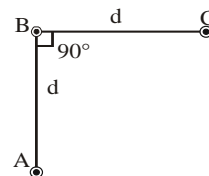
Q.4 An electron is moving in a circular path under the influence of a transverse magnetic field of 3.57×10^{-2} T. If the value of e/m is 1.76×10^{11} C kg⁻¹, the frequency of revolution of the electron is : [NEET Phase II-2016]

- (1) 1 GHz (2) 100 MHz
(3) 62.8 MHz (4) 6.28 MHz

Q.5 A long wire carrying a steady current is bent into a circular loop of one turn. The magnetic field at the centre of the loop is B. It is then bent into a circular coil of n turns. The magnetic field at the centre of this coil of n turns will be : [NEET Phase II-2016]

- (1) nB (2) n²B (3) 2nB (4) 2n²B

Q.6 An arrangement of three parallel straight wires placed perpendicular to plane of paper carrying same current I along the same direction as shown in figure. Magnitude of force per unit length on the middle wire B is given by : [NEET-2017]



- (1) $\frac{2\mu_0 I^2}{\pi d}$ (2) $\frac{\sqrt{2}\mu_0 I^2}{\pi d}$ (3) $\frac{\mu_0 I^2}{\sqrt{2}\pi d}$ (4) $\frac{\mu_0 I^2}{2\pi d}$

Q.7 A metallic rod of mass per unit length 0.5 kg m⁻¹ is lying horizontally on a smooth inclined plane which makes an angle of 30° with the horizontal. The rod is not allowed to slide down by flowing a current through it when a magnetic field of induction 0.25 T is acting on it in the vertical direction. The current flowing in the rod to keep it stationary is [NEET-2018]

- (1) 14.76 A (2) 5.98 A
(3) 7.14 A (4) 11.32 A

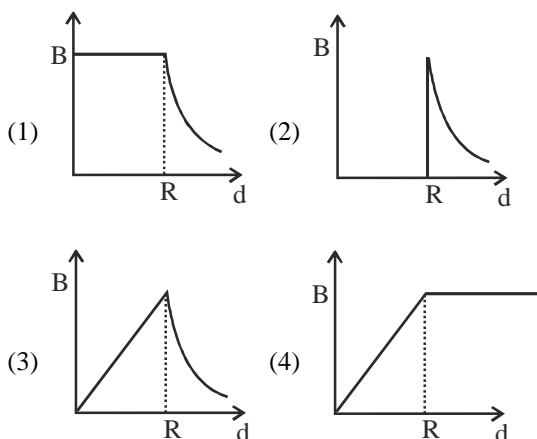
Q.8 A thin diamagnetic rod is placed vertically between the poles of an electromagnet. When the current in the electromagnet is switched on, then the diamagnetic rod is pushed up, out of the horizontal magnetic field. Hence the rod gains gravitational potential energy. The work required to do this comes from [NEET-2018]

- (1) The lattice structure of the material of the rod
- (2) The magnetic field
- (3) The current source
- (4) The induced electric field due to the changing magnetic field

Q.9 Current sensitivity of a moving coil galvanometer is 5 div/mA and its voltage sensitivity (angular deflection per unit voltage applied) is 20 div/V. The resistance of the galvanometer is [NEET-2018]

- (1) 250 Ω
- (2) 25 Ω
- (3) 40 Ω
- (4) 500 Ω

Q.10 A cylindrical conductor of radius R is carrying a constant current. The plot of the magnitude of the magnetic field, B with the distance d, from the centre of the conductor, is correctly represented by the figure : [NEET-2019]



Q.11 Ionized hydrogen atoms and α -particles with same momenta enters perpendicular to a constant magnetic field B. The ratio of their radii of their paths $r_H : r_\alpha$ will be [NEET-2019]

- (1) 2:1
- (2) 1:2
- (3) 4 : 1
- (4) 1 : 4

Q.12 A long solenoid of 50 cm length having 100 turns carries a current of 2.5 A. The magnetic field at the centre of the solenoid is : ($\mu_0 = 4\pi \times 10^{-7} \text{ T m A}^{-1}$) [NEET-2020]

- (1) $3.14 \times 10^{-4} \text{ T}$
- (2) $6.28 \times 10^{-5} \text{ T}$
- (3) $3.14 \times 10^{-5} \text{ T}$
- (4) $6.28 \times 10^{-4} \text{ T}$

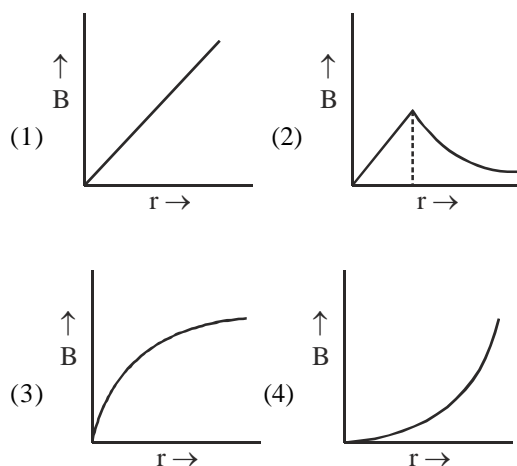
Q.13 An iron rod of susceptibility 599 is subjected to a magnetising field of 1200 A m^{-1} . The permeability of the material of the rod is : ($\mu_0 = 4\pi \times 10^{-7} \text{ T m A}^{-1}$) [NEET-2020]

- (1) $8.0 \times 10^{-5} \text{ T m A}^{-1}$
- (2) $2.4\pi \times 10^{-5} \text{ T m A}^{-1}$
- (3) $2.4\pi \times 10^{-7} \text{ T m A}^{-1}$
- (4) $2.4\pi \times 10^{-4} \text{ T m A}^{-1}$

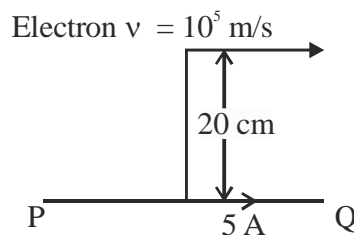
Q.14 For a plane electromagnetic wave propagating in x-direction, which one of the following combination gives the correct possible directions for electric field (E) and magnetic field (B) respectively ? [NEET-2021]

- (1) $-\hat{j} + \hat{k}, -\hat{j} - \hat{k}$
- (2) $\hat{j} + \hat{k}, -\hat{j} - \hat{k}$
- (3) $-\hat{j} + \hat{k}, -\hat{j} + \hat{k}$
- (4) $\hat{j} + \hat{k}, \hat{j} + \hat{k}$

Q.15 A thick current carrying cable of radius 'R' carries current 'I' uniformly distributed across its cross-section. The variation of magnetic field B(r) due to the cable with the distance 'r' from the axis of the cable is represented by : [NEET-2021]



Q.16 An infinitely long straight conductor carries a current of 5 A as shown. An electron is moving with a speed of 10^5 m/s parallel to the conductor. The perpendicular distance between the electron and the conductor is 20 cm at an instant. Calculate the magnitude of the force experienced by the electron at that instant. [NEET-2021]



- (1) $8\pi \times 10^{-20} \text{ N}$
- (2) $4\pi \times 10^{-20} \text{ N}$
- (3) $8 \times 10^{-20} \text{ N}$
- (4) $4 \times 10^{-20} \text{ N}$

Q.17 In the product [NEET-2021]

$$\vec{F} = q(\vec{v} \times \vec{B}) = q\vec{v} \times (B_1\hat{i} + B_2\hat{j} + B_3\hat{k})$$

For $q = 1$ and $\vec{v} = 2\hat{i} + 4\hat{j} + 6\hat{k}$ and

$$\vec{F} = 4\hat{i} - 20\hat{j} + 12\hat{k}$$

What will be the complete expression for \vec{B} ?

- (1) $-6\hat{i} - 6\hat{j} - 8\hat{k}$ (2) $8\hat{i} + 8\hat{j} - 6\hat{k}$
 (3) $6\hat{i} + 6\hat{j} - 8\hat{k}$ (4) $-8\hat{i} - 8\hat{j} - 6\hat{k}$

Q.18 A uniform conducting wire of length $12a$ and resistance 'R' is wound up as current carrying coil in the shape of,

- (i) an equilateral triangle of side 'a'.
 (ii) a square of side 'a'.

The magnetic dipole moments of the coil in each case respectively are: [NEET-2021]

- (1) $3Ia^2$ and Ia^2
 (2) $3Ia^2$ and $4Ia^2$
 (3) $4Ia^2$ and $3Ia^2$
 (4) $\sqrt{3}Ia^2$ and $3Ia^2$

Q.19 From Ampere's circuital law for a long straight wire of circular cross-section carrying a steady current, the variation of magnetic field in the inside and outside region of the wire is: [NEET-2022]

- (1) a linearly increasing function of distance upto the boundary of the wire and then linearly decreasing for the outside region.
 (2) a linearly increasing function of distance r upto the boundary of the wire and then decreasing one with $1/r$ dependence for the outside region.
 (3) a linearly decreasing function of distance upto the boundary of the wire and then a linearly increasing one for the outside region
 (4) uniform and remains constant for both the regions.

Q.20 Given below are two statements: [NEET-2022]

Statement-I :

Biot-Savart's law gives us the expression for the magnetic field strength of an infinitesimal current element (Idl) of a current carrying conductor only.

Statement-II :

Biot-Savart's law is analogous to Coulomb's inverse square law of charge q , with the former being related to the field produced by a scalar source, Idl while the latter being produced by a vector source, q .

In light of above statement choose the most appropriate answer from the options given below:

- (1) Both statement I and Statement II are incorrect
 (2) Statement I is correct and Statement II is incorrect
 (3) Statement I is incorrect and Statement II is correct
 (4) Both statement I and Statement II are correct

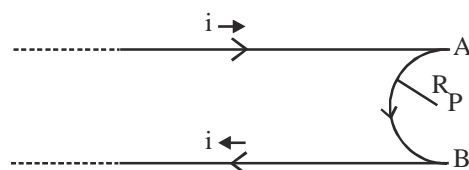
Q.21 A square loop of side 1 m and resistance 1Ω is placed in a magnetic field of 0.5 T. If the plane of loop is perpendicular to the direction of magnetic field, the magnetic flux through the loop is : [NEET-2022]

- (1) 0.5 weber (2) 1 weber
 (3) Zero weber (4) 2 weber

Q.22 A long solenoid of radius 1 mm has 100 turns per mm. If 1 A current flows in the solenoid, the magnetic field strength at the centre of the solenoid is [NEET-2022]

- (1) 12.56×10^{-2} T (2) 12.56×10^{-4} T
 (3) 6.28×10^{-4} T (4) 6.28×10^{-2} T

Q.23 A very long conducting wire is bent in a semicircular shape from A to B as shown in figure. The magnetic field at point P for steady current configuration is given by : [NEET-2023]



- (1) $\frac{\mu_0 i}{4R}$ pointed away from the page
 (2) $\frac{\mu_0 i}{4R} \left[1 - \frac{2}{\pi} \right]$ pointed away from page
 (3) $\frac{\mu_0 i}{4R} \left[1 - \frac{2}{\pi} \right]$ pointed into the page
 (4) $\frac{\mu_0 i}{4R}$ pointed into the page

Q.24 A wire carrying a current I along the positive x-axis has length L . It is kept in a magnetic field $\vec{B} = (2\hat{i} + 3\hat{j} - 4\hat{k})$ T. The magnitude of the magnetic force acting on the wire is : [NEET-2023]

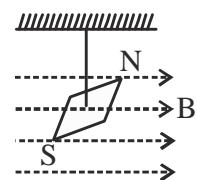
- (1) $\sqrt{5} IL$ (2) $5 IL$
 (3) $\sqrt{3} IL$ (4) $3 IL$

Q.25 If $\oint_S \vec{E} \cdot d\vec{S} = 0$ over a surface, then : [NEET-2023]

- (1) the magnitude of electric field on the surface is constant.
 (2) all the charges must necessarily be inside the surface.
 (3) the electric field inside the surface is necessarily uniform.
 (4) the number of flux lines entering the surface must be equal to the number of flux lines leaving it.

- Q.26** The net magnetic flux through any closed surface is : [NEET-2023]
 (1) Positive (2) Infinity
 (3) Negative (4) Zero
- Q.27** A tightly wound 100 turns coil of radius 10 cm carries a current of 7 A. The magnitude of the magnetic field at the centre of the coil is (Take permeability of free space as $4\pi \times 10^{-7}$ SI units): [NEET-2024]
 (1) 44 T (2) 44 mT
 (3) 4.4 T (4) 4.4 mT
- Q.28** An electron (mass 9×10^{-31} kg and charge 1.6×10^{-19} C) moving with speed $c/100$ ($c =$ speed of light) is injected into a magnetic field \vec{B} of magnitude 9×10^{-4} T perpendicular to its direction of motion. We wish to apply an uniform electric field \vec{E} together with the magnetic field so that the electron does not deflect from its path. Then (speed of light $c = 3 \times 10^8$ ms $^{-1}$) [NEET-2025]
 (1) \vec{E} is perpendicular to \vec{B} and its magnitude is 27×10^4 V m $^{-1}$
 (2) \vec{E} is perpendicular to \vec{B} and its magnitude is 27×10^2 V m $^{-1}$
 (3) \vec{E} is parallel to \vec{B} and its magnitude is 27×10^2 V m $^{-1}$
 (4) \vec{E} is parallel to \vec{B} and its magnitude is 27×10^4 V m $^{-1}$
- Q.29** A 2 amp current is flowing through two different small circular copper coils having radii ratio 1 : 2. The ratio of their respective magnetic moments will be [NEET-2025]
 (1) 1 : 4 (2) 1 : 2
 (3) 2 : 1 (4) 4 : 1

Magnetism and Matter

- Q.1** The magnetic susceptibility is negative for [NEET Phase I-2016]
 (1) ferromagnetic material only
 (2) paramagnetic and ferromagnetic materials
 (3) diamagnetic material only
 (4) paramagnetic material only
- Q.2** A bar magnet is hung by a thin cotton thread in a uniform horizontal magnetic field and is in equilibrium state. The energy required to rotate it by 60° is W . Now the torque required to keep the magnet in this new position is : [NEET Phase II-2016]
 (1) $\frac{W}{\sqrt{3}}$ (2) $\sqrt{3}W$ (3) $\frac{\sqrt{3}W}{2}$ (4) $\frac{2W}{\sqrt{3}}$
- Q.3** A 250 turn rectangular coil of length 2.1 cm and width 1.25 cm carries a current of $85 \mu\text{A}$ and subjected to a magnetic field of strength 0.85T. Work done for rotating the coil by 180° against the torque is : [NEET-2017]
 (1) $4.55 \mu\text{J}$ (2) $2.3 \mu\text{J}$
 (3) $1.15 \mu\text{J}$ (4) $9.1 \mu\text{J}$
- Q.4** In a uniform magnetic field of 0.049 T, a magnetic needle performs 20 complete oscillations in 5 seconds as shown. The moment of inertia of the needle is 9.8×10^{-6} kg m 2 . If the magnitude of magnetic moment of the needle is $x \times 10^{-5}$ Am 2 , then the value of 'x' is : [NEET-2024]
- 
- (1) $1280 \pi^2$ (2) $5 \pi^2$
 (3) $128 \pi^2$ (4) $50 \pi^2$
- Q.5** Match List-I with List-II.
List-I (Material) (A) Diamagnetic (B) Ferromagnetic (C) Paramagnetic (D) Non-magnetic
List-II (Susceptibility(χ)) I. $\chi = 0$ II. $0 > \chi \geq -1$ III. $\chi \gg 1$ IV. $0 < \chi < \epsilon$ (a small positive number)
 Choose the correct answer from the options given below [NEET-2024]
 (1) A - IV, B - III, C - II, D - I
 (2) A - II, B - III, C - IV, D - I
 (3) A - II, B - I, C - III, D - IV
 (4) A - III, B - II, C - I, D - IV
- Q.4** An iron bar of length L has magnetic moment M . It is bent at the middle of its length such that the two arms make an angle 60° with each other. The magnetic moment of this new magnet is : [NEET-2024]
 (1) $\frac{M}{\sqrt{3}}$ (2) M (3) $\frac{M}{2}$ (4) $2M$
- Q.7** A sheet is placed on a horizontal surface in front of a strong magnetic pole. A force is needed to:
 A. hold the sheet there if it is magnetic.
 B. hold the sheet there if it is non-magnetic.
 C. move the sheet away from the pole with uniform velocity if it is conducting.
 D. move the sheet away from the pole with uniform velocity if it is both, non-conducting and non-polar.
 Choose the correct statement(s) from the options given below: [NEET-2024]

- (1) C only
 (2) B and D only
 (3) A and C only
 (4) A, C and D only

Q.8 The magnetic potential energy, when a magnetic bar of magnetic moment \vec{m} is placed perpendicular to the magnetic field \vec{B} is: **[Re-NEET 2024]**

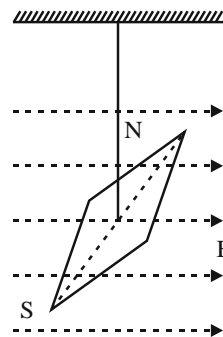
- (1) $-\frac{mB}{2}$ (2) Zero
 (3) $-mB$ (4) mB

Q.9 The incorrect relation for a diamagnetic material (all the symbols carry their usual meaning and ϵ is a small positive number) is: **[Re-NEET 2024]**

- (1) $\mu < \mu_0$ (2) $0 \leq \mu_r < 1$
 (3) $-1 \leq \chi < 0$ (4) $1 < \mu_r < 1 + \epsilon$

Q.10 The magnetic moment and moment of inertia of a magnetic needle as shown are, respectively,

$1.0 \times 10^{-2} \text{ A m}^2$ and $\frac{10^{-6}}{\pi^2} \text{ kgm}^2$. If it completes 10 oscillations in 10 s, the magnitude of the magnetic field is: **[Re-NEET 2024]**



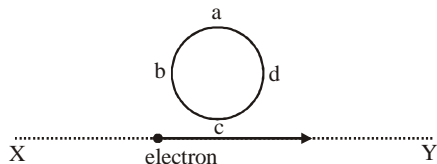
- (1) 0.4 T (2) 4T
 (3) 0.4 mT (4) 4 mT

Q.11 The magnetic moment of an iron bar is M . It is now bent in such a way that it forms an arc section of a circle subtending an angle of 60° at the centre. The magnetic moment of this arc section is: **[Re-NEET 2024]**

- (1) $\frac{3M}{\pi}$ (2) $\frac{4M}{\pi}$
 (3) $\frac{M}{\pi}$ (4) $\frac{2M}{\pi}$

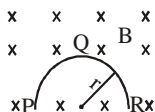
Electromagnetic Induction

- Q.1** An electron moves on a straight line path XY as shown. The abcd is a coil adjacent to the path of electron. What will be the direction of current, if any, induced in the coil? [AIPMT - 2015]



- (1) The current will reverse its direction as the electron goes past the coil
 (2) No current induced
 (3) abcd
 (4) adcb

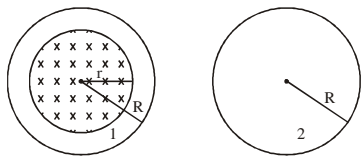
- Q.2** A thin semicircular conducting ring (PQR) of radius r is falling with its plane vertical in a horizontal magnetic field B , as shown in the figure. The potential difference developed across the ring when its speed is v is, [AIPMT - 2015]



- (1) zero
 (2) $\frac{Bv\pi r^2}{2}$ and P is at higher potential
 (3) πrBv and R is at higher potential
 (4) $2rBv$ and R is at higher potential

- Q.3** A uniform magnetic field is restricted within a region of radius r . The magnetic field changes with time at a

rate $\frac{d\vec{B}}{dt}$. Loop 1 of radius $R > r$ encloses the region r and loop 2 of radius R is outside the region of magnetic field as shown in the figure. Then the e.m.f. generated is [NEET-2016]



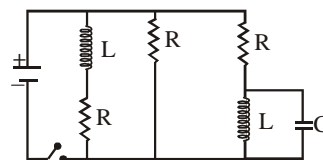
- (1) zero in loop 1 and zero in loop 2
 (2) $-\frac{d\vec{B}}{dt} \pi r^2$ in loop 1 and $-\frac{d\vec{B}}{dt} \pi r^2$ in loop 2
 (3) $-\frac{d\vec{B}}{dt} \pi R^2$ in loop 1 and zero in loop 2
 (4) $-\frac{d\vec{B}}{dt} \pi r^2$ in loop 1 and zero in loop 2

- Q.4** A long solenoid has 1000 turns. When a current of 4A flows through it, the magnetic flux linked with each turn of the solenoid is 4×10^{-3} Wb. The self-inductance of the solenoid is [NEET-2016]
 (1) 2 H (2) 1 H (3) 4 H (4) 3 H

- Q.5** A long solenoid of diameter 0.1m has 2×10^4 turns per meter. At the centre of the solenoid, a coil of 100 turns and radius 0.01 m is placed with its axis coinciding with the solenoid axis. The current in the solenoid reduces at a constant rate to 0A from 4A in 0.05 s. If the resistance of the coil is $10\pi^2 \Omega$, the total charge flowing through the coil during this time is: [NEET 2017]

- (1) $16 \mu\text{C}$ (2) $32 \mu\text{C}$ (3) $16\pi \mu\text{C}$ (4) $32 \pi \mu\text{C}$

- Q.6** Figure shows a circuit that contains three identical resistors with resistance $R = 9.0\Omega$ each, two identical inductors with inductance $L = 2.0$ mH each, and an ideal battery with emf $\varepsilon = 18\text{V}$. The current i through the battery just after the switch closed is : [NEET 2017]



- (1) 0.2 A (2) 2 A
 (3) 0 Ampere (4) 2 mA

- Q.7** The magnetic potential energy stored in a certain inductor is 25 mJ, when the current in the inductor is 60mA. This inductor is of inductance [NEET-2018]
 (1) 1.389 H (2) 138.88 H
 (3) 0.138 H (4) 13.89 H

- Q.8** In which of the following devices, the eddy current effect is not used ? [NEET-2019]

- (1) induction furnace (2) magnetic braking in train
 (3) electromagnet (4) electric heater

- Q.9** A 800 turn coil of effective area 0.05 m^2 is kept perpendicular to a magnetic field $5 \times 10^{-5} \text{ T}$. When the plane of the coil is rotated by 90° around any of its coplanar axis in 0.1 s, the emf induced in the coil will be: [NEET-2019]

- (1) 2 V (2) 0.2 V
 (3) $2 \times 10^{-3} \text{ V}$ (4) 0.02 V

- Q.10** Two conducting circular loops of radii R_1 and R_2 are placed in the same plane with their centres coinciding. If $R_1 \gg R_2$, the mutual inductance M between them will be directly proportional to : [NEET-2021]

- (1) $\frac{R_2}{R_1}$ (2) $\frac{R_1^2}{R_2}$ (3) $\frac{R_2^2}{R_1}$ (4) $\frac{R_1}{R_2}$

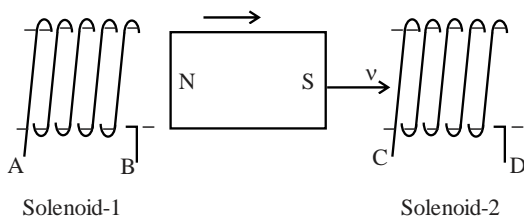
Q.11 A big circular coil of 1000 turns and average radius 10 m is rotating about its horizontal diameter at 2 rad s^{-1} . If the vertical component of earth's magnetic field at that place is $2 \times 10^{-5} \text{ T}$ and electrical resistance of the coil is 12.56Ω , then the maximum induced current in the coil will be [NEET-2022]

- (1) 1.5 A (2) 1 A
(3) 2 A (4) 0.25 A

Q.12 The magnetic energy stored in an inductor of inductance $4 \mu\text{H}$ carrying a current of 2 A is : [NEET-2023]

- (1) 4 mJ (2) 8 mJ
(3) $8 \mu\text{J}$ (4) $4 \mu\text{J}$

Q.13



In the above diagram, a strong bar magnet is moving towards solenoid-2 from solenoid-1. The direction of induced current in solenoid-1 and that in solenoid-2, respectively, are through the directions:

[NEET 2024]

- (1) BA and DC (2) AB and DC
(3) BA and CD (4) AB and CD

Q.14 Let us consider two solenoids A and B, made from same magnetic material of relative permeability μ_r and equal area of cross-section. Length of A is twice that of B and the number of turns per unit length in A is half that of B. The ratio of self inductances of the two solenoids, $L_A : L_B$ is: [Re-NEET 2024]

- (1) 1:2 (2) 2:1 (3) 8:1 (4) 1:8

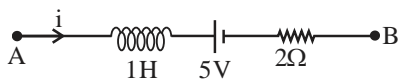
Q.15 The amplitude of the charge oscillating in a circuit decreases exponentially as $Q = Q_0 e^{-Rt/2L}$, where Q_0 is the charge at $t = 0$ s. The time at which charge amplitude decreases to $0.50 Q_0$ is nearly:

[Given that $R = 1.5 \Omega$, $L = 12 \text{ mH}$, $\ln(2) = 0.693$]

[Re-NEET 2024]

- (1) 19.01ms (2) 11.09 ms
(3) 19.01s (4) 11.09 s

Q.16 AB is a part of an electrical circuit (see figure). The potential difference " $V_A - V_B$ ", at the instant when current $i = 2 \text{ A}$ and is increasing at a rate of 1 amp/second is : [NEET-2025]



- (1) 5 volt (2) 6 volt
(3) 9 volt (4) 10 volt

Alternating Current

Q.1 Which of the following combinations should be selected for better tuning of an L-C-R circuit used for communication? [NEET-II 2016]

- (1) $R = 20\Omega$, $L = 1.5 \text{ H}$, $C = 35 \mu\text{F}$
(2) $R = 25\Omega$, $L = 2.5 \text{ H}$, $C = 45 \mu\text{F}$
(3) $R = 15\Omega$, $L = 3.5 \text{ H}$, $C = 30 \mu\text{F}$
(4) $R = 25\Omega$, $L = 1.5 \text{ H}$, $C = 45 \mu\text{F}$

Q.2 A small signal voltage $V(t) = V_0 \sin \omega t$ is applied across an ideal capacitor C [NEET -2016]

- (1) Current $I(t)$ is in phase with voltage $V(t)$.
(2) Current $I(t)$ leads voltage $V(t)$ by 180° .
(3) Current $I(t)$ lags voltage $V(t)$ by 90° .
(4) Over a full cycle, the capacitor C does not consume any energy from the voltage source.

Q.3 The potential differences across the resistance, capacitance and inductance are 80V, 40 V and 100 V respectively in an L-C-R circuit. The power factor of this circuit is : [NEET-II 2016]

- (1) 0.4 (2) 0.5 (3) 0.8 (4) 1.0

Q.4 A series R-C circuit is connected to an alternating voltage source. Consider two situations :

- (a) When capacitor is air filled.
(b) when capacitor is mica filled.

Current through resistor is i and voltage across capacitor is V then [AIPMT - 2016]

- (1) $i_a = i_b$ (2) $V_a = V_b$
(3) $V_a < V_b$ (4) $V_a > V_b$

Q.5 An inductor 20 mH, a capacitor $50 \mu\text{F}$ and a resistor 40Ω are connected in series across a source of emf $V = 10 \sin 340 t$. The power loss in A.C. circuit is [NEET - 2016]

- (1) 0.76 W (2) 0.89 W
(3) 0.51 W (4) 0.67 W

Q.6 An inductor 20 mH, a capacitor $100 \mu\text{F}$ and a resistor 50Ω are connected in series across a source of emf, $V = 10 \sin 314t$. The power loss in the circuit is [NEET-2018]

- (1) 2.74 W (2) 0.43 W (3) 0.79 W (4) 1.13 W

Q.7 A series LCR circuit is connected to an ac voltage source. When L is removed from the circuit, the

phase difference between current and voltage is $\frac{\pi}{3}$.

If instead C is removed from the circuit, the phase

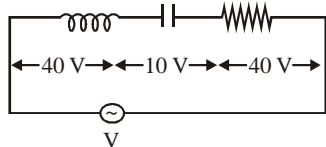
difference is again $\frac{\pi}{3}$ between current and voltage.

The power factor of the circuit is : [NEET-2020]

- (1) 0.5 (2) 1.0 (3) -1.0 (4) zero

- Q.8** An inductor of inductance L , a capacitor of capacitance C and a resistor of resistance ' R ' are connected in series to an ac source of potential difference ' V ' volts as shown in figure.

Potential difference across L , C and R is 40 V, 10 V and 40 V, respectively. The amplitude of current flowing through LCR series circuit is $10\sqrt{2}$ A. The impedance of the circuit is : [NEET-2021]



- (1) $5/\sqrt{2}\Omega$ (2) 4Ω (3) 5Ω (4) $4/\sqrt{2}\Omega$

- Q.9** A step down transformer connected to an ac mains supply of 220 V is made to operate at 11 V, 44 W lamp. Ignoring power losses in the transformer, what is the current in the primary circuit? [NEET-2021]

- (1) 0.4 A (2) 2 A (3) 4 A (4) 0.2 A

- Q.10** A series LCR circuit containing 5.0 H inductor, $80\mu\text{F}$ capacitor and 40Ω resistor is connected to 230 V variable frequency ac source. The angular frequencies of the source at which power transferred to the circuit is half the power at the resonant angular frequency are likely to be" [NEET-2021]

- (1) 50 rad/s and 25 rad/s (2) 46 rad/s and 54 rad/s
(3) 42 rad/s and 58 rad/s (4) 25 rad/s and 75 rad/s

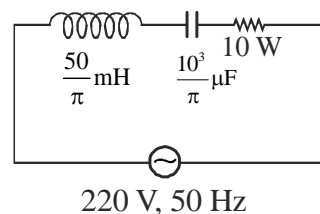
- Q.11** A series LCR circuit with inductance 10 H, capacitance $10\mu\text{F}$, resistance 50Ω is connected to an ac source of voltage, $V = 200 \sin(100t)$ volt. If the resonant frequency of the LCR circuit is ν_0 and the frequency of the ac source is ν , then [NEET-2022]

- (1) $\nu_0 = \nu = \frac{50}{\pi}$ Hz
(2) $\nu_0 = \frac{50}{\pi}$ Hz, $\nu = 50$ Hz
(3) $\nu = 100$ Hz; $\nu_0 = \frac{100}{\pi}$ Hz
(4) $\nu_0 = \nu = 50$ Hz

- Q.12** The peak voltage of the ac source is equal to : [NEET-2022]

- (1) The rms value of the ac source
(2) $\sqrt{2}$ times the rms value of the ac source
(3) $\frac{1}{\sqrt{2}}$ time the rms value of the ac source
(4) the value of voltage supplied to the circuit.

- Q.13** The net impedance of circuit (as shown in figure) will be : [NEET-2023]



- (1) 15Ω (2) $5\sqrt{5}\Omega$
(3) 25Ω (4) $10\sqrt{2}\Omega$

- Q.14** A 12 V, 60 W lamp is connected to the secondary of a step down transformer, whose primary is connected to ac mains of 220 V. Assuming the transformer to be ideal, what is the current in the primary winding ? [NEET-2023]

- (1) 2.7 A (2) 3.7 A
(3) 0.37 A (4) 0.27 A

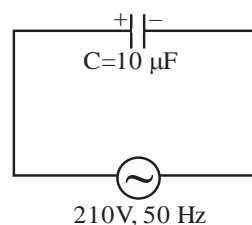
- Q.15** In a series LCR circuit, the inductance L is 10 mH, capacitance C is $1\mu\text{F}$ and resistance R is 100Ω . The frequency at which resonance occurs is : [NEET-2023]

- (1) 15.9 kHz (2) 1.59 rad/s
(3) 1.59 kHz (4) 15.9 rad/s

- Q.16** In an ideal transformer, the turns ratio is $\frac{N_p}{N_s} = \frac{1}{2}$. The ratio $V_s : V_p$ is equal to (the symbols carry their usual meaning) : [NEET-2024]

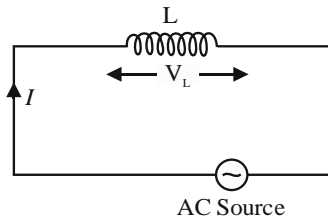
- (1) 1 : 4 (2) 1 : 2
(3) 2 : 1 (4) 1 : 1

- Q.17** A $10\mu\text{F}$ capacitor is connected to a 210 V, 50 Hz source as shown in figure. The peak current in the circuit is : nearly ($\pi = 3.14$) [NEET-2024]



- (1) 0.35 A (2) 0.58 A
(3) 0.93 A (4) 1.20 A

- Q.18** In the circuit shown below, the inductance L is connected to an ac source. The current flowing in the circuit is $I = I_0 \sin \omega t$. The voltage drop (V_L) across L is: [Re-NEET 2024]



- (1) $\omega L I_0 \sin \omega t$ (2) $\frac{I_0}{\omega L} \sin \omega t$
 (3) $\frac{I_0}{\omega L} \cos \omega t$ (4) $\omega L I_0 \cos \omega t$

- Q.19** A step up transformer is connected to an ac mains supply of 220 V to operate at 11000 V, 88 watt. The current in the secondary circuit, ignoring the power loss in the transformer, is: [Re-NEET 2024]
 (1) 8 mA (2) 4 mA (3) 0.4 A (4) 4 A

- Q.20** To an ac power supply of 220 V at 50 Hz, a resistor of 20Ω , a capacitor of reactance 25Ω and an inductor of reactance 45Ω are connected in series. The corresponding current in the circuit and the phase angle between the current and the voltage is, respectively- [NEET-2025]

- (1) 7.8 A and 30° (2) 7.8 A and 45°
 (3) 15.6 A and 30° (4) 15.6 A and 45°

Electromagnetic Waves

- Q.1** Out of the following options which one can be used to produce a propagating electromagnetic wave [NEET Phase I-2016]

- (1) A chargeless particle
 (2) An accelerating charge
 (3) A charge moving at constant velocity
 (4) A stationary charge

- Q.2** A 100Ω resistance and a capacitor of 100Ω reactance are connected in series across a 220 V source. When the capacitor is 50% charged, the peak value of the displacement current is : [NEET Phase II-2016]

- (1) 2.2 A (2) 11 A (3) 4.4 A (4) $11\sqrt{2}$ A

- Q.3** In an electromagnetic wave in free space the root mean square value of the electric field is $E_{\text{rms}} = 6 \text{ Vm}^{-1}$. The peak value of the magnetic field is : [NEET-2017]

- (1) $2.83 \times 10^{-8} \text{ T}$ (2) $0.70 \times 10^{-8} \text{ T}$
 (3) $4.23 \times 10^{-8} \text{ T}$ (4) $1.41 \times 10^{-8} \text{ T}$

- Q.4** An EM wave is propagating in a medium with a velocity $\vec{V} = V \hat{i}$. The instantaneous oscillating electric field of this EM wave is along +y axis. Then the direction of oscillating magnetic field of the EM wave will be along [NEET-2018]

- (1) -y direction (2) +z direction
 (3) -z direction (4) -x direction

- Q.5** Which colour of the light has the longest wavelength? [NEET-2019]

- (1) red (2) blue
 (3) green (4) violet

- Q.6** The ratio of contributions made by the electric field and magnetic field components to the intensity of an electromagnetic wave is : [NEET-2020]

- (1) 1 : 1 (2) 1 : c
 (3) 1 : c^2 (4) c : 1

- Q.7** A capacitor of capacitance 'C', is connected across an ac source of voltage V, given by $V = V_0 \sin \omega t$. The displacement current between the plates of the capacitor, would then be given by [NEET-2021]

- (1) $I_d = \frac{V_0}{\omega C} \cos \omega t$ (2) $I_d = \frac{V_0}{\omega C} \sin \omega t$
 (3) $I_d = V_0 \omega C \sin \omega t$ (4) $I_d = V_0 \omega C \cos \omega t$

- Q.8** Match List-I with List-II

	List-I (Electromagnetic waves)		List-II (Wavelength)
(a)	AM radio waves	(i)	10^{-10} m
(b)	Microwaves	(ii)	10^2 m
(c)	Infrared radiations	(iii)	10^{-2} m
(d)	X-rays	(iv)	10^{-4} m

Choose the **correct** answer from the options given below : [NEET-2022]

- (1) (a)-(iii), (b) - (ii), (c) - (i), (d) - (iv)
 (2) (a) - (iii), (b) - (iv), (c) - (ii), (d) - (i)
 (3) (a) - (ii), (b) - (iii), (c) - (iv), (d) - (i)
 (4) (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)

- Q.9** When light propagates through a material medium of relative permittivity ϵ_r and relative permeability μ_r , the velocity of light, v is given by : (c-velocity of light in vacuum) [NEET-2022]

- (1) $v = \sqrt{\frac{\mu_r}{\epsilon_r}}$ (2) $v = \sqrt{\frac{\epsilon_r}{\mu_r}}$
 (3) $v = \frac{c}{\sqrt{\epsilon_r \mu_r}}$ (4) $v = c$

- Q.10** In a plane electromagnetic wave travelling in free space, the electric field component oscillates sinusoidally at a frequency of 2.0×10^{10} Hz and amplitude 48 Vm^{-1} . Then the amplitude of oscillating magnetic field is : (Speed of light in free space = $3 \times 10^8 \text{ ms}^{-1}$) [NEET-2023]
 (1) $1.6 \times 10^{-8} \text{ T}$ (2) $1.6 \times 10^{-7} \text{ T}$
 (3) $1.6 \times 10^{-6} \text{ T}$ (4) $1.6 \times 10^{-9} \text{ T}$
- Q.11** An ac source is connected to a capacitor C. Due to decrease in its operating frequency : [NEET-2023]
 (1) displacement current increases.
 (2) displacement current decreases.
 (3) capacitive reactance remains constant.
 (4) capacitive reactance decreases.
- Q.12** A parallel plate capacitor is charged by connecting it to a battery through a resistor. If I is the current in the circuit, then in the gap between the plates: [NEET-2024]
 (1) Displacement current of magnitude greater than I flows but can be in any direction
 (2) There is no current
 (3) Displacement current of magnitude equal to I flows in the same direction as I
 (4) Displacement current of magnitude equal to I flows in a direction opposite to that of I
- Q.13** The electromagnetic radiation which has the smallest wavelength are: [Re-NEET 2024]
 (1) X-rays (2) Gamma rays
 (3) Ultraviolet rays (4) Microwaves
- Q.14** If the ratio of relative permeability and relative permittivity of the uniform medium is 1 : 4. The ratio of the magnitudes of electric field intensity (E) to the magnetic field intensity (H) of an EM wave propagating in that medium is: [Re-NEET 2024]
 (Given that $\sqrt{\frac{\mu_0}{\epsilon_0}} = 120\pi$):
 (1) $30\pi : 1$ (2) $1 : 120\pi$
 (3) $60\pi : 1$ (4) $120\pi : 1$
- Q.15** The electric field in a plane electromagnetic wave is given by [NEET-2025]
 $E_z = 60 \cos(5x + 1.5 \times 10^9 t) \text{ V/m}$.
 Then expression for the corresponding magnetic field is (here subscripts denote the direction of the field):
 (1) $B_y = 2 \times 10^{-7} \cos(5x + 1.5 \times 10^9 t) \text{ T}$
 (2) $B_x = 2 \times 10^{-7} \cos(5x + 1.5 \times 10^9 t) \text{ T}$
 (3) $B_z = 60 \cos(5x + 1.5 \times 10^9 t) \text{ T}$
 (4) $B_y = 60 \sin(5x + 1.5 \times 10^9 t) \text{ T}$
- Q.16** A parallel plate capacitor made of circular plates is being charged such that the surface charge density on its plates is increasing at a constant rate with time. The magnetic field arising due to displacement current is [NEET-2025]
 (1) zero at all places
 (2) constant between the plates and zero outside the plates
 (3) non-zero everywhere with maximum at the imaginary cylindrical surface connecting peripheries of the plates
 (4) zero between the plates and non-zero outside

Ray Optics and Optical Instruments

- Q.1** An astronomical telescope has objective and eyepiece of focal lengths 40 cm and 4 cm respectively. To view an object 200 cm away from the objective, the lenses must be separated by a distance : [NEET 2016]
 (1) 50.0 cm (2) 54.0 cm
 (3) 37.3 cm (4) 46.0 cm
- Q.2** The angle of incidence for a ray of light at a refracting surface of a prism is 45° . The angle of prism is 60° . If the ray suffers minimum deviation through the prism, the angle of minimum deviation and refractive index of the material of the prism respectively, are : [NEET- 2016]
 (1) $45^\circ; \sqrt{2}$ (2) $30^\circ; \frac{1}{\sqrt{2}}$
 (3) $45^\circ; \frac{1}{\sqrt{2}}$ (4) $30^\circ; \sqrt{2}$
- Q.3** Match the corresponding entries of Column 1 with Column 2. [Where m is the magnification produced by the mirror] [NEET-2016]

Column - I	Column - II
(A) $m = -2$	(p) Convex mirror
(B) $m = -\frac{1}{2}$	(q) Concave mirror
(C) $m = +2$	(r) Real image
(D) $m = +\frac{1}{2}$	(s) Virtual image

 (1) A \rightarrow p and s; B \rightarrow q and C \rightarrow q and s; D \rightarrow q and r
 (2) A \rightarrow r and s; B \rightarrow q and s; C \rightarrow q and r; D \rightarrow p and s
 (3) A \rightarrow q and r; B \rightarrow q and r; C \rightarrow q and s; D \rightarrow p and s
 (4) A \rightarrow p and r; B \rightarrow p and s; C \rightarrow p and q; D \rightarrow r and s
- Q.4** Two identical glass ($\mu_g = 3/2$) equiconvex lenses of focal length f each are kept in contact. The space between the two lenses is filled with water ($\mu_w = 4/3$). The focal length of the combination is [NEET-2016]
 (1) $f/3$ (2) f (3) $4f/3$ (4) $3f/4$

Q.5 An air bubble in a glass slab with refractive index 1.5 (near normal incidence) is 5 cm deep when viewed from one surface and 3 cm deep when viewed from the opposite face. The thickness (in cm) of the slab is : **[NEET-II 2016]**

- (1) 8 (2) 10 (3) 12 (4) 16

Q.6 A beam of light from a source L is incident normally on a plane mirror fixed at a certain distance x from the source. The beam is reflected back as a spot on a scale placed just above the source L. When the mirror is rotated through a small angle θ , the spot of the light is found to move through a distance y on the scale. The angle θ is given by : **[NEET 2017]**

- (1) $\frac{y}{x}$ (2) $\frac{x}{2y}$ (3) $\frac{x}{y}$ (4) $\frac{y}{2x}$

Q.7 An astronomical refracting telescope will have large angular magnification and high angular resolution, when it has an objective lens of **[NEET-2018]**

- (1) Large focal length and large diameter
(2) Large focal length and small diameter
(3) Small focal length and large diameter
(4) Small focal length and small diameter

Q.8 Pick the wrong answer in the context with rainbow. **[NEET-2019]**

- (1) When the light rays undergo two internal reflections in a water drop, a secondary rainbow is formed.
(2) The order of colours is reversed in the secondary rainbow.
(3) An observer can see a rainbow when his front is towards the sun.
(4) Rainbow is a combined effect of dispersion, refraction and reflection of sunlight.

Q.9 In total internal reflection, when the angle of incidence is equal to the critical angle for the pair of media in contact, what will be angle of refraction ? **[NEET-2019]**

- (1) 180°
(2) 0°
(3) equal to angle of incidence
(4) 90°

Q.10 Two similar thin equi-convex lenses, of focal length f each, are kept coaxially in contact with each other such that the focal length of the combination is F_1 . When the space between the two lenses is filled with glycerin (which has the same refractive index ($\mu = 1.5$) as that of glass) then the equivalent focal length is F_2 . The ratio $F_1 : F_2$ will be : **[NEET-2019]**

- (1) 2 : 1 (2) 1 : 2
(3) 2 : 3 (4) 3 : 4

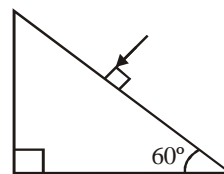
Q.11 A ray is incident at an angle of incidence i on one surface of a small angle prism (with angle of prism A) and emerges normally from the opposite surface. If the refractive index of the material of the prism is μ , then the angle of incidence is nearly equal to : **[NEET-2020]**

- (1) $\frac{2A}{\mu}$ (2) μA (3) $\frac{\mu A}{2}$ (4) $\frac{A}{2\mu}$

Q.12 A convex lens 'A' of focal length 20 cm and a concave lens 'B' of focal length 5 cm are kept along the same axis with a distance 'd' between them. If a parallel beam of light falling on 'A' leaves 'B' as a parallel beam, then the distance 'd' in cm will be **[NEET-2021]**

- (1) 15 (2) 50 (3) 30 (4) 25

Q.13 Find the value of the angle of emergence from the prism. Refractive index of the glass is $\sqrt{3}$. **[NEET-2021]**

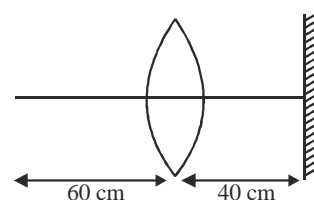


- (1) 30° (2) 45° (3) 90° (4) 60°

Q.14 A lens of large focal length and large aperture is best suited as an objective of an astronomical telescope since : **[NEET-2021]**

- (1) a large aperture contributes to the quality and visibility of the images.
(2) a large area of the objective ensures better light gathering power.
(3) a large aperture provides a better resolution
(4) all of the above

Q.15 A point object is placed at a distance of 60 cm from a convex lens of focal length 30 cm. If a plane mirror were put perpendicular to the principal axis of the lens and at a distance of 40 cm from it, the final image would be formed at a distance of **[NEET-2021]**



- (1) 30 cm from the lens, it would be a real image.
(2) 30 cm from the plane mirror, it would be a virtual image.
(3) 20 cm from the plane mirror, it would be a virtual image.
(4) 20 cm from the lens, it would be a real image.

Q.16 Two transparent media A and B are separated by a plane boundary. The speed of light in those media are 1.5×10^8 m/s and 2.0×10^8 m/s, respectively. The critical angle for a ray of light for these two media is? [NEET-2022]

- (1) $\sin^{-1}(0.750)$ (2) $\tan^{-1}(0.500)$
 (3) $\tan^{-1}(0.750)$ (4) $\sin^{-1}(0.500)$

Q.17 A light ray falls on a glass surface of refractive index $\sqrt{3}$, at an angle 60° . The angle between the refracted and reflected rays would be : [NEET-2022]

- (1) 60° (2) 90°
 (3) 120° (4) 30°

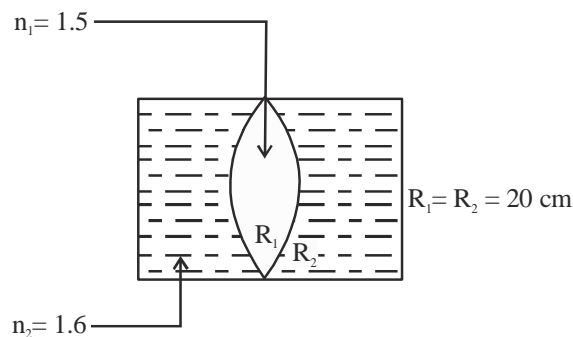
Q.18 A biconvex lens has radii of curvature, 20 cm each. If the refractive index of the material of the lens is 1.5, the power of the lens is : - [NEET-2022]

- (1) + 20 D (2) + 5D
 (3) Infinity (4) + 2D

Q.19 Two thin lenses are of same focal lengths (f), but one is convex and the other one is concave. When they are placed in contact with each other, the equivalent focal length of the combination will be [NEET-2023]

- (1) $f/4$ (2) $f/2$
 (3) Infinite (4) Zero

Q.20 In the figure shown here, what is the equivalent focal length of the combination of lenses (Assume that all layers are thin) ? [NEET-2023]

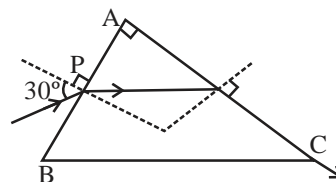


- (1) - 40 cm (2) -100 cm
 (3) - 50 cm (4) 40 cm

Q.21 Light travels a distance x in time t_1 in air and $10x$ in time t_2 in another denser medium. What is the critical angle for this medium ? [NEET-2023]

- (1) $\sin^{-1}\left(\frac{10t_2}{t_1}\right)$ (2) $\sin^{-1}\left(\frac{t_1}{10t_2}\right)$
 (3) $\sin^{-1}\left(\frac{10t_1}{t_2}\right)$ (4) $\sin^{-1}\left(\frac{t_2}{t_1}\right)$

Q.22 A light ray enters through a right angled prism at point P with the angle of incidence 30° as shown in figure. It travels through the prism parallel to its base BC and emerges along the face AC. The refractive index of the prism is: [NEET-2024]



- (1) $\frac{\sqrt{3}}{2}$ (2) $\frac{\sqrt{5}}{4}$
 (3) $\frac{\sqrt{5}}{2}$ (4) $\frac{\sqrt{3}}{4}$

Q.23 A small telescope has an objective of focal length 140 cm and an eye piece of focal length 5.0 cm. The magnifying power of telescope for viewing a distant object is : [NEET-2024]

- (1) 32 (2) 34
 (3) 28 (4) 17

Q.24 A microscope has an objective of focal length 2 cm, eyepiece of focal length 4 cm and the tube length of 40 cm. If the distance of distinct vision of eye is 25 cm, the magnification in the microscope is : [NEET-2025]

- (1) 100 (2) 125
 (3) 150 (4) 250

Q.25 In a certain camera, a combination of four similar thin convex lenses are arranged axially in contact. Then the power of the combination and the total magnification in comparison to the power (p) and magnification (m) for each lens will be, respectively [NEET-2025]

- (1) $4p$ and $4m$ (2) p^4 and $4m$
 (3) $4p$ and m^4 (4) p^4 and m^4

Wave Optics

Q.1 Two slits in Young's experiment have widths in the ratio 1 : 25. The ratio of intensity at the maxima and minima

in the interference pattern, $\frac{I_{\max}}{I_{\min}}$ is [AIPMT - 2015]

- (1) $\frac{49}{121}$ (2) $\frac{4}{9}$ (3) $\frac{9}{4}$ (4) $\frac{121}{49}$

Q.2 At the first minimum adjacent to the central maximum of a single-slit diffraction pattern, the phase difference between the Huygen's wavelet from the edge of the slit and the wavelet from the midpoint of the slit is [AIPMT - 2015]

- (1) π radian (2) $\frac{\pi}{8}$ radian (3) $\frac{\pi}{4}$ radian (4) $\frac{\pi}{2}$ radian

Q.3 A linear aperture whose width is 0.02 cm is placed immediately in front of a lens of focal length 60 cm. The aperture is illuminated normally by a parallel beam of wavelength 5×10^{-5} cm. The distance of the first dark band of the diffraction pattern from the centre of the screen is [NEET - 2016]

- (1) 0.10 cm (2) 0.25 cm
(3) 0.20 cm (4) 0.15 cm

Q.4 The interference pattern is obtained with two coherent light sources of intensity ratio n . In the interference

pattern, the ratio $\frac{I_{\max} - I_{\min}}{I_{\max} + I_{\min}}$ will be

[NEET Phase-II - 2016]

- (1) $\frac{\sqrt{n}}{n+1}$ (2) $\frac{2\sqrt{n}}{n+1}$ (3) $\frac{\sqrt{n}}{(n+1)^2}$ (4) $\frac{2\sqrt{n}}{(n+1)^2}$

Q.5 The intensity at the maximum in a Young's double slit experiment is I_0 . Distance between two slits is $d = 5\lambda$, where λ is the wavelength of light used in the experiment, what be the intensity in front of one of the slits on the screen placed at a distance $D = 10d$?

[NEET Phase I - 2016]

- (1) $\frac{3}{4}I_0$ (2) $\frac{I_0}{2}$ (3) I_0 (4) $\frac{I_0}{4}$

Q.6 Young's double slit experiment is first performed in air and then in a medium other than air. It is found that 8th bright fringe in the medium lies where 5th dark fringe lies in air. The refractive index of the medium is nearly. [NEET 2017]

- (1) 1.59 (2) 1.69 (3) 1.78 (4) 1.25

Q.7 Two polaroids P_1 and P_2 are placed with their axis perpendicular to each other. Unpolarised light I_0 is incident on P_1 . A third polaroid P_3 is kept in between P_1 and P_2 such that its axis makes an angle 45° with that of P_1 . The intensity of transmitted light through P_2 is : [NEET 2017]

- (1) $\frac{I_0}{4}$ (2) $\frac{I_0}{8}$ (3) $\frac{I_0}{16}$ (4) $\frac{I_0}{2}$

Q.8 Unpolarised light is incident from air on a plane surface of a material of refractive index ' μ '. At a particular angle of incidence ' i ', it is found that the reflected and refracted rays are perpendicular to each other. Which of the following options is correct for this situation? [NEET-2018]

(1) $i = \sin^{-1}\left(\frac{1}{\mu}\right)$

(2) Reflected light is polarised with its electric vector perpendicular to the plane of incidence

(3) Reflected light is polarised with its electric vector parallel to the plane of incidence

(4) $i = \tan^{-1}\left(\frac{1}{\mu}\right)$

Q.9 In Young's double slit experiment the separation d between the slits is 2 mm, the wavelength λ of the light used is 5896 \AA and distance D between the screen and slits is 100 cm. It is found that the angular width of the fringes is 0.20° . To increase the fringe angular width to 0.21° (with same λ and D) the separation between the slits needs to be changed to [NEET-2018]

- (1) 2.1 mm (2) 1.9 mm
(3) 1.8 mm (4) 1.7 mm

Q.10 In a double slit experiment, when light of wavelength 400 nm was used, the angular width of the first minima formed on a screen placed 1m away, was found to be 0.2° . What will be the angular width of the first minima, if the entire experimental apparatus is immersed in water ($\mu_{\text{water}} = 4/3$) [NEET-2019]

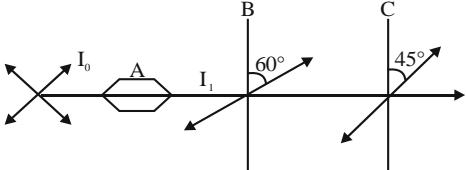
- (1) 0.266° (2) 0.15°
(3) 0.05° (4) 0.1°

Q.11 In Young's double slit experiment, if the separation between coherent sources is halved and the distance of the screen from the coherent sources is doubled, then the fringe width becomes : [NEET-2020]

- (1) half (2) four times
(3) one-fourth (4) double

Q.12 The Brewsters angle i_b for an interface should be [NEET-2020]

- (1) $30^\circ < i_b < 45^\circ$ (2) $45^\circ < i_b < 90^\circ$
(3) $i_b = 90^\circ$ (4) $0^\circ < i_b < 30^\circ$

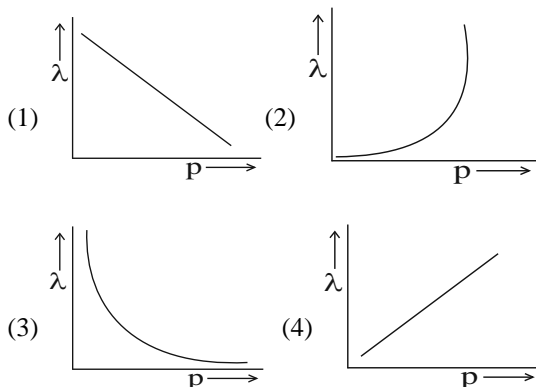
- Q.13** Assume that light of wavelength 600 nm is coming from a star. The limit of resolution of telescope whose objective has a diameter of 2 m is :
[NEET-2020]
(1) 1.83×10^{-7} rad (2) 7.32×10^{-7} rad
(3) 6.00×10^{-7} rad (4) 3.66×10^{-7} rad
- Q.14** In a Young's double slit experiment, a student observes 8 fringes in a certain segment of screen when a monochromatic light of 600 nm wavelength is used. If the wavelength of light is changed to 400 nm, then the number of fringes he would observe in the same region of the screen is : [NEET-2022]
(1) 8 (2) 9 (3) 12 (4) 6
- Q.15** For Young's double slit experiment, two statements are given below : [NEET-2023]
Statement I : If screen is moved away from the plane of slits, angular separation of the fringes remains constant.
Statement II : If the monochromatic source is replaced by another monochromatic source of larger wavelength, the angular separation of fringes decreases.
In the light of the above statements, choose the correct answer from the options given below :
(1) Both **Statement I** and **Statement II** are false
(2) **Statement I** is true but **Statement II** is false
(3) **Statement I** is false but **Statement II** is true
(4) Both **Statement I** and **Statement II** are true
- Q.16** If the monochromatic source in Young's double slit experiment is replaced by white light, then [NEET-2024]
(1) All bright fringes will be of equal width
(2) Interference pattern will disappear
(3) There will be a central dark fringe surrounded by a few coloured fringes
(4) There will be a central bright white fringe surrounded by a few coloured fringes
- Q.17** An unpolarised light beam strikes a glass surface at Brewster's angle. Then [NEET-2024]
(1) The reflected light will be completely polarised but the refracted light will be partially polarised.
(2) The reflected light will be partially polarised.
(3) The refracted light will be completely polarised.
(4) Both the reflected and refracted light will be completely polarised.
- Q.18** Two slits in Young's double slit experiment are 1.5 mm apart and the screen is placed at a distance of 1 m from the slits. If the wavelength of light used is 600×10^{-9} m then the fringe separation is: [Re-NEET 2024]
(1) 4×10^{-5} m (2) 9×10^{-8} m
(3) 4×10^{-7} m (4) 4×10^{-4} m
- Q.19** Interference pattern can be observed due to superposition of the following waves:
(A) $y = a \sin \omega t$ (B) $y = a \sin 2\omega t$
(C) $y = a \sin(\omega t - \phi)$ (D) $y = a \sin 3\omega t$
Choose the correct answer from the options given below. [Re-NEET 2024]
(1) B and C (2) B and D (3) A and C (4) A and B
- Q.20** A beam of unpolarized light of intensity I_0 is passed through a Polaroid A, then through another Polaroid B, oriented at 60° and finally through another Polaroid C, oriented at 45° relative to B as shown. The intensity of emergent light is: [Re-NEET 2024]
- 
- (1) $\frac{I_0}{16}$ (2) $\frac{I_0}{4}$ (3) $\frac{I_0}{2}$ (4) $\frac{I_0}{32}$
- Q.21** The intensity of transmitted light when a polaroid sheet, placed between two crossed polaroids at 22.5° from the polarization axis of one of the polaroid, is (I_0 is the intensity of polarised light after passing through the first polaroid) : [NEET-2025]
(1) $\frac{I_0}{2}$ (2) $\frac{I_0}{4}$ (3) $\frac{I_0}{8}$ (4) $\frac{I_0}{16}$
- Q.22** An unpolarized light beam travelling in air is incident on a medium of refractive index 1.73 at Brewster's angle. Then - [NEET-2025]
(1) reflected light is completely polarized and the angle of reflection is close to 60°
(2) reflected light is partially polarized and the angle of reflection is close to 30°
(3) both reflected and transmitted light are perfectly polarized with angles of reflection and refraction close to 60° and 30° , respectively
(4) transmitted light is completely polarized with angle of refraction close to 30°

Dual Nature of Matter and Radiation

- Q.1** A photoelectric surface is illuminated successively by monochromatic light of wavelength λ and $\frac{\lambda}{2}$. If the maximum kinetic energy of the emitted photoelectrons in the second case is 3 times that in the first case, the work function of the surface of the material is (h = Planck's constant, c = speed of light) [AIPMT - 2015]
(1) $\frac{2hc}{\lambda}$ (2) $\frac{hc}{3\lambda}$ (3) $\frac{hc}{2\lambda}$ (4) $\frac{hc}{\lambda}$

- Q.2** Light of wavelength 500 nm is incident on a metal with work function 2.28 eV. The de Broglie wavelength of the emitted electron is [AIPMT - 2015]
 (1) $\geq 2.8 \times 10^{-9}$ m (2) $\leq 2.8 \times 10^{-12}$ m
 (3) $< 2.8 \times 10^{-10}$ m (4) $< 2.8 \times 10^{-9}$ m
- Q.3** An electron of mass m and a photon have same energy E in the range of a few eV. The ratio of de-Broglie wavelength associated with the electron and the wavelength of the photon is (c = speed of light in vacuum). [NEET Phase I - 2016]
 (1) $c(2mE)^{\frac{1}{2}}$ (2) $\frac{1}{c} \left(\frac{2m}{E} \right)^{\frac{1}{2}}$
 (3) $\frac{1}{c} \left(\frac{E}{2m} \right)^{\frac{1}{2}}$ (4) $\left(\frac{E}{2m} \right)^{\frac{1}{2}}$
- Q.4** Photon with energy 5 eV are incident on a cathode C in a photoelectric cell. The maximum energy of emitted photoelectrons is 2 eV. When photons of energy 6 eV are incident on C, no photoelectrons will reach the anode A, if the stopping potential of A relative to C is [NEET Phase II - 2016]
 (1) +3 V (2) +4V (3) -1V (4) -3V
- Q.5** The de-Broglie wavelength of a neutron in thermal equilibrium with heavy water at a temperature T (Kelvin) and mass m , is : [NEET 2017]
 (1) $\frac{h}{\sqrt{3mkT}}$ (2) $\frac{2h}{\sqrt{3mkT}}$
 (3) $\frac{2h}{\sqrt{mkT}}$ (4) $\frac{h}{\sqrt{mkT}}$
- Q.6** The photoelectric threshold wavelength of silver is 3250×10^{-10} m. The velocity of the electron ejected from a silver surface by ultraviolet light of wavelength 2536×10^{-10} m is : [NEET2017]
 [Given : $h = 4.14 \times 10^{-15}$ eVs and $c = 3 \times 10^8$ ms $^{-1}$]
 (1) $\approx 6 \times 10^6$ ms $^{-1}$ (2) $\approx 61 \times 10^3$ ms $^{-1}$
 (3) $\approx 0.3 \times 10^6$ ms $^{-1}$ (4) $\approx 6 \times 10^5$ ms $^{-1}$
- Q.7** An electron of mass m with an initial velocity $\vec{V} = V_0 \hat{i}$ ($V_0 > 0$) enters an electric field $\vec{E} = -E_0 \hat{i}$ ($E_0 = \text{constant} > 0$) at $t = 0$. If λ_0 is its de-Broglie wavelength initially, then its de-Broglie wavelength at time t is [NEET-2018]
 (1) $\lambda_0 t$ (2) $\lambda_0 \left(1 + \frac{eE_0}{mV_0} t \right)$
 (3) $\frac{\lambda_0}{\left(1 + \frac{eE_0}{mV_0} t \right)}$ (4) λ_0
- Q.8** When the light of frequency $2\nu_0$ (where ν_0 is threshold frequency), is incident on a metal plate, the maximum velocity of electrons emitted is v_1 . When the frequency of the incident radiation is increased to $5\nu_0$, the maximum velocity of electrons emitted from the same plate is v_2 . The ratio of v_1 to v_2 is [NEET-2018]
 (1) 4 : 1 (2) 1 : 4 (3) 1 : 2 (4) 2 : 1
- Q.9** The energy required to break one bond in DNA is 10^{-20} J. This value in eV is nearly: [NEET-2020]
 (1) 0.6 (2) 0.06 (3) 0.006 (4) 6
- Q.10** An electron is accelerated from rest through a potential difference of V volt. If the de Broglie wavelength of the electron is 1.227×10^{-2} nm, the potential difference is : [NEET-2020]
 (1) 10^2 V (2) 10^3 V (3) 10^4 V (4) 10 V
- Q.11** Light with an average flux of 20 W/cm 2 falls on a non-reflecting surface at normal incidence having surface area 20 cm 2 . The energy received by the surface during time span of 1 minute is : [NEET-2020]
 (1) 12×10^3 J (2) 24×10^3 J
 (3) 48×10^3 J (4) 10×10^3 J
- Q.12** Light of frequency 1.5 times the threshold frequency is incident on a photosensitive material. What will be the photoelectric current if the frequency is halved and intensity is doubled? [NEET-2020]
 (1) four times (2) one-fourth (3) zero (4) doubled
- Q.13** An electromagnetic wave of wavelength ' λ ' is incident on a photosensitive surface of negligible work function. If ' m ' mass is of photoelectron emitted from the surface has de-Broglie wavelength λ_d , then : [NEET-2021]
 (1) $\lambda_d = \left(\frac{2mc}{h} \right) \lambda^2$ (2) $\lambda = \left(\frac{2mc}{h} \right) \lambda_d^2$
 (3) $\lambda = \left(\frac{2h}{mc} \right) \lambda_d^2$ (4) $\lambda = \left(\frac{2m}{hc} \right) \lambda_d^2$
- Q.14** The number of photons per second on an average emitted by the source of monochromatic light of wavelength 600 nm, when it delivers the power of 3.3×10^{-3} watt will be : ($h = 6.6 \times 10^{-34}$ Js) [NEET-2021]
 (1) 10^{17} (2) 10^{16} (3) 10^{15} (4) 10^{18}
- Q.15** When two monochromatic lights of frequency, ν and $\frac{\nu}{2}$ are incident on a photoelectric metal, their stopping potential becomes $\frac{V_s}{2}$ and V_s respectively. The threshold frequency for this metal is : [NEET-2022]
 (1) 3ν (2) $\frac{2}{3}\nu$ (3) $\frac{3}{2}\nu$ (4) 2ν

- Q.16** The graph which shows the variation of the de Broglie wavelength (λ) of a particle and its associated momentum (p) is : [NEET-2022]



- Q.17** The minimum wavelength of X-rays produced by an electron accelerated through a potential difference of V volts is proportional to : [NEET-2023]

- (1) $\frac{1}{V}$ (2) $\frac{1}{\sqrt{V}}$ (3) V^2 (4) \sqrt{V}

- Q.18** The work functions of Caesium (Cs), potassium (K) and Sodium (Na) are 2.14 eV, 2.30 eV and 2.75 eV respectively. If incident electromagnetic radiation has an incident energy of 2.20 eV, which of these photosensitive surfaces may emit photoelectrons ? [NEET-2023]

- (1) Both Na and K (2) K only
(3) Na only (4) Cs only

- Q.19** If c is the velocity of light in free space, the correct statements about photon among the following are:

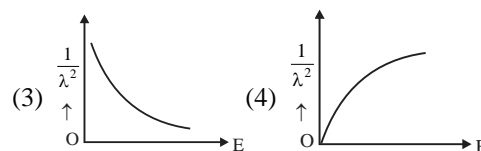
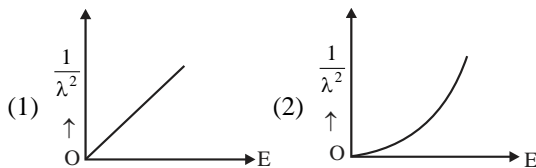
- A. The energy of a photon is $E = hv$.
B. The velocity of a photon is c .
C. The momentum of a photon, $p = \frac{hv}{c}$.

- D. In a photon-electron collision, both total energy and total momentum are conserved.
E. Photon possesses positive charge.

Choose the correct answer from the options given below: [NEET-2024]

- (1) A, B, D and E only (2) A and B only
(3) A, B, C and D only (4) A, C and D only

- Q.20** The graph which shows the variation of $\left(\frac{1}{\lambda^2}\right)$ and its kinetic energy, E is (where λ is de Broglie wavelength of a free particle): [NEET-2024]



- Q.21** An electron and an alpha particle are accelerated by the same potential difference. Let λ_e and λ_α denote the de-Broglie wavelengths of the electron and the alpha particle, respectively, then: [Re-NEET 2024]

- (1) $\lambda_e > \lambda_\alpha$ (2) $\lambda_e = 4\lambda_\alpha$ (3) $\lambda_e = \lambda_\alpha$ (4) $\lambda_e < \lambda_\alpha$

- Q.22** If ϕ is the work function of photosensitive material in eV and light of wavelength of numerical value

$\lambda = \frac{hc}{e}$ metre, is incident on it with energy above its

threshold value at an instant then the maximum kinetic energy of the photo-electron ejected by it at that instant (Take h -Planck's constant, c -velocity of light in free space) is (in SI units): [Re-NEET 2024]

- (1) $e + 2\phi$ (2) $2e - \phi$ (3) $e - \phi$ (4) $e + \phi$

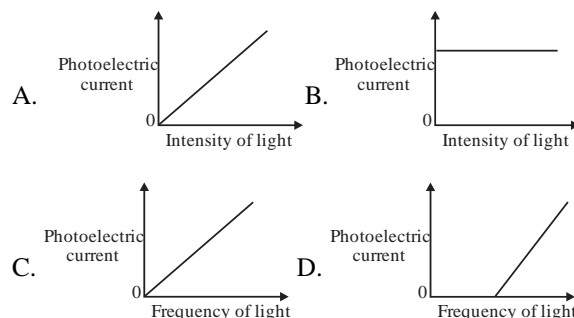
- Q.23** De-Broglie wavelength of an electron orbiting in the $n = 2$ state of hydrogen atom is close to (Given Bohr radius = 0.052 nm) [NEET-2025]

- (1) 0.067 nm (2) 0.67 nm (3) 1.67 nm (4) 2.67 nm

- Q.24** A photon and an electron (mass m) have the same energy E . The ratio $(\lambda_{\text{photon}}/\lambda_{\text{electron}})$ of their de Broglie wavelengths is : (c is the speed of light) [NEET-2025]

- (1) $\sqrt{E/2m}$ (2) $c\sqrt{2mE}$ (3) $c\sqrt{\frac{2m}{E}}$ (4) $\frac{1}{c}\sqrt{E/2m}$

- Q.25** Which of the following options represent the variation of photoelectric current with property of light shown on the x-axis? [NEET-2025]



- (1) A only (2) A and C (3) A and D (4) B and D

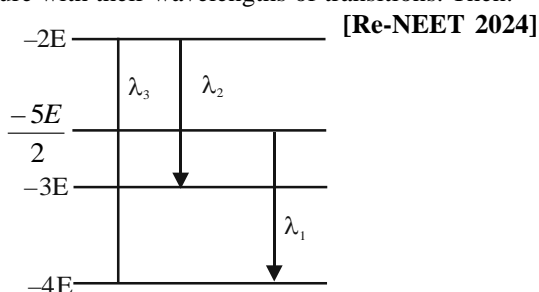
Atoms

- Q.1** In the spectrum of hydrogen, the ratio of the longest wavelength in the Lyman series to the longest wavelength in the Balmer series is [AIPMT - 2015]

- (1) $\frac{27}{5}$ (2) $\frac{5}{27}$ (3) $\frac{4}{9}$ (4) $\frac{9}{4}$

- Q.2** When an α -particle of mass m moving with velocity v bombards on a heavy nucleus of charges Ze , its distance of closest approach from the nucleus depends on m as [NEETPhase-I 2016]
 (1) $\frac{1}{m^2}$ (2) m (3) $\frac{1}{m}$ (4) $\frac{1}{\sqrt{m}}$
- Q.3** Given the value of Rydberg constant is 10^7 m^{-1} , the wave number of the last line of the Balmer series in hydrogen spectrum will be [NEET Phase-I- 2016]
 (1) $0.25 \times 10^7 \text{ m}^{-1}$ (2) $2.5 \times 10^7 \text{ m}^{-1}$
 (3) $0.025 \times 10^4 \text{ m}^{-1}$ (4) $0.5 \times 10^7 \text{ m}^{-1}$
- Q.4** Electrons of mass m with de-Broglie wavelength λ fall on the target in an X-ray tube. The cutoff wavelength (λ_0) of the emitted X-ray is [NEET Phase -II 2016]
 (1) $\lambda_0 = \frac{2mc\lambda^2}{h}$ (2) $\lambda_0 = \frac{2h}{mc}$
 (3) $\lambda_0 = \frac{2m^2c^2\lambda^2}{h^2}$ (4) $\lambda_0 = \lambda$
- Q.5** If an electron in a hydrogen atom jumps from the 3rd orbit to the 2nd orbit, it emits a photon of wavelength λ . When it jumps from the 4th orbit to the 3rd orbit, the corresponding wavelength of the photon will be [NEET Phase-II - 2016]
 (1) $\frac{16}{25}\lambda$ (2) $\frac{9}{16}\lambda$ (3) $\frac{20}{7}\lambda$ (4) $\frac{20}{13}\lambda$
- Q.6** The ratio of wavelengths of the last line of Balmer series and the last line of Lyman series is : [NEET 2017]
 (1) 1 (2) 4 (3) 0.5 (4) 2
- Q.7** The ratio of kinetic energy to the total energy of an electron in a Bohr orbit of the hydrogen atom, is [NEET-2018]
 (1) 2 : -1 (2) 1 : -1 (3) 1 : 1 (4) 1 : -2
- Q.8** The total energy of an electron in an atom in an orbit is -3.4 eV . Its kinetic and potential energies are, respectively : [NEET-2019]
 (1) $-3.4 \text{ eV}, -3.4 \text{ eV}$ (2) $-3.4 \text{ eV}, -6.8 \text{ eV}$
 (3) $3.4 \text{ eV}, -6.8 \text{ eV}$ (4) $3.4 \text{ eV}, 3.4 \text{ eV}$
- Q.9** An electron is accelerated through a potential difference of $10,000 \text{ V}$. Its de Broglie wavelength is, (nearly) : [NEET-2019]
 ($m_e = 9 \times 10^{-31} \text{ kg}$)
 (1) $12.2 \times 10^{-13} \text{ m}$ (2) $12.2 \times 10^{-12} \text{ m}$
 (3) $12.2 \times 10^{-14} \text{ m}$ (4) 12.2 nm
- Q.10** For which one of the following, Bohr model is not valid? [NEET-2020]
 (1) Singly ionised helium atom (He^+)
 (2) Deuteron atom
 (3) Singly ionised neon atom (Ne^+)
 (4) Hydrogen atom
- Q.11** Let T_1 and T_2 be the energy of an electron in the first and second excited states of hydrogen atom, respectively. According to the Bohr's model of an atom, the ratio $T_1 : T_2$ is : [NEET-2022]
 (1) 4 : 1 (2) 4 : 9 (3) 9 : 4 (4) 1 : 4
- Q.12** The radius of inner most orbit of hydrogen atom is $5.3 \times 10^{-11} \text{ m}$. What is the radius of third allowed orbit of hydrogen atom ? [NEET-2023]
 (1) 1.06 \AA (2) 1.59 \AA (3) 4.77 \AA (4) 0.53 \AA
- Q.13** In hydrogen spectrum, the shortest wavelength in the Balmer series is λ . The shortest wavelength in the Brackett series is : [NEET-2023]
 (1) 4λ (2) 9λ (3) 16λ (4) 2λ
- Q.14** Given below are two statements: [NEET-2024]
Statement I: Atoms are electrically neutral as they contain equal number of positive and negative charges.
Statement II: Atoms of each element are stable and emit their characteristic spectrum.
 In the light of the above statements, choose the most appropriate answer from the options given below.
 (1) Statement I is incorrect but Statement II is correct
 (2) Both Statement I and Statement II are correct
 (3) Both Statement I and Statement II are incorrect
 (4) Statement I is correct but Statement II is incorrect
- Q.15** Match List I with List II. [NEET-2024]
- | | <i>List-I</i>
(Spectral lines of Hydrogen for transitions from) | | <i>List-II</i>
(Wavelength (nm)) |
|----|--|-----|-------------------------------------|
| A. | $n_2=3$ to $n_1=2$ | I | 410.2 |
| B. | $n_2=4$ to $n_1=2$ | II | 434.1 |
| C. | $n_2=5$ to $n_1=2$ | III | 656.3 |
| D. | $n_2=6$ to $n_1=2$ | IV | 486.1 |
- Choose the correct answer from the options given below:
 (1) A - I, B - II, C - III, D - IV
 (2) A - II, B - I, C - IV, D - III
 (3) A - III, B - IV, C - II, D - I
 (4) A - IV, B - III, C - I, D - II
- Q.16** The spectral series which corresponds to the electronic transition from the levels $n_2 = 5, 6, \dots$ to the level $m = 4$ is: [Re-NEET 2024]
 (1) Pfund series (2) Brackett series
 (3) Lyman series (4) Balmer series

- Q.17** Some energy levels of a molecule are shown in the figure with their wavelengths of transitions. Then:



- (1) $\lambda_3 > \lambda_2, \lambda_1 = 2\lambda_2$ (2) $\lambda_3 > \lambda_2, \lambda_1 = 4\lambda_2$
 (3) $\lambda_1 > \lambda_2, \lambda_2 = 2\lambda_3$ (4) $\lambda_2 > \lambda_1, \lambda_2 = 2\lambda_3$

- Q.18** A model for quantized motion of an electron in a uniform magnetic field B states that the flux passing through the orbit of the electron is $n(h/e)$ where n is an integer, h is Planck's constant and e is the magnitude of electron's charge. According to the model, the magnetic moment of an electron in its lowest energy state will be (m is the mass of the electron)

[NEET-2025]

- (1) $\frac{he}{\pi m}$ (2) $\frac{he}{2\pi m}$ (3) $\frac{heB}{\pi m}$ (4) $\frac{heB}{2\pi m}$

- Q.19** A particle of mass m is moving around the origin with a constant force F pulling it towards the origin. If Bohr model is used to describe its motion, the radius r of the n^{th} orbit and the particle's speed v in the orbit depend on n as **[NEET-2025]**

- (1) $r \propto n^{1/3}; v \propto n^{1/3}$ (2) $r \propto n^{1/3}; v \propto n^{2/3}$
 (3) $r \propto n^{2/3}; v \propto n^{1/3}$ (4) $r \propto n^{4/3}; v \propto n^{-1/3}$

Nuclei

- Q.1** A nucleus of uranium decays at rest into nuclei of thorium and helium. Then **[AIPMT - 2015]**

- (1) The helium nucleus has more momentum than the thorium nucleus.
 (2) The helium nucleus has less kinetic energy than the thorium nucleus.
 (3) The helium nucleus has more kinetic energy than the thorium nucleus.
 (4) The helium nucleus has less momentum than the thorium nucleus.

- Q.2** The energy equivalent of 0.5 g of a substance is : **[NEET-2020]**

- (1) 4.5×10^{13} J (2) 1.5×10^{13} J
 (3) 0.5×10^{13} J (4) 4.5×10^{16} J

- Q.3** When a uranium isotope ${}^{235}_{92}\text{U}$ is bombarded with a neutron, it generates ${}^{89}_{36}\text{Kr}$, three neutrons and :

[NEET-2020]

- (1) ${}^{91}_{40}\text{Zr}$ (2) ${}^{101}_{36}\text{Kr}$ (3) ${}^{103}_{36}\text{Kr}$ (4) ${}^{144}_{56}\text{Ba}$

- Q.4** A radioactive nucleus ${}^A_Z\text{X}$ undergoes spontaneous decay in the sequence ${}^A_Z\text{X} \rightarrow {}_{Z-1}\text{B} \rightarrow {}_{Z-3}\text{C} \rightarrow {}_{Z-2}\text{D}$, where Z is the atomic number of element X . The possible particles in the sequence are **[NEET-2021]**
- (1) α, β^+, β^- (2) β^+, α, β^-
 (3) β^-, α, β^- (4) α, β^-, β^+

- Q.5** A nucleus with mass number 240 breaks into two fragments each of mass number 120, the binding energy per nucleon of unfragmented nuclei is 7.6 MeV while that of fragments is 8.5 MeV. The total gain in the Binding Energy in the process is : **[NEET-2021]**
- (1) 9.4 MeV (2) 804 MeV
 (3) 216 MeV (4) 0.9 MeV

- Q.6** A nucleus of mass number 189 splits into two nuclei having mass number 125 and 64. The ratio of radius of two daughter nuclei respectively: **[NEET-2022]**
- (1) 4 : 5 (2) 5 : 4 (3) 25 : 16 (4) 1 : 1

- Q.7** In the given nuclear reaction, the element X is



- (1) ${}^{23}_{10}\text{Ne}$ (2) ${}^{22}_{10}\text{Ne}$ (3) ${}^{22}_{12}\text{Mg}$ (4) ${}^{23}_{11}\text{Na}$

- Q.8** The half life of a radioactive substance is 20 minutes. In how much time, the activity of substance drops to

$\left(\frac{1}{16}\right)^{\text{th}}$ of its initial value ? **[NEET-2023]**

- (1) 40 minutes (2) 60 minutes
 (3) 80 minutes (4) 20 minutes

- Q.9** ${}^{290}_{82}\text{X} \xrightarrow{\alpha} \text{Y} \xrightarrow{e^+} \text{Z} \xrightarrow{\beta^-} \text{P} \xrightarrow{e^-} \text{Q}$

In the nuclear emission stated above, the mass number and atomic number of the product Q respectively, are **[NEET-2024]**

- (1) 286, 81 (2) 280, 81 (3) 286, 80 (4) 288, 82

- Q.10** Water is used as a coolant in a nuclear reactor because of its: **[Re-NEET 2024]**

- (1) high thermal expansion coefficient
 (2) high specific heat capacity
 (3) low density
 (4) low boiling point

- Q.11** Select the correct statements among the following :

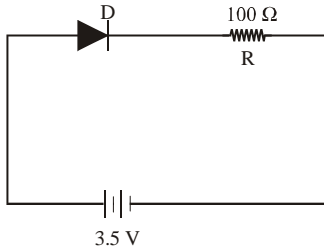
- (A) Slow neutrons can cause fission in ${}^{235}_{92}\text{U}$ than fast neutrons.
 (B) α -rays are Helium nuclei.
 (C) β -rays are fast moving electrons or positrons.
 (D) γ -rays are electromagnetic radiations of wavelengths larger than X-rays.

Choose the most appropriate answer from the options given below : **[Re-NEET 2024]**

- (1) A, B and C only (2) A, B and D only
(3) A and B only (4) C and D only

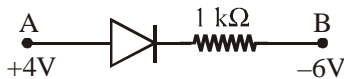
**Semiconductor Electronics :
Materials, Devices and Simple Circuits**

Q.1 In the given figure, a diode D is connected to an external resistance $R = 100 \Omega$ and an emf of 3.5 V. If the barrier potential developed across the diode is 0.5 V, the current in the circuit will be **[AIPMT-2015]**



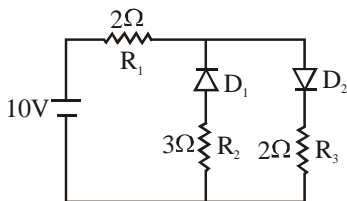
- (1) 20 mA (2) 35 mA (3) 30 mA (4) 40 mA

Q.2 Consider the junction diode as ideal. The value of current flowing through AB is **[NEET Phase I-2016]**



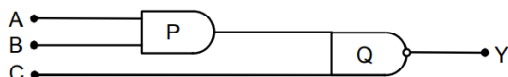
- (1) 10^{-1} (2) 10^{-3} A (3) 0 A (4) 10^{-2} A

Q.3 The given circuit has two ideal diodes connected as shown in the figure. The current flowing through the resistance R_1 will be : **[NEET Phase II-2016]**



- (1) 2.5 A (2) 10.0 A (3) 1.43 A (4) 3.13 A

Q.4 What is the output Y in the following circuit, when all the three inputs A, B, C are first 0 and then 1 ? **[NEET Phase II-2016]**



- (1) 0, 1 (2) 0, 0 (3) 1, 0 (4) 1, 1

Q.5 The given electrical network is equivalent to : **[NEET-2017]**

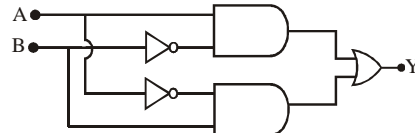


- (1) OR gate (2) NOR gate
(3) NOT gate (4) AND gate

Q.6 Which one of the following represents forward bias diode? **[NEET-2017]**

- (1) (2)
(3) (4)

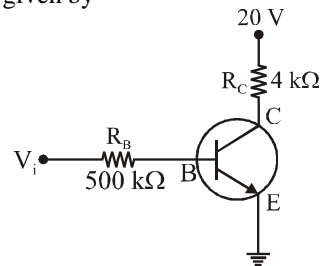
Q.7 In the combination of the following gates the output Y can be written in terms of inputs A and B as



[NEET-2018]

- (1) $\overline{A \cdot B} + \overline{A \cdot B}$ (2) $A \cdot \overline{B} + \overline{A} \cdot B$
(3) $\overline{A \cdot B}$ (4) $\overline{A + B}$

Q.8 In the circuit shown in the figure, the input voltage V_i is 20 V, $V_{BE} = 0$ and $V_{CE} = 0$. The values of I_B , I_C and b are given by **[NEET-2018]**



- (1) $I_B = 20$ mA, $I_C = 5$ mA, $b = 250$
(2) $I_B = 25$ mA, $I_C = 5$ mA, $b = 200$
(3) $I_B = 40$ mA, $I_C = 10$ mA, $b = 250$
(4) $I_B = 40$ mA, $I_C = 5$ mA, $b = 125$

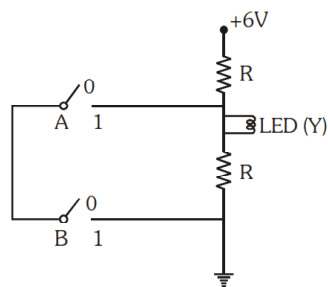
Q.9 In a p-n junction diode, change in temperature due to heating **[NEET-2018]**

- (1) Does not affect resistance of p-n junction
(2) Affects only forward resistance
(3) Affects only reverse resistance
(4) Affects the overall V - I characteristics of p-n junction

Q.10 For a p-type semiconductor which of the following statements is true ? **[NEET-2019]**

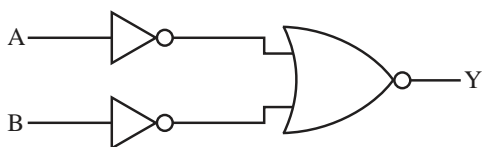
- (1) Electrons are the majority carriers and trivalent atoms are the dopants.
(2) Holes are the majority carriers and trivalent atoms are the dopants.
(3) Holes are the majority carriers and pentavalent atoms are the dopants.
(4) Electrons are the majority carriers and pentavalent atoms are the dopants.

- Q.11** The correct Boolean operation represented by the circuit diagram drawn is : [NEET-2019]



- (1) AND (2) OR (3) NAND (4) NOR

- Q.12** For the logic circuit shown, the truth table is: [NEET-2020]



A	B	Y	A	B	Y	A	B	Y	A	B	Y
0	0	0	0	0	1	0	0	1	0	0	0
0	1	1	0	1	1	0	1	0	0	1	0
1	0	1	1	0	1	1	0	0	1	0	0
1	1	1	1	1	0	1	1	0	1	1	1

- Q.13** The increase in the width of the depletion region in a p-n junction diode is due to : [NEET-2020]

- (1) reverse bias only
 (2) both forward bias and reverse bias
 (3) increase in forward current
 (4) forward bias only

- Q.14** The electron concentration in an n-type semiconductor is the same as hole concentration in a p-type semiconductor. An external field (electric) is applied across each of them. Compare the currents in them. [NEET-2021]

- (1) current in p-type > current in n-type.
 (2) current in n-type > current in p-type.
 (3) No current will flow in p-type. current will only flow in n-type.
 (4) current in n-type = current p-type

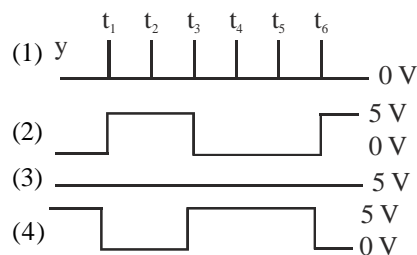
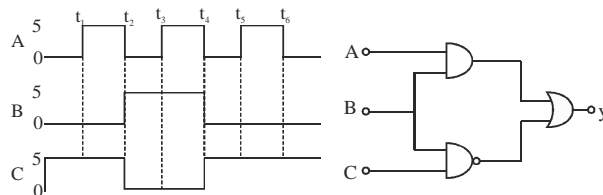
- Q.15** Consider the following **statements (A)** and **(B)** and identify the **correct** answer.

(A) A zener diode is connected in reverse bias, when used as a voltage regulator.

(B) The potential barrier of p.n junction lies between 0.1 V to 0.3 V. [NEET-2021]

- (1) **(A)** and **(B)** both are incorrect.
 (2) **(A)** is correct and **(B)** is incorrect
 (3) **(A)** is incorrect but **(B)** is correct
 (4) **(A)** and **(B)** both are correct

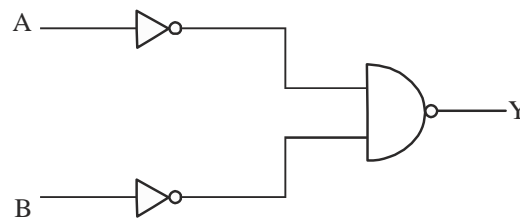
- Q.16** For the given circuit, the input digital signals are applied at the terminals A, B and C. What would be the output at the terminal y ? [NEET-2021]



- Q.17** In half wave rectification, if the input frequency is 60Hz, then the output frequency would be : [NEET-2022]

- (1) 30 Hz (2) 60Hz (3) 120 Hz (4) Zero

- Q.18** For the following logic circuit, the truth table is : [NEET-2023]



A	B	Y	A	B	Y	A	B	Y	A	B	Y
0	0	0	0	0	1	0	0	0	0	0	1
0	1	1	0	1	0	0	1	0	0	1	1
1	0	1	1	0	1	1	0	0	1	0	1
1	1	1	1	1	0	1	1	1	1	1	0

- Q.19** A full wave rectifier circuit consists of two p-n junction diodes, a centre-tapped transformer, capacitor and a load resistance. Which of these components remove the ac ripple from the rectified output ? [NEET-2023]

- (1) p-n junction diodes
 (2) Capacitor
 (3) Load resistance
 (4) A centre-tapped transformer

- Q.20** Given below are two statements: [NEET-2023]

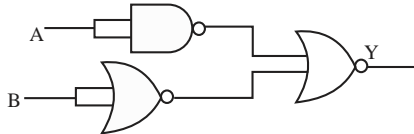
Statement I : Photovoltaic devices can convert optical radiation into electricity.

Statement II : Zener diode is designed to operate under reverse bias in breakdown region.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

- (1) Both Statement I and Statement II are incorrect.
- (2) Statement I is correct but Statement II is incorrect.
- (3) Statement I is incorrect but Statement II is correct.
- (4) Both Statement I and Statement II are correct

Q.21 The output (Y) of the given logic gate is similar to the output of an/a **[NEET-2024]**



(1) AND gate (2) NAND gate (3) NOR gate (4) OR gate

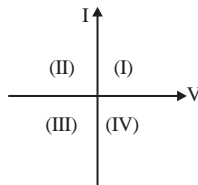
Q.22 A logic circuit provides the output Y as per the following truth table : **[NEET-2024]**

A	B	Y
0	0	1
0	1	0
1	0	1
1	1	0

The expression for the output Y is :

(1) B (2) $A \cdot B + \bar{A}$ (3) $A \cdot \bar{B} + \bar{A}$ (4) \bar{B}

Q.23 Consider the following statements A and B and identify the correct answer: **[NEET-2024]**

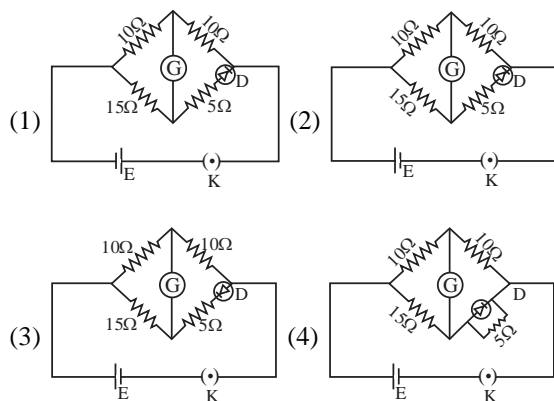


A. For a solar-cell, the I-V characteristics lies in the IV quadrant of the given graph.

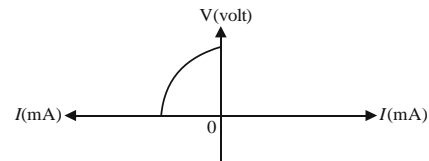
B. In a reverse biased pn junction diode, the current measured in (μA), is due to majority charge carriers.

- (1) Both A and B are incorrect
- (2) A is correct but B is incorrect
- (3) A is incorrect but B is correct
- (4) Both A and B are correct

Q.24 Choose the correct circuit which can achieve the bridge balance. **[NEET-2024]**



Q.25



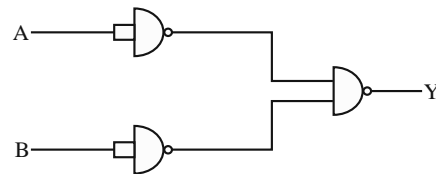
The I-V characteristics shown above are exhibited by a: **[Re-NEET 2024]**

- (1) Light emitting diode
- (2) Zener diode
- (3) Photodiode
- (4) Solar cell

Q.26 When the output of an OR gate is applied as input to a NOT gate, then the combination acts as a: **[Re-NEET 2024]**

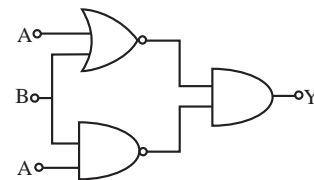
- (1) NAND gate
- (2) NOR gate
- (3) AND gate
- (4) OR gate

Q.27 The output Y for the inputs A and B of the given logic circuit is: **[Re-NEET 2024]**



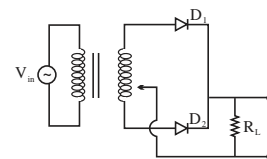
- (1) $A \cdot B$
- (2) $\bar{A} \cdot \bar{B}$
- (3) $A + B$
- (4) $\bar{A} + \bar{B}$

Q.28 The output (Y) of the given logic implementation is similar to the output of an/a _____ gate. **[NEET-2025]**



- (1) AND
- (2) NAND
- (3) OR
- (4) NOR

Q.29 A full wave rectifier circuit with diodes (D_1) and (D_2) is shown in the figure. If input supply voltage $V_{in} = 220\sin(100\pi t)$ volt, then at $t = 15$ msec **[NEET-2025]**



- (1) D_1 is forward biased, D_2 is reverse biased
- (2) D_1 is reverse biased, D_2 is forward biased
- (3) D_1 and D_2 both are forward biased
- (4) D_1 and D_2 both are reverse biased

ANSWER KEY

Electric Charges and Fields

Q.1 (2) Q.2 (2) Q.3 (2) Q.4 (2) Q.5 (3) Q.6 (1) Q.7 (1) Q.8 (1) Q.9 (2) Q.10 (3)
Q.11 (4) Q.12 (4)

Electrostatic Potential and Capacitance

Q.1 (2) Q.2 (4) Q.3 (1) Q.4 (2) Q.5 (4) Q.6 (1) Q.7 (1) Q.8 (3) Q.9 (3) Q.10 (1)
Q.11 (4) Q.12 (1) Q.13 (4) Q.14 (4) Q.15 (2) Q.16 (Bonus) Q.17 (2) Q.18 (2) Q.19 (2) Q.20 (2)
Q.21 (1) Q.22 (1) Q.23 (1) Q.24 (2) Q.25 (2) Q.26 (4) Q.27 (2) Q.28 (3) Q.29 (1) Q.30 (2)
Q.31 (3) Q.32 (1)

Current Electricity

Q.1 (3) Q.2 (3) Q.3 (3) Q.4 (3) Q.5 (4) Q.6 (2) Q.7 (3) Q.8 (3) Q.9 (2) Q.10 (3)
Q.11 (2) Q.12 (4) Q.13 (3) Q.14 (2) Q.15 (1) Q.16 (3) Q.17 (4) Q.18 (1) Q.19 (1) Q.20 (3)
Q.21 (1) Q.22 (2) Q.23 (4) Q.24 (1) Q.25 (2) Q.26 (2) Q.27 (1) Q.28 (4) Q.29 (3) Q.30 (3)
Q.31 (2) Q.32 (1) Q.33 (4) Q.34 (2) Q.35 (2) Q.36 (3)

Moving Charges and Magnetism

Q.1 (2) Q.2 (1) Q.3 (3) Q.4 (1) Q.5 (2) Q.6 (3) Q.7 (4) Q.8 (3) Q.9 (1) Q.10 (3)
Q.11 (1) Q.12 (4) Q.13 (4) Q.14 (1) Q.15 (2) Q.16 (3) Q.17 (1) Q.18 (4) Q.19 (2) Q.20 (2)
Q.21 (1) Q.22 (1) Q.23 (2) Q.24 (2) Q.25 (4) Q.26 (4) Q.27 (4) Q.28 (2) Q.29 (1)

Magnetism and Matter

Q.1 (3) Q.2 (2) Q.3 (4) Q.4 (1) Q.5 (2) Q.6 (3) Q.7 (3) Q.8 (2) Q.9 (4) Q.10 (3)
Q.11 (1)

Electromagnetic Induction

Q.1 (1) Q.2 (4) Q.3 (4) Q.4 (2) Q.5 (2) Q.6 [Bonus] Q.7 (4) Q.8 (4) Q.9 (4) Q.10 (3)
Q.11 (2) Q.12 (3) Q.13 (2) Q.14 (1) Q.15 (2) Q.16 (4)

Alternating Current

Q.1 (3) Q.2 (4) Q.3 (3) Q.4 (4) Q.5 (3) Q.6 (3) Q.7 (2) Q.8 (3) Q.9 (4) Q.10 (2)
Q.11 (1) Q.12 (2) Q.13 (2) Q.14 (4) Q.15 (3) Q.16 (3) Q.17 (3) Q.18 (4) Q.19 (1) Q.20 (2)

Electromagnetic Waves

Q.1 (2) Q.2 (1) Q.3 (1) Q.4 (2) Q.5 (1) Q.6 (1) Q.7 (4) Q.8 (3) Q.9 (3) Q.10 (2)
Q.11 (2) Q.12 (3) Q.13 (2) Q.14 (3) Q.15 (1) Q.16 (3)

Ray Optics and Optical Instruments

Q.1 (2) Q.2 (4) Q.3 (3) Q.4 (4) Q.5 (3) Q.6 (4) Q.7 (1) Q.8 (3) Q.9 (4) Q.10 (2)
Q.11 (2) Q.12 (1) Q.13 (3) Q.14 (4) Q.15 (3) Q.16 (1) Q.17 (2) Q.18 (2) Q.19 (3) Q.20 (2)
Q.21 (3) Q.22 (3) Q.23 (3) Q.24 (2) Q.25 (3)

Wave Optics

Q.1 (3)	Q.2 (1)	Q.3 (4)	Q.4 (2)	Q.5 (2)	Q.6 (3)	Q.7 (2)	Q.8 (2)	Q.9 (2)	Q.10 (2)
Q.11 (2)	Q.12 (2)	Q.13 (4)	Q.14 (3)	Q.15 (2)	Q.16 (4)	Q.17 (1)	Q.18 (4)	Q.19 (3)	Q.20 (1)
Q.21 (3)	Q.22 (1)								

Dual Nature of Matter and Radiation

Q.1 (3)	Q.2 (1)	Q.3 (3)	Q.4 (4)	Q.5 (1)	Q.6 (4)	Q.7 (3)	Q.8 (3)	Q.9 (2)	Q.10 (3)
Q.11 (2)	Q.12 (3)	Q.13 (2)	Q.14 (2)	Q.15 (Bouns)	Q.16 (3)	Q.17 (1)	Q.18 (4)	Q.19 (3)	Q.20 (1)
Q.21 (1)	Q.22 (3)	Q.23 (2)	Q.24 (3)	Q.25 (1)					

Atoms

Q.1 (2)	Q.2 (3)	Q.3 (1)	Q.4 (1)	Q.5 (3)	Q.6 (2)	Q.7 (2)	Q.8 (3)	Q.9 (2)	Q.10 (3)
Q.11 (3)	Q.12 (3)	Q.13 (1)	Q.14 (4)	Q.15 (3)	Q.16 (2)	Q.17 (4)	Q.18 (2)	Q.19 (3)	

Nuclei

Q.1 (3)	Q.2 (1)	Q.3 (4)	Q.4 (2)	Q.5 (3)	Q.6 (2)	Q.7 (2)	Q.8 (3)	Q.9 (1)	Q.10 (2)
Q.11 (1)									

Semiconductor Electronics : Materials, Devices and Simple Circuits

Q.1 (3)	Q.2 (4)	Q.3 (1)	Q.4 (3)	Q.5 (2)	Q.6 (4)	Q.7 (2)	Q.8 (4)	Q.9 (4)	Q.10 (2)
Q.11 (3)	Q.12 (4)	Q.13 (1)	Q.14 (4)	Q.15 (2)	Q.16 (3)	Q.17 (2)	Q.18 (1)	Q.19 (2)	Q.20 (4)
Q.21 (1)	Q.22 (4)	Q.23 (1)	Q.24 (2)	Q.25 (4)	Q.26 (2)	Q.27 (3)	Q.28 (4)	Q.29 (2)	

Solutions

- Q.1** Which of the following statements about the composition of the vapour over an ideal 1:1 molar mixture of benzene and toluene of correct? Assume that the temperature is constant at 25°C [Given : vapour pressure data at 25°C, benzene = 12.8 kPa, toluene = 3.85 kPa] [NEET Phase I - 2016]
 (1) The vapour will contain equal amounts of benzene and toluene.
 (2) Not enough information is given to make a prediction.
 (3) The vapour will contain a higher percentage of benzene.
 (4) The vapour will contain a higher percentage of toluene.
- Q.2** At 100°C the vapour pressure of a solution of 6.5 g of a solute in 100 g water is 732 mm. If $K_b = 0.52$, the boiling point of this solution will be : [NEET Phase I - 2016]
 (1) 102°C (2) 103°C
 (3) 101°C (4) 100°C
- Q.3** The van't Hoff factor (i) for a dilute aqueous solution of the strong electrolyte barium hydroxide is : [NEET Phase II - 2016]
 (1) 0 (2) 1 (3) 2 (4) 3
- Q.4** Which one of the following is incorrect for ideal solution? [NEET Phase II - 2016]
 (1) $\Delta H_{\text{mix}} = 0$
 (2) $\Delta U_{\text{mix}} = 0$
 (3) $\Delta P = P_{\text{obs}} - P_{\text{calculated by Raoult's law}} = 0$
 (4) $\Delta G_{\text{mix}} = 0$
- Q.5** If molality of the dilute solution of doubled, the value of molal depression constant (K_f) will be : [NEET - 2017]
 (1) halved (2) tripled
 (3) unchanged (4) doubled
- Q.6** Which of the following is dependent on temperature? [NEET - 2017]
 (1) Molarity (2) Mole fraction
 (3) Weight percentage (4) Molality
- Q.7** The mixture that forms maximum boiling azeotrope is : [NEET-2019]
 (1) Water + Nitric acid
 (2) Ethanol + Water
 (3) Acetone + Carbon disulphide
 (4) Heptane + Octane
- Q.8** For an ideal solution, the correct option is :- [NEET-2019]
 (1) $\Delta S_{\text{mix}} = 0$ at constant T and P
 (2) $\Delta V_{\text{mix}} \neq 0$ at constant T and P
 (3) $\Delta H_{\text{mix}} = 0$ at constant T and P
 (4) $\Delta G_{\text{mix}} = 0$ at constant T and P
- Q.9** The mixture which shows positive deviation from Raoult's law is [NEET-2020]
 (1) Benzene + Toluene
 (2) Acetone + Chloroform
 (3) Chloroethane + Bromoethane
 (4) Ethanol + Acetone
- Q.10** The freezing point depression constant (K_f) of benzene is 5.12 K kg mol⁻¹. The freezing point depression for the solution of molality 0.078 m containing a non-electrolyte solute in benzene is (rounded off upto two decimal places) : [NEET-2020]
 (1) 0.80 K (2) 0.40 K (3) 0.60 K (4) 0.20 K
- Q.11** The correct option for the value of vapour pressure of a solution at 45°C with benzene to octane in molar ratio 3:2 is : [At 45°C vapour pressure of benzene is 280 mm Hg and that of octane is 420 mm Hg. Assume Ideal gas] [NEET-2021]
 (1) 168 mm of Hg (2) 336 mm of Hg
 (3) 350 mm of Hg (4) 160 mm of Hg
- Q.12** The following solutions were prepared by dissolving 10 g of glucose (C₆H₁₂O₆) in 250 ml of water (P₁), 10 g of urea (CH₄N₂O) in 250 ml of water (P₂) and 10 g of sucrose (C₁₂H₂₂O₁₁) in 250 ml of water (P₃). The right option for the decreasing order of osmotic pressure of these solutions is : [NEET-2021]
 (1) P₁ > P₂ > P₃ (2) P₂ > P₃ > P₁
 (3) P₃ > P₁ > P₂ (4) P₂ > P₁ > P₃
- Q.13** In one molal solution that contains 0.5 mole of a solute, there is [NEET-2022]
 (1) 500 g of solvent (2) 10 mL of solvent
 (3) 1000 g of solvent (4) 500 mL of solvent
- Q.14** Give below are two statements : one is labelled as **Assertion A** and the other is labelled as **Reason R**. **Assertion A** : Helium is used to dilute oxygen in diving apparatus. **Reasons R** : Helium has high solubility in O₂. In the light of the above statements, choose the **correct** answer from the options given below : [NEET-2023]
 (1) Both **A** and **R** are true but **R** is **NOT** the correct explanation of **A**.
 (2) **A** is true but **R** is false
 (3) **A** is false but **R** is true
 (4) Both **A** and **R** are true and **R** is the correct explanation of **A**.
- Q.15** The Henry's law constant (K_H) values of three gases (A, B, C) in water are 145, 2×10^{-5} and 35 kbar, respectively. The solubility of these gases in water follow the order: [NEET-2024]
 (1) A > B > C (2) B > A > C
 (3) B > C > A (4) A > C > B

- Q.16** The plot of osmotic pressure (Π) vs concentration (mol L^{-1}) for a solution gives a straight line with slope $25.73 \text{ L bar mol}^{-1}$. The temperature at which the osmotic pressure measurement is done is (Use $R = 0.083 \text{ L bar mol}^{-1} \text{ K}^{-1}$) [NEET-2024]
 (1) 12.05°C (2) 37°C
 (3) 310°C (4) 25.73°C
- Q.17** Mass of glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) required to be dissolved to prepare one litre of its solution which is isotone with 15 g L^{-1} solution of urea (NH_2CONH_2) is (Given: Molar mass in g mol^{-1} : C: 12, H: 1, O: 16, N: 14) [Re-NEET 2024]
 (1) 55 g (2) 15 g (3) 30 g (4) 45 g
- Q.18** Match List - I with List - II [NEET-2025]
List-I **List-II**
(Example) **(Type of Solution)**
 A. Humidity I. Solid in solid
 B. Alloys II. Liquid in gas
 C. Amalgams III. Solid in gas
 D. Smoke IV. Liquid in solid
 Choose the correct answer from the options given below:
 (1) A-II, B-IV, C-I, D-III (2) A-II, B-I, C-IV, D-III
 (3) A-III, B-I, C-IV, D-II (4) A-III, B-II, C-I, D-IV
- Q.19** Which of the following aqueous solution will exhibit highest boiling point? [NEET-2025]
 (1) 0.01 M Urea (2) 0.01 M KNO_3
 (3) 0.01 M Na_2SO (4) 0.015 M $\text{C}_6\text{H}_{12}\text{O}_6$
- Q.20** 5 moles of liquid X and 10 moles of liquid Y make a solution having a vapour pressure of 70 torr. The vapour pressures of pure X and Y are 63 torr and 78 torr respectively. Which of the following is true regarding the described solution? [NEET-2025]
 (1) The solution shows positive deviation.
 (2) The solution shows negative deviation.
 (3) The solution is ideal.
 (4) The solution has volume greater than the sum of individual volumes.

Electrochemistry

- Q.1** If the E°_{cell} for a given reaction has a negative value, which of the following gives the correct relationships for the values of ΔG° and K_{eq} ? [AIPMT- 2011 & NEET Phase II - 2016]
 (1) $\Delta G^\circ > 0$; $K_{\text{eq}} < 1$ (2) $\Delta G^\circ > 0$; $K_{\text{eq}} > 1$
 (3) $\Delta G^\circ < 0$; $K_{\text{eq}} > 1$ (4) $\Delta G^\circ < 0$; $K_{\text{eq}} < 1$
- Q.2** The pressure of H_2 required to make the potential of H_2 - electrode zero in pure water at 298 K is : [NEET Phase I - 2016]
 (1) 10^{-10} atm (2) 10^{-4} atm
 (3) 10^{-14} atm (4) 10^{-12} atm
- Q.3** Zinc can be coated on iron to produce galvanized iron but the reverse is not possible. It is because: [NEET Phase II - 2016]
 (1) zinc is lighter than iron
 (2) zinc has lower melting point than iron.
 (3) zinc has lower negative electrode potential than iron.
 (4) zinc has higher negative electrode potential than iron.
- Q.4** The molar conductivity of a 0.5 mol/dm^3 solution of AgNO_3 with electrolytic conductivity of $5.76 \times 10^{-3} \text{ S cm}^{-1}$ at 298 K is: [NEET Phase II 2016]
 (1) $2.88 \text{ S cm}^2 / \text{mol}$ (2) $11.52 \text{ S cm}^2 / \text{mol}$
 (3) $0.086 \text{ S cm}^2 / \text{mol}$ (4) $28.8 \text{ S cm}^2 / \text{mol}$
- Q.5** During the electrolysis of molten sodium chloride, the time required to produce 0.10 mol of chlorine gas using a current of 3 amp. is [NEET Phase II - 2016]
 (1) 55 min. (2) 110 min.
 (3) 220 min. (4) 330 min.
- Q.6** The number of electrons delivered at the cathode during electrolysis by a current of 1 amp. in 60 sec. is (Charge on electron = $1.60 \times 10^{-19} \text{ C}$) [NEET Phase II - 2016]
 (1) 6×10^{23} (2) 6×10^{20}
 (3) 3.75×10^{20} (4) 7.48×10^{23}
- Q.7** In the electrochemical cell : $\text{Zn}|\text{ZnSO}_4(0.01\text{M})||\text{CuSO}_4(1.0\text{M})|\text{Cu}$, the emf of this Daniell cell is E_1 . When the concentration of ZnSO_4 is changed to 1.0 M and that of CuSO_4 changed to 0.01 M, the emf changes to E_2 . From the followings, which one is the relationship between E_1 and E_2 ? [Given : $RT/F = 0.059$] [NEET - 2017]
 (1) $E_1 < E_2$ (2) $E_1 > E_2$
 (3) $E_2 = 0' E_2$ (4) $E_1 = E_2$
- Q.8** Consider the change in oxidation state of Bromine corresponding to different emf values as shown in the diagram below : [NEET - 2018]

$$\text{BrO}_4^- \xrightarrow{1.82\text{V}} \text{BrO}_3^- \xrightarrow{1.5\text{V}} \text{HBrO}$$

$$\text{Br}^- \xleftarrow{1.0652\text{V}} \text{Br}_2 \xleftarrow{1.595\text{V}} \text{HBrO}$$
 Then the species undergoing disproportionation is
 (1) Br_2 (2) BrO_4^-
 (3) BrO_3^- (4) HBrO
- Q.9** For a cell involving one electron $E^\circ_{\text{cell}} = 0.59\text{V}$ at 298 K, the equilibrium constant for the cell reaction is :- [Given that $\frac{2.303RT}{F} = 0.059\text{V}$ at $T = 298\text{K}$] [NEET-2019]
 (1) 1.0×10^2 (2) 1.0×10^5
 (3) 1.0×10^{10} (4) 1.0×10^{30}

- Q.10** For the cell reaction
 $2\text{Fe}^{3+}(\text{aq}) + 2\text{I}^{-}(\text{aq}) \rightarrow 2\text{Fe}^{2+}(\text{aq}) + \text{I}_2(\text{aq})$
 $E_{\text{cell}}^{\circ} = 0.24\text{V}$ at 298 K. The standard Gibbs energy ($\Delta_r G^{\circ}$) of the cell reaction is : [NEET-2019]
 [Given that Faraday constant $F = 96500\text{ C mol}^{-1}$]
 (1) $-46.32\text{ kJ mol}^{-1}$ (2) $-23.16\text{ kJ mol}^{-1}$
 (3) 46.32 kJ mol^{-1} (4) 23.16 kJ mol^{-1}
- Q.11** The number of Faradays(F) required to produce 20 g of calcium from molten CaCl_2 (Atomic mass of $\text{Ca} = 40\text{ g mol}^{-1}$) is [NEET-2020]
 (1) 2 (2) 3 (3) 4 (4) 1
- Q.12** On electrolysis of dil. sulphuric acid using Platinum (Pt) electrode, the product obtained at anode will be [NEET-2020]
 (1) Oxygen gas (2) H_2S gas
 (3) SO_2 gas (4) Hydrogen gas
- Q.13** The molar conductivity of 0.007 M acetic acid is $20\text{ S cm}^2\text{ mol}^{-1}$. What is the dissociation constant of acetic acid? Choose the correct option. [NEET-2021]
 $\left[\begin{array}{l} \Lambda_{\text{H}^+}^{\circ} = 350\text{ S cm}^2\text{ mol}^{-1} \\ \Lambda_{\text{CH}_3\text{COO}^-}^{\circ} = 50\text{ S cm}^2\text{ mol}^{-1} \end{array} \right]$
 (1) $2.50 \times 10^{-4}\text{ mol L}^{-1}$ (2) $1.75 \times 10^{-5}\text{ mol L}^{-1}$
 (3) $2.50 \times 10^{-5}\text{ mol L}^{-1}$ (4) $1.75 \times 10^{-4}\text{ mol L}^{-1}$
- Q.14** The molar conductance of NaCl , HCl and CH_3COONa at infinite dilution are 126.45, 426.16 and $91.0\text{ S cm}^2\text{ mol}^{-1}$ respectively. The molar conductance of CH_3COOH at infinite dilution is. Choose the right option for your answer. [NEET-2021]
 (1) $390.71\text{ S cm}^2\text{ mol}^{-1}$ (2) $698.28\text{ S cm}^2\text{ mol}^{-1}$
 (3) $540.48\text{ S cm}^2\text{ mol}^{-1}$ (4) $201.28\text{ S cm}^2\text{ mol}^{-1}$
- Q.15** Find the emf of the cell in which the following reaction takes place at 298 K
 $\text{Ni}(\text{s}) + 2\text{Ag}^+(\text{0.001M}) \rightarrow \text{Ni}^{2+}(\text{0.001M}) + 2\text{Ag}(\text{s})$
 (Given that $E_{\text{cell}}^{\circ} = 10.5\text{V}$, $\frac{2.303RT}{F} = 0.059$ at 298K) [NEET-2022]
 (1) 1.385V (2) 0.9615V (3) 1.05 V (4) 1.0385 V
- Q.16** Given below are half cell reactions : [NEET-2022]
 $\text{MnO}_4^- + 8\text{H}^+ + 5\text{e}^- \rightarrow \text{Mn}^{2+} + 4\text{H}_2\text{O}$,
 $E_{\text{Mn}^{2+}/\text{MnO}_4^-}^{\circ} = -1.510\text{V}$
 $\frac{1}{2}\text{O}_2 + 2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2\text{O}$
 $E_{\text{O}_2/\text{H}_2\text{O}}^{\circ} = +1.223\text{V}$
 Will the permanganate ion, MnO_4^- liberate O_2 from water in the presence of an acid ?
- (1) No, because $E_{\text{cell}}^{\circ} = -0.287\text{ V}$
 (2) Yes, because $E_{\text{cell}}^{\circ} = +2.733\text{V}$
 (3) No, because $E_{\text{cell}}^{\circ} = -2.733\text{V}$
 (4) Yes, because $E_{\text{cell}}^{\circ} = +0.287\text{ V}$
- Q.17** At 298 K, the standard electrode potentials of Cu^{2+}/Cu , Zn^{2+}/Zn , Fe^{2+}/Fe and Ag^+/Ag are 0.34 V, -0.76V , 0.44 V and 0.80 V, respectively. On the basis of standard electrode potential, predict which of the following reaction can not occur? [NEET-2022]
 (1) $\text{CuSO}_4(\text{aq}) + \text{Fe}(\text{s}) \rightarrow \text{FeSO}_4(\text{aq}) + \text{Cu}(\text{s})$
 (2) $\text{FeSO}_4(\text{aq}) + \text{Zn}(\text{s}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{Fe}(\text{s})$
 (3) $2\text{CuSO}_4(\text{aq}) + 2\text{Ag}(\text{s}) \rightarrow 2\text{Cu}(\text{s}) + \text{Ag}_2\text{SO}_4(\text{aq})$
 (4) $\text{CuSO}_4(\text{aq}) + \text{Zn}(\text{s}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu}(\text{s})$
- Q.18** Given below are two statements : one is labelled as **Assertion A** and the other is labelled as **Reason R** :
Assertion A : In equation $\Delta_r G = -nFE_{\text{cell}}$, value of $\Delta_r G$ depends on n.
Reasons R : E_{cell} is an intensive property and $\Delta_r G$ is an extensive property.
 In the light of the above statements, choose the correct answer from the options given below : [NEET-2023]
 (1) Both **A** and **R** are true and **R** is NOT the correct explanation of **A**.
 (2) **A** is true but **R** is false
 (3) **A** is false but **R** is true
 (4) Both **A** and **R** are true and **R** is the correct explanation of **A**.
- Q.19** The conductivity of centimolar solution of KCl at 25°C is $0.0210\text{ ohm}^{-1}\text{ cm}^{-1}$ and the resistance of the cell containing the solution at 25°C is 60 ohm. The value of cell constant is - [NEET-2023]
 (1) 3.28 cm^{-1} (2) 1.26 cm^{-1}
 (3) 3.34 cm^{-1} (4) 1.34 cm^{-1}
- Q.20** Match List I with List II. [NEET-2024]

List I (Conversion)	List II (Number of Faraday required)
A. 1 mol of H_2O to O_2	I. 3F
B. 1 mol of MnO_4^- to Mn^{2+}	II. 2F
C. 1.5 mol of Ca from molten CaCl_2	III. 1F
D. 1 mol of FeO to Fe_2O_3	IV. 5F

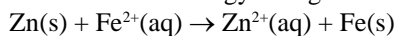
 Choose the correct answer from the options given below:
 (1) A - III, B - IV, C - II, D - I
 (2) A - II, B - IV, C - I, D - III
 (3) A - III, B - IV, C - I, D - II
 (4) A - II, B - III, C - I, D - IV

Q.21 Mass in grams of copper deposited by passing 9.6487 A current through a voltmeter containing copper sulphate solution for 100 seconds is (Given : Molar mass of Cu : 63 g mol⁻¹, 1 F = 96487 C)

[NEET-2024]

- (1) 0.0315 g (2) 3.15 g
(3) 0.315 g (4) 31.5 g

Q.22 The standard cell potential of the following cell Zn | Zn²⁺(aq) | Fe²⁺(aq) | Fe is 0.32 V. Calculate the standard Gibbs energy change for the reaction:



(Given: 1 F = 96487 C) [Re-NEET 2024]

- (1) -61.75 kJ mol⁻¹ (2) +5.006 kJ mol⁻¹
(3) -5.006 kJ mol⁻¹ (4) +61.75 kJ mol⁻¹

Q.23 If the molar conductivity (Λ_m) of a 0.050 mol L⁻¹ solution of a monobasic weak acid is 90 S cm² mol⁻¹, its extent (degree) of dissociation will be

[NEET-2025]

(Assume $\Lambda_+^\circ = 349.6 \text{ S cm}^2$ and $\Lambda_-^\circ = 50.4 \text{ S cm}^2 \text{ mol}^{-1}$)

- (1) 0.115 (2) 0.125
(3) 0.225 (4) 0.215

Chemical Kinetics

Q.1 The rate constant of the reaction : A → B is 0.6 × 10⁻³ mol L⁻¹ s⁻¹. If the concentration of A is 5 M, then concentration of B after 20 min. is :

[AIPMT - 2015]

- (1) 3.60 M (2) 0.36 M
(3) 0.72 M (4) 1.08 M

Q.2 The decomposition of phosphine (PH₃) on tungsten at low pressure is a first order reaction. It is because the :

[NEET Phase II - 2016]

- (1) rate is proportional to the surface coverage
(2) rate is inversely proportional to the surface coverage.
(3) rate is independent of the surface coverage.
(4) rate of decomposition is very slow.

Q.3 The rate of first order reaction is 0.04 mol L⁻¹ s⁻¹ at 10 second and 0.03 mol L⁻¹ s⁻¹ at 20 seconds after initiation of the reaction. The half life period of the reaction is :

[NEET Phase I - 2016]

- (1) 44.1 s (2) 54.1 s
(3) 24.1 s (4) 34.1 s

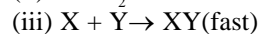
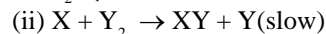
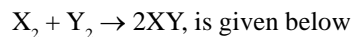
Q.4 The addition of a catalyst during a chemical reaction alters which of the following quantities ?

[NEET Phase I - 2016]

- (1) Enthalpy (2) Activation energy
(3) Entropy (4) Internal Energy

Q.5 Mechanism of a hypothetical reaction.

[NEET - 2017]



The overall order of the reaction will be :

- (1) 2 (2) 0 (3) 1.5 (4) 1

Q.6 The correct difference between first and second order reactions is that

[NEET - 2018]

- (1) A first-order reaction can catalyzed; a second-order reaction cannot be catalyzed
(2) The half-life of a first-order reaction does not depend on [A]₀; the half-life of a second-order reaction does depend on [A]₀
(3) The rate of a first-order reaction does not depend on reactant concentrations; the rate of a second-order reaction does depend on reactant concentrations
(4) The rate of a first-order reaction does depend on reactant concentrations; the rate of a second-order reaction does not depend on reactant concentrations

Q.7 When initial concentration of the reactant is doubled, the half-life period of a zero order reaction

[NEET - 2018]

- (1) Is tripled (2) Is doubled
(3) Is halved (4) Remains unchanged

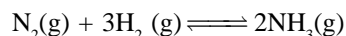
Q.8 If the rate constant for a first order reaction is k, the time (t) required for the completion of 99% of the reaction is given by :

[NEET-2019]

- (1) $t = 0.693/k$ (2) $t = 6.909/k$
(3) $t = 4.606/k$ (4) $t = 2.303/k$

Q.9 For the chemical reaction

[NEET-2019]



(1) $-\frac{1}{3} \frac{d[\text{H}_2]}{dt} = -\frac{1}{2} \frac{d[\text{NH}_3]}{dt}$

(2) $-\frac{d[\text{N}_2]}{dt} = 2 \frac{d[\text{NH}_3]}{dt}$

(3) $-\frac{d[\text{N}_2]}{dt} = \frac{1}{2} \frac{d[\text{NH}_3]}{dt}$

(4) $3 \frac{d[\text{H}_2]}{dt} = 2 \frac{d[\text{NH}_3]}{dt}$

Q.10 An increase in the concentration of the reactants of a reaction leads to change in

[NEET-2020]

- (1) heat of reaction
(2) threshold energy
(3) collision frequency
(4) activation energy

Q.11 The rate constant for a first order reaction is $4.606 \times 10^{-3} \text{ s}^{-1}$. The time required to reduce 2.0 g of the reactant to 0.2 g is : [NEET-2020]

- (1) 200 s (2) 500 s
(3) 1000 s (4) 100 s

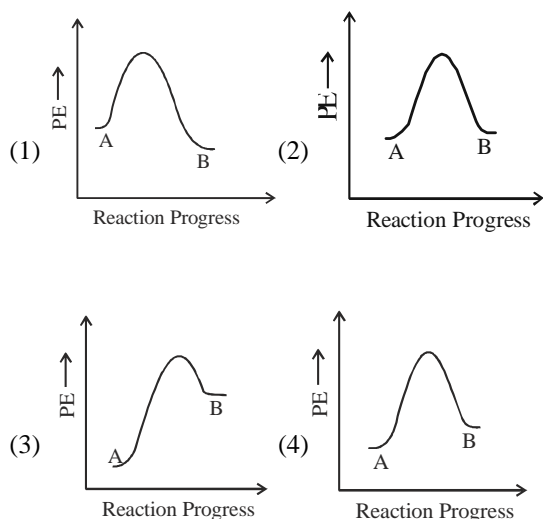
Q.12 The slope of Arrhenius Plot $\left(\ln kv / s \frac{1}{T}\right)$ of first

order reaction is $-5 \times 10^3 \text{ K}$. The value of E_a of the reaction is. Choose the correct option for your answer.

[Given $R = 8.314 \text{ JK}^{-1}\text{mol}^{-1}$] [NEET-2021]

- (1) 83.0 kJ mol^{-1} (2) 166 kJ mol^{-1}
(3) -83 kJ mol^{-1} (4) 41.5 kJ mol^{-1}

Q.13 For a reaction $A \rightarrow B$, enthalpy of reaction is -4.2 kJ mol^{-1} and enthalpy of activation is 9.6 kJ mol^{-1} . The correct potential energy profile for the reaction is shown in option. [NEET-2021]



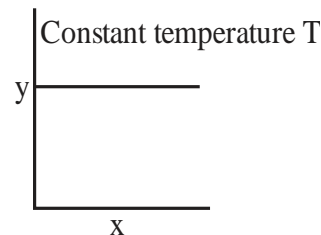
Q.14 Tritium a radioactive isotope of hydrogen, emits which of the following particles? [NEET-2021]

- (1) Alpha (α) (2) Gamma (γ)
(3) Neutron (n) (4) Beta (β^-)

Q.15 For a first order reaction $A \rightarrow \text{Products}$, initial concentration of A is 0.1 M, which becomes 0.001 M after 5 minutes. rate constant for the reaction in min^{-1} is [NEET-2022]

- (1) 0.9212 (2) 0.4606
(3) 0.2303 (4) 1.3818

Q.16 The given graph is a representation of kinetics of a reaction [NEET-2022]



The y and x axes for zero and first order reactions, respectively are

- (1) zero order ($y = \text{concentration}$ and $x = \text{time}$), first order ($y = \text{rate constant}$ and $x = \text{concentration}$)
(2) zero order ($y = \text{rate}$ and $x = \text{concentration}$), first order ($y = t_{1/2}$ and $x = \text{concentration}$)
(3) zero order ($y = \text{rate}$ and $x = \text{concentration}$), first order ($y = \text{rate}$ and $x = t_{1/2}$)
(4) zero order ($y = \text{concentration}$ and $x = \text{time}$), first order ($y = t_{1/2}$ and $x = \text{concentration}$)

Q.17 Given below are two statements : one is labelled as **Assertion A** and the other is labelled as **Reason R**.

Assertion A : A reaction can have zero activation energy.

Reasons R : The minimum extra amount of energy absorbed by reactant molecules so that their energy becomes equal to threshold value, is called activation energy. [NEET-2023]

In the light of the above statements, choose the **correct** answer from the options given below :

- (1) Both **A** and **R** are true but **R** is **NOT** the correct explanation of **A**.
(2) **A** is true but **R** is false
(3) **A** is false but **R** is true
(4) Both **A** and **R** are true and **R** is the correct explanation of **A**.

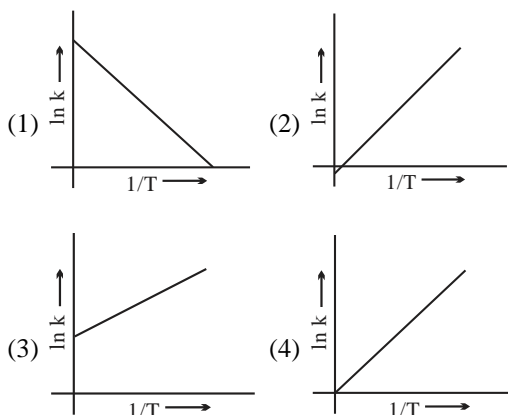
Q.18 For a certain reaction the rate $= k [A]^2 [B]$, when the initial concentration of A is tripled keeping concentration of B constant the initial rate would [NEET-2023]

- (1) Increase by a factor of six
(2) Increase by a factor of nine
(3) Increase by a factor of three
(4) Decrease by a factor of nine

Q.19 Activation energy of any chemical reaction can be calculated if one knows the value of [NEET-2024]

- (1) rate constant at two different temperatures
(2) rate constant at standard temperature
(3) probability of collision
(4) orientation of reactant molecules during collision

- Q.20** Which plot of $\ln k$ vs $\frac{1}{T}$ is consistent with Arrhenius equation? [NEET-2024]

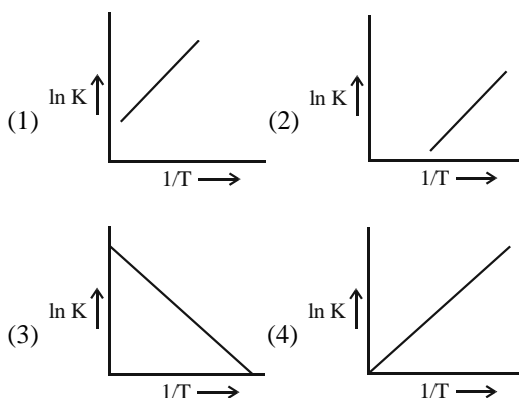


- Q.21** The rate of a reaction quadruples when temperature changes from 27°C to 57°C . Calculate the energy of activation. [NEET-2024]

[Given $R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}$, $\log 4 = 0.6021$]

- (1) 3804 kJ/mol (2) 38.04 kJ/mol
(3) 380.4 kJ/mol (4) 3.80 kJ/mol

- Q.22** Which of the following plot represents the variation of $\ln K$ versus $\frac{1}{T}$ in accordance with Arrhenius equation? [Re-NEET 2024]



- Q.23** Rate constants of a reaction at 500 K and 700 K are 0.04 s^{-1} and 0.14 s^{-1} , respectively; then, activation energy of the reaction is:

(Given: $\log 3.5 = 0.5441$, $R = 8.31 \text{ J K}^{-1} \text{ mol}^{-1}$)

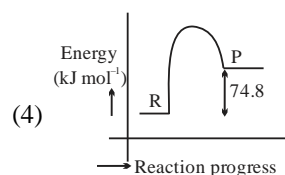
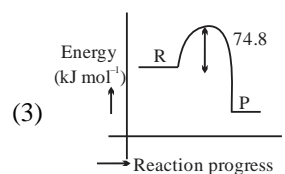
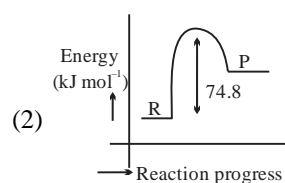
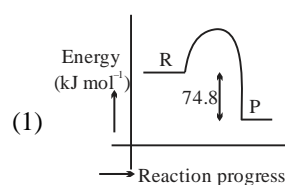
[Re-NEET 2024]

- (1) 182310 J (2) 18500 J
(3) 18219 J (4) 18030 J

- Q.24** If the half-life ($t_{1/2}$) for a first order reaction is 1 minutes, then the time required for 99.9% completion of the reaction is closest to : [NEET-2025]

- (1) 2 minutes (2) 4 minutes
(3) 5 minutes (4) 10 minutes

- Q.25** $\text{C(s)} + 2\text{H}_2(\text{g}) \rightarrow \text{CH}_4(\text{g})$; $\Delta H = -74.8 \text{ kJ mol}^{-1}$
Which of the following diagrams gives an accurate representation of the above reaction? [NEET-2025]
[R→reactants; P→products]



- Q.26** If the rate constant of a reaction is 0.03 s^{-1} , how much time does it take for 7.2 mol L^{-1} concentration of the reactant to get reduced to 0.9 mol L^{-1} ? [NEET-2025]
(Given : $\log 2 = 0.301$)

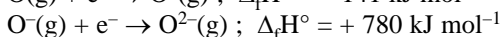
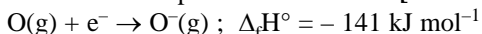
- (1) 69.3 s (2) 23.1 s
(3) 210 s (4) 21.0 s

- Q.27** Which one of the following reactions does NOT belong to "Lassaigne's test"? [NEET-2025]

- (1) $\text{Na} + \text{C} + \text{N} \xrightarrow{\Delta} \text{NaCN}$
(2) $2\text{Na} + \text{S} \xrightarrow{\Delta} \text{Na}_2\text{S}$
(3) $\text{Na} + \text{X} \xrightarrow{\Delta} \text{NaX}$
(4) $2\text{CuO} + \text{C} \xrightarrow{\Delta} 2\text{Cu} + \text{CO}_2$

The p-Block Elements

Q.1 The formation of the oxide ion, $O^{2-}(g)$ from oxygen atom requires first an exothermic and then an endothermic step as shown below: [AIPMT 2015]



Thus, process of formation of O^{2-} in gas phase is unfavourable even though O^{2-} is isoelectronic with neon. It is due to the fact that,

- (1) O^- ion has comparatively smaller size than oxygen atom.
- (2) Oxygen is more electronegative.
- (3) addition of electron in oxygen results in larger size of the ion.
- (4) electron repulsion outweighs the stability gained by achieving noble gas configuration.

Q.2 Which one of the following orders is correct for the bond dissociation enthalpy of halogen molecules?

[NEET (Phase-I) 2015]

- (1) $Br_2 > I_2 > F_2 > Cl_2$
- (2) $F_2 > Cl_2 > Br_2 > I_2$
- (3) $I_2 > Br_2 > Cl_2 > F_2$
- (4) $Cl_2 > Br_2 > F_2 > I_2$

Q.3 The variation of the boiling points of the hydrogen halides is in the order $HF > HI > HBr > HCl$. What explains the higher boiling point of hydrogen fluoride?

[AIPMT 2015]

- (1) There is strong hydrogen bonding between HF.
- (2) The bond energy of HF molecules is greater than in other hydrogen halides.
- (3) The effect of nuclear shielding is much reduced in fluorine which polarises the HF molecules.
- (4) The electronegativity of fluorine is much higher than for other elements in the group.

Q.4 match the compounds given in column I with the hybridisation and shape in column II and mark the correct option. [NEET Phase-I 2016, NEET-2019]

Column I

- (A) XeF_6
- (B) XeO_3
- (C) $XeOF_4$
- (D) XeF_4

Column II

- (i) distorted octahedral
- (ii) square planar
- (iii) pyramidal
- (iv) square pyramidal

- | | A | B | C | D |
|-----|------|-------|------|-------|
| (1) | (iv) | (iii) | (i) | (ii) |
| (2) | (iv) | (i) | (ii) | (iii) |
| (3) | (i) | (iii) | (iv) | (ii) |
| (4) | (i) | (ii) | (ib) | (iii) |

Q.5 Match the inter halogen compounds of column -I with the geometry in column II and assign the correct code. [NEET 2017]

Column I

- (A) XX'
- (B) XX'_3
- (C) XX'_5
- (D) XX'_7

Column II

- (i) T-shape
- (ii) Pentagonal bipyramidal
- (iii) Linear
- (iv) Square pyramidal
- (v) Tetrahedral

Code :

- | | A | B | C | D |
|-----|-----|-----|-----|----|
| (1) | iii | i | iv | ii |
| (2) | v | iv | iii | ii |
| (3) | iv | iii | ii | i |
| (4) | iii | iv | i | ii |

Q.6 Which of the following statements is not true for halogens? [NEET-2018]

- (1) All but fluorine show positive oxidation states
- (2) All are oxidizing agents
- (3) All form monobasic oxyacids
- (4) Chlorine has the highest electron-gain enthalpy

Q.7 Identify the incorrect statement related to PCl_5 from the following: [NEET-2019]

- (1) Three equatorial P-Cl bonds make an angle of 120° with each other
- (2) Two axial P-Cl bonds make an angle of 180° with each other
- (3) Axial P-Cl bonds are longer than equatorial P-Cl bonds
- (4) PCl_5 molecule is non-reactive

Q.8 Which is the correct thermal stability order for H_2E ($E = O, S, Se, Te$ and Po)? [NEET-2019]

- (1) $H_2S < H_2O < H_2Se < H_2Te < H_2Po$
- (2) $H_2O < H_2S < H_2Se < H_2Te < H_2Po$
- (3) $H_2Po < H_2Te < H_2Se < H_2S < H_2O$
- (4) $H_2Se < H_2Te < H_2Po < H_2O < H_2S$

Q.9 In which one of the following arrangements the given sequence is not strictly according to the properties indicated against it? [NEET-2021]

- (1) $H_2O < H_2S < H_2Se < H_2Te$: Increasing pK_a values
- (2) $NH_3O < PH_3 < AsH_3 < SbH_3$: Increasing acidic character
- (3) $CO_2 < SiO_2 < SnO_2 < PbO_2$: Increasing oxidizing power
- (4) $HF < HCl < HBr < HI$: Increasing acidic strength.

Q.10 Noble gases are named because of their inertness towards reactivity. Identify an incorrect statement about them. [NEET-2021]

- (1) Noble gases have very high melting and boiling points.
- (2) Noble gases have weak dispersion forces
- (3) Noble gases have large positive values of electron gain enthalpy.
- (4) Noble gases are sparingly soluble in water.

Q.11 Statement I : Acid strength increases in the order given as $\text{HF} \ll \text{HCl} \ll \text{HBr} \ll \text{HI}$

Statement II:

As the size of the elements F, Cl, Br, I increases down the group, the bond strength of HF, HCl, HBr and HI decreases and so the acid strength increases.

In the light of the above statements, choose the correct answer from the options given below. [NEET-2021]

- (1) Both Statement I and Statement II are false.
- (2) Statement I is correct but Statement II is false.
- (3) Statement I is incorrect but Statement II is true.
- (4) Both Statement I and Statement II are true.

Q.12 Given below are two statements :

Statement I : The boiling points of the following hydrides of group 16 elements increases in the order $\text{H}_2\text{O} < \text{H}_2\text{S} < \text{H}_2\text{Se} < \text{H}_2\text{Te}$

Statement II : The boiling points of these hydrides increase with increase in molar mass.

In the light of the above statements, choose the most appropriate answer from the options given below :

[NEET-2022]

- (1) both statement I and statement II are incorrect
- (2) statement I is correct but statement II is incorrect
- (3) statement I is incorrect but statement II is correct
- (4) both statement I and statement II are correct

Q.13 Amongst the following, the total number of species NOT having eight electrons around central atom in its outer most shell, is [NEET-2023]

$\text{NH}_3, \text{AlCl}_3, \text{BeCl}_2, \text{CCl}_4, \text{PCl}_5,$

- (1) 2
- (2) 4
- (3) 1
- (4) 3

Q.14 Given below are two statements: [NEET-2024]

Statement I: The boiling point of hydrides of Group 16 elements follow the order

$\text{H}_2\text{O} > \text{H}_2\text{Te} > \text{H}_2\text{Se} > \text{H}_2\text{S}$

Statement II: On the basis of molecular mass, H_2O is expected to have lower boiling point than the other members of the group but due to the presence of extensive H-bonding in H_2O , it has higher boiling point.

In the light of the above statements, choose the correct answer from the options given below:

- (1) Statement I is false but Statement II is true
- (2) Both Statement I and Statement II are true
- (3) Both Statement I and Statement II are false
- (4) Statement I is true but Statement II is false

Q.15 Among Group 16 elements, which one does NOT show -2 oxidation state? [NEET-2024]

- (1) Po
- (2) O
- (3) Se
- (4) Te

Q.16 Match List-I with List-II:

List-I (Atom/Molecule)		List-II (Property)	
A.	Nitrogen atom	I.	Paramagnetic
B.	Fluorine molecule	II.	Most reactive element in group 18
C.	Oxygen molecule	III.	Element with highest ionisation enthalpy in group 15
D.	Xenon atom	IV.	Strongest oxidising agent

Identify the correct answer from the options given below: [Re-NEET 2024]

- (1) A-III, B-I, C-IV, D-II
- (2) A-I, B-IV, C-III, D-II
- (3) A-II, B-IV, C-I, D-III
- (4) A-III, B-IV, C-I, D-II

Q.17 Identify the incorrect statement from the following: [Re-NEET 2024]

- (1) The acidic strength of HX ($\text{X} = \text{F}, \text{Cl}, \text{Br}$ and I) follows the order: $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$.
- (2) Fluorine exhibits -1 oxidation state whereas other halogens exhibit $+1, +3, +5$ and $+7$ oxidation states also.
- (3) The enthalpy of dissociation of F_2 is smaller than that of Cl_2 .
- (4) Fluorine is stronger oxidising agent than chlorine.

Q.18 Identify the incorrect statement. [Re-NEET 2024]

- (1) PEt_3 and AsPh_3 as ligands can form $d\pi-d\pi$ bond with transition metals
- (2) The $\text{N}-\text{N}$ single bond is as strong as the $\text{P}-\text{P}$ single bond
- (3) Nitrogen has unique ability to form $p\pi-p\pi$ multiple bonds with nitrogen, carbon and oxygen
- (4) Nitrogen cannot form $d\pi-p\pi$ bond as other heavier elements of its group

The d and f - Block Elements

Q.1 Assuming complete ionisation, same moles of which of the following compounds will require the least amount of acidified KMnO_4 for complete oxidation. [AIPMT 2015]

- (1) FeSO_3
- (2) FeC_2O_4
- (3) $\text{Fe}(\text{NO}_2)_2$
- (4) FeSO_4

Q.2 Gadolinium belongs to 4f series. Its atomic number is 64. Which of the following is the correct electronic configuration of gadolinium? [AIPMT 2015]

- (1) $[\text{Xe}] 4f^9 5s^1$
- (2) $[\text{Xe}] 4f^7 5d^1 6s^2$
- (3) $[\text{Xe}] 4f^6 5d^2 6s^2$
- (4) $[\text{Xe}] 4f^8 6d^2$

Q.3 Which one of the following statements related to lanthanons is incorrect? [NEET (Phase II) 2016]

- (1) Europium shows $+2$ oxidation state.
- (2) The basicity decreases as the ionic radius decreases from Pu to Lu.

- (3) All the lanthanons are much more reactive than aluminium.
- (4) Ce(+4) solutions are widely used as oxidizing agent in volumetric analysis.
- Q.4** Which one of the following statements is correct when SO_2 is passed through acidified $\text{K}_2\text{Cr}_2\text{O}_7$ solution? [NEET (Phase I) 2016]
- (1) SO_2 is reduced.
 (2) The solution turns Green $\text{Cr}_2(\text{SO}_4)_3$
 (3) The solution turns blue
 (4) The solution is decolourised.
- Q.5** The electronic configurations of Eu (Atomic no. 63), Gd(Atomic no.64) and Tb (Atomic no. 65) are [NEET (Phase I) 2016]
- (1) $[\text{Xe}] 4f^6 5d^1 6s^2$, $[\text{Xe}] 4f^7 5d^1 6s^2$ and $[\text{Xe}] 4f^8 5d^1 6s^2$
 (2) $[\text{Xe}] 4f^7 6s^2$, $[\text{Xe}] 4f^7 5d^1 6s^2$ and $[\text{Xe}] 4f^9 6s^2$
 (3) $[\text{Xe}] 4f^7 6s^2$, $[\text{Xe}] 4f^8 6s^2$ and $[\text{Xe}] 4f^8 5d^1 6s^2$
 (4) $[\text{Xe}] 4f^6 5d^1 6s^2$, $[\text{Xe}] 4f^7 5d^1 6s^2$ and $[\text{Xe}] 4f^9 6s^2$
- Q.6** Name the gas that can readily decolourise acidified KMnO_4 solution. [NEET 2017]
- (1) SO_2 (2) NO_2 (3) P_2O_5 (4) CO_2
- Q.7** HgCl_2 and I_2 both when dissolved in water containing I^- ions, the pair of species formed is : [NEET 2017]
- (1) HgI_2, I^- (2) $\text{HgI}_4^{2-}, \text{I}_3^-$
 (3) $\text{Hg}_2\text{I}_2, \text{I}^-$ (4) $\text{HgI}_2, \text{I}_3^-$
- Q.8** The reason for greater range of oxidation state in actinoids is attributed to : [NEET 2017]
- (1) actinoids contraction.
 (2) 5f, 6d and 7s levels having comparable energies.
 (3) 4f and 5d levels being clo, ser in energies.
 (4) the radioactive nature of actinoids.
- Q.9** Match the metal ions given in Column I with the spin magnetic moments of the ions given in Column II and assign the correct code : [NEET - 2018]
- | Column I | Column II |
|---------------------|--------------------|
| a. Co^{3+} | i. $\sqrt{8}$ BM |
| b. Cr^{3+} | ii. $\sqrt{35}$ BM |
| c. Fe^{3+} | iii. $\sqrt{3}$ BM |
| d. Ni^{2+} | iv. $\sqrt{24}$ BM |
| | v. $\sqrt{15}$ BM |
- | a | b | c | d |
|---------|----|-----|-----|
| (1) iv | i | ii | iii |
| (2) i | ii | iii | iv |
| (3) iv | v | ii | i |
| (4) iii | v | i | ii |
- Q.10** Which one of the following ions exhibits d-d transition and paramagnetism as well? [NEET 2018]
- (1) MnO_4^- (2) $\text{Cr}_2\text{O}_7^{2-}$
 (3) CrO_4^{2-} (4) MnO_4^{2-}
- Q.11** The manganate and permanganate ions are tetrahedral, due to [NEET-2019]
- (1) The π -bonding involves overlap of p-orbitals of oxygen with d-orbitals of manganese
 (2) There is no π -bonding
 (3) The π -bonding involves overlap of p-orbitals of oxygen with p-orbitals of manganese.
 (4) The π -bonding involves overlap of d-orbitals of oxygen with d-orbitals of manganese
- Q.12** The number of protons, neutrons and electrons in $^{175}_{71}\text{Lu}$, respectively, are [NEET-2020]
- (1) 104, 71 and 71 (2) 71, 71 and 104
 (3) 175, 104 and 71 (4) 71, 104 and 71
- Q.13** The calculated spin only magnetic moment of Cr^{2+} ion is [NEET-2020]
- (1) 4.90 BM (2) 5.92 BM
 (3) 2.84 BM (4) 3.87 BM
- Q.14** Identify the incorrect statement. [NEET-2020]
- (1) The transition metals and their compounds are known for their catalytic activity due to their ability to adopt multiple oxidation states and to form complexes.
 (2) Interstitial compounds are those that are formed when small atoms like H, C or N are trapped inside the crystal lattices of metals.
 (3) The oxidation states of chromium in CrO_4^{2-} and $\text{Cr}_2\text{O}_7^{2-}$ are not the same.
 (4) Cr^{2+} (d^4) is a stronger reducing agent than Fe^{2+} (d^6) in water.
- Q.15** The incorrect statement among the following is: [NEET-2021]
- (1) Most of the trivalent Lanthanoid ions are colorless in the solid state.
 (2) Lanthanoids are good conductors of heat and electricity.
 (3) Actinoids are highly reactive metals especially when finely divided.
 (4) Actinoid contraction is greater for element to element than Lanthanoid contraction.
- Q.16** Gadolinium has a low value of third ionisation enthalpy because of [NEET-2022]
- (1) high exchange enthalpy
 (2) high electronegativity
 (3) high basic character
 (4) small size

- Q.17** Which of the following statements are **INCORRECT** ? [NEET-2023]
 A. All the transition metals except scandium form MO oxides which are ionic.
 B. The highest oxidation number corresponding to the group number in transition metal oxides is attained in Sc_2O_3 to Mn_2O_7 .
 C. Basic character increases from V_2O_3 to V_2O_4 to V_2O_5
 D. V_2O_4 dissolves in acids to give VO_4^{3-} salts.
 E. CrO is basic but Cr_2O_3 is amphoteric.
 Choose the **correct** answer from the options given below:
 (1) B and D only (2) C and D only
 (3) B and C only (4) A and E only
- Q.18** The stability of Cu^{2+} is more than Cu^+ salts in aqueous solution due to – [NEET-2023]
 (1) enthalpy of atomization
 (2) hydration energy.
 (3) second ionisation enthalpy.
 (4) first ionisation enthalpy
- Q.19** ‘Spin only’ magnetic moment is same for which of the following ions? [NEET-2024]
 (A) Ti^{3+} (B) Cr^{2+} (C) Mn^{2+} (D) Fe^{2+} (E) Sc^{3+}
 Choose the most appropriate answer from the options given below.
 (1) A and D only (2) B and D only
 (3) A and E only (4) B and C only
- Q.20** The E° value for the $\text{Mn}^{3+}/\text{Mn}^{2+}$ couple is more positive than that of $\text{Cr}^{3+}/\text{Cr}^{2+}$ or $\text{Fe}^{3+}/\text{Fe}^{2+}$ due to change of [NEET-2024]
 (1) d^3 to d^5 configuration (2) d^5 to d^4 configuration
 (3) d^5 to d^2 configuration (4) d^4 to d^5 configuration
- Q.21** The pair of lanthanoid ions which are diamagnetic is [NEET-2024]
 (1) Pm^{3+} and Sm^{3+} (2) Ce^{4+} and Yb^{2+}
 (3) Ce^{3+} and Eu^{2+} (4) Gd^{3+} and Eu^{3+}
- Q.22** Which of the following pairs of ions will have same spin only magnetic moment values within the pair?
 (A) Zn^{2+} , Ti^{2+} (B) Cr^{2+} , Fe^{2+}
 (C) Ti^{3+} , Cu^{2+} (D) V^{2+} , Cu^+
 Choose the correct answer from the options given below: [Re-NEET 2024]
 (1) C and D only (2) A and D only
 (3) A and B only (4) B and C only
- Q.23** Which of the following set of ions act as oxidising agents? [Re-NEET 2024]
 (1) Ce^{4+} and Tb^{4+} (2) La^{3+} and Lu^{3+}
 (3) Eu^{2+} and Yb^{2+} (4) Eu^{2+} and Tb^{4+}
- Q.24** The UV-visible absorption bands in the spectra of lanthanoid ions are ‘X’, probably because of the excitation of electrons involving ‘Y’. The ‘X’ and ‘Y’, respectively, are: [Re-NEET 2024]
 (1) Broad and f orbitals
 (2) Narrow and f orbitals
 (3) Broad and d and f orbitals
 (4) Narrow and d and f orbitals
- Q.25** Given below are two statements : [NEET-2025]
Statement I : Ferromagnetism is considered as an extreme form of paramagnetism.
Statement II : The number of unpaired electrons in a Cr^{2+} ion ($Z = 24$) is the same as that of a Nd^{3+} ion ($Z = 60$).
 In the light of the above statements, choose the correct answer from the options given below :
 (1) Both Statements I and Statement II are true
 (2) Both Statement I and Statements II are false
 (3) Statement I is true but Statement II is false
 (4) Statement I is false but Statements II is true
- Q.26** Match List-I with List-II [NEET-2025]

<i>List-I</i>	<i>List-II</i>
A. Haber process	I. Fe catalyst
B. Wacker oxidation	II. PdCl_2
C. Wilkinson catalyst	III. $[(\text{PPh}_3)_3\text{RhCl}]$
D. Ziegler catalyst	IV. TiCl_4 , with $\text{Al}(\text{CH}_3)_3$

 Choose the correct answer from the options given below :
 (1) A-I, B-II, C-IV, D-III (2) A-II, B-III, C-I, D-IV
 (3) A-I, B-II, C-III, D-IV (4) A-I, B-IV, C-III, D-II

Coordination Compounds

- Q.1** The hybridization involved in complex $[\text{Ni}(\text{CN})_4]^{2-}$ is : (At. no. Ni = 28) [AIPMT 2015]
 (1) sp^3 (2) d^2sp^2
 (3) d^2sp^3 (4) dsp^2
- Q.2** The name of complex ion, $[\text{Fe}(\text{CN})_6]^{3-}$ is : [AIPMT 2015]
 (1) hexacyanoferrate (III) ion
 (2) tricyanoferrate (III) ion
 (3) hexacyanidoferrate (III) ion
 (4) hexacyanoiron (III) ion
- Q.3** The sum of coordination number and oxidation number of the metal M in the complex $[\text{M}(\text{en})_2(\text{C}_2\text{O}_4)]\text{Cl}$ (where en is ethylenediamine) is : [AIPMT 2015]
 (1) 6 (2) 7
 (3) 8 (4) 9
- Q.4** Number of possible isomers for the complex $[\text{Co}(\text{en})_2\text{Cl}_2]\text{Cl}$ will be (en = ethylenediamine.) [AIPMT 2015]
 (1) 1 (2) 3
 (3) 4 (4) 2

- Q.5** Which of the following has longest C–O bond length? [Free C – O bond length in CO is 1.128 Å] [NEET Phase-I 2016]
 (1) $[\text{Fe}(\text{CO})_4]^{2-}$ (2) $[\text{Mn}(\text{CO})_6]^+$
 (3) $[\text{Ni}(\text{CO})_4]$ (4) $[\text{Co}(\text{CO})_4]^-$
- Q.6** The correct order of the stoichiometries of AgCl formed when AgNO_3 in excess is treated with the complexes : $\text{CoCl}_3 \cdot 6\text{NH}_3$, $\text{CoCl}_3 \cdot 5\text{NH}_3$, $\text{CoCl}_3 \cdot 4\text{NH}_3$ respectively is [NEET 2017]
 (1) 3 AgCl, 1 AgCl, 2 AgCl
 (2) 3 AgCl, 2 AgCl, 1 AgCl
 (3) 2 AgCl, 3 AgCl, 2 AgCl
 (4) 1 AgCl, 3 AgCl, 2 AgCl
- Q.7** Correct increasing order for the wavelengths of absorption in the visible for the complexes of Co^{3+} is [NEET 2017]
 (1) $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$, $[\text{Co}(\text{en})_3]^{3+}$, $[\text{Co}(\text{NH}_3)_6]^{3+}$
 (2) $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$, $[\text{Co}(\text{NH}_3)_6]^{3+}$, $[\text{Co}(\text{en})_3]^{3+}$
 (3) $[\text{Co}(\text{NH}_3)_6]^{3+}$, $[\text{Co}(\text{en})_3]^{3+}$, $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$
 (4) $[\text{Co}(\text{en})_3]^{3+}$, $[\text{Co}(\text{NH}_3)_6]^{3+}$, $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$
- Q.8** Pick out the correct statement with respect to $[\text{Mn}(\text{CN})_6]^{3-}$. [NEET 2017]
 (1) It is sp^3d^2 hybridised and tetrahedral.
 (2) It is d^2sp^3 hybridised and octahedral.
 (3) It is dsp^2 hybridised and square planar.
 (4) It is sp^3d^2 hybridised and octahedral.
- Q.9** Iron carbonyl, $\text{Fe}(\text{CO})_5$ is [NEET - 2018]
 (1) Trinuclear (2) Mononuclear
 (3) Tetranuclear (4) Dinuclear
- Q.10** The type of isomerism shown by the complex $[\text{CoCl}_2(\text{en})_2]$ is [NEET - 2018]
 (1) Ionization isomerism
 (2) Coordination isomerism
 (3) Geometrical isomerism
 (4) Linkage isomerism
- Q.11** The geometry and magnetic behaviour of the complex $[\text{Ni}(\text{CO})_4]$ are [NEET - 2018]
 (1) Square planar geometry and paramagnetic
 (2) Tetrahedral geometry and diamagnetic
 (3) Square planar geometry and diamagnetic
 (4) Tetrahedral geometry and paramagnetic
- Q.12** What is the correct electronic configuration of the central atom in $\text{K}_4[\text{Fe}(\text{CN})_6]$ based on crystal field theory ? [NEET-2019]
 (1) $t_{2g}^4 e_g^2$ (2) $t_{2g}^6 e_g^0$ (3) $e^3 t^3$ (4) $e^4 t^2$
- Q.13** Urea reacts with water to form A which will decompose to form B. B when passed through $\text{Cu}^{2+}(\text{aq.})$, deep blue colour solution C is formed. What is the formula of C from the following ? [NEET-2020]
 (1) $[\text{Cu}(\text{NH}_3)_4]^{2+}$ (2) $\text{Cu}(\text{OH})_2$
 (3) $\text{CuCO}_3 \cdot \text{Cu}(\text{OH})_2$ (4) CuSO_4
- Q.14** Which of the following is the correct order of increasing field strength of ligands to form coordination compounds? [NEET-2020]
 (1) $\text{SCN}^- < \text{F}^- < \text{CN}^- < \text{C}_2\text{O}_4^{2-}$
 (2) $\text{F}^- < \text{SCN}^- < \text{C}_2\text{O}_4^{2-} < \text{CN}^-$
 (3) $\text{CN}^- < \text{C}_2\text{O}_4^{2-} < \text{SCN}^- < \text{F}^-$
 (4) $\text{SCN}^- < \text{F}^- < \text{C}_2\text{O}_4^{2-} < \text{CN}^-$
- Q.15** Match List - I with List -II. [NEET-2021]
List - I **List -II**
 (a) $[\text{Fe}(\text{CN})_6]^{3-}$ (i) 5.92 BM
 (b) $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$ (ii) 0 BM
 (c) $[\text{Fe}(\text{CN})_6]^{4-}$ (iii) 4.90 BM
 (d) $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$ (iv) 1.73 BM
 Choose the **correct** answer from the option given below.
 (1) (a)-(ii), (b)-(iv),(c)-(iii) (d)- (i)
 (2) (a)-(i), (b)-(iii),(c)-(iv) (d)- (ii)
 (3) (a)-(iv), (b)-(i),(c)-(ii) (d)- (iii)
 (4) (a)-(iv), (b)-(ii),(c)-(i) (d)- (iii)
- Q.16** Ethylene diaminetetraacetate (EDTA) ion is : [NEET-2021]
 (1) Unidentate ligand
 (2) Bidentate ligand with two “N” donor atoms
 (3) Tridentate ligand with three “N” donor atoms
 (4) Hexadentate ligand with four “O” and two “N” donor atoms.
- Q.17** The order of energy absorbed which is responsible for the color of complexes [NEET-2022]
 (A) $[\text{Ni}(\text{H}_2\text{O})_2(\text{en})_2]^{2+}$
 (B) $[\text{Ni}(\text{H}_2\text{O})_4(\text{en})]^{2+}$ and
 (C) $[\text{Ni}(\text{en})_3]^{2+}$
 (1) (C)>(B)>(A) (2) (C)>(A)>(B)
 (3) (B)>(A)>(C) (4) (A)>(B)>(C)
- Q.18** The IUPAC name of the complex - $[\text{Ag}(\text{H}_2\text{O})_2][\text{Ag}(\text{CN})_2]$ is : [NEET-2022]
 (1) diaquasilver (II) dicyanidoargentate (II)
 (2) dicyanidosilver (I) diaquaargentate (I)
 (3) diaquasilver (I) dicyanidoargentate (I)
 (4) dicyanidosilver (II) diaquaargentate (II)
- Q.19** Which complex compound is most stable ? [NEET-2023]
 (1) $[\text{Co}(\text{NH}_3)_3(\text{NO}_3)_3]$
 (2) $[\text{CoCl}_2(\text{en})_2] \text{NO}_3$
 (3) $[\text{Co}(\text{NH}_3)_6]_2(\text{SO}_4)_3$
 (4) $[\text{Co}(\text{NH}_3)_4(\text{H}_2\text{O})_2\text{Br}](\text{NO}_3)_2$
- Q.20** Homoleptic complex from the following complexes is : [NEET-2023]
 (1) Diamminechloridonitrito-N-platinum (II)
 (2) Pentaamminecarbonatocobalt (III) chloride
 (3) Triamminetriaquachromium (III) chloride
 (4) Potassium trioxalatoaluminate (III)

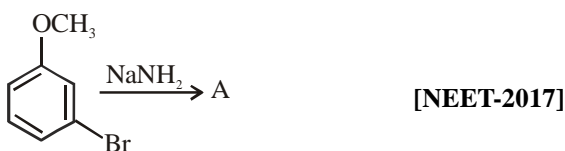
- Q.21** Match List I with List II. [NEET 2024]
List I (Complex) **List II**
(Type of isomerism)
- (A) $[\text{Co}(\text{NH}_3)_5(\text{NO}_2)]\text{Cl}_3$ I. Solvate isomerism
 (B) $[\text{Co}(\text{NH}_3)_5(\text{SO}_4)]\text{Br}$ II. Linkage isomerism
 (C) $[\text{Co}(\text{NH}_3)_6][\text{Cr}(\text{CN})_6]$ III. Ionization isomerism
 (D) $[\text{Co}(\text{H}_2\text{O})_6]\text{Cl}_4$ IV. Coordination isomerism
- Choose the correct answer from the options given below:
 (1) A - II, B - IV, C - III, D - I
 (2) A - II, B - III, C - IV, D - I
 (3) A - I, B - III, C - IV, D - II
 (4) A - I, B - IV, C - III, D - II
- Q.22** Given below are two statements : [NEET 2024]
Statement I: Both $[\text{Co}(\text{NH}_3)_6]^{3+}$ and $[\text{CoF}_6]^{3-}$ complexes are octahedral but differ in their magnetic behaviour.
Statement II: $[\text{Co}(\text{NH}_3)_6]^{3+}$ is diamagnetic whereas $[\text{CoF}_6]^{3-}$ is paramagnetic.
 In the light of the above statements, choose the correct answer from the options given below:
 (1) Statement I is false but Statement II is true
 (2) Both Statement I and Statement II are true
 (3) Both Statement I and Statement II are false
 (4) Statement I is true but Statement II is false
- Q.23** Given below are two statements : [NEET 2024]
Statement I : $[\text{Co}(\text{NH}_3)_6]^{3+}$ is a homoleptic complex whereas $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]^+$ is a heteroleptic complex.
Statement II : Complex $[\text{Co}(\text{NH}_3)_6]^{3+}$ has only one kind of ligands but $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]^+$ has more than one kind of ligands.
 In the light of the above statements, choose the correct answer from the options given below.
 (1) Statement I is false but Statement II is true
 (2) Both Statement I and Statement II are true
 (3) Both Statement I and Statement II are false
 (4) Statement I is true but Statement II is false
- Q.24** Ethylene diaminetetraacetate ion is a/an: [Re-NEET 2024]
 (1) hexadentate ligand
 (2) ambidentate ligand
 (3) monodentate ligand
 (4) bidentate ligand
- Q.25** The amount of glucose required to prepare 250 mL of M/20 aqueous solution is:
 (Molar mass of glucose: 180 g mol^{-1}) [Re-NEET 2024]
 (1) 2.25 g (2) 4.5 g
 (3) 0.44 g (4) 1.125 g
- Q.26** Which of the following is not an ambidentate ligand? [Re-NEET 2024]
 (1) $\text{C}_2\text{O}_4^{2-}$ (2) SCN^-
 (3) NO_2^- (4) CN^-
- Q.27** $[\text{Mn}_2(\text{CO})_{10}]$ and $[\text{Co}_2(\text{CO})_8]$ structures have
 A. Metal-Metal linkage
 B. Terminal CO groups
 C. Bridging CO groups
 D. Metal in zero oxidation state
 Choose the correct answer from the options given below: [Re-NEET 2024]
 (1) Only A, B, C (2) Only B, C, D
 (3) Only A, C, D (4) Only A, B, D
- Q.28** Which of the following are paramagnetic ? [NEET-2025]
 A. $[\text{NiCl}_4]^{2-}$ B. $\text{Ni}(\text{CO})_4$
 C. $[\text{Ni}(\text{CN})_4]^{2-}$ D. $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$
 E. $\text{Ni}(\text{PPh}_3)_4$
 Choose the correct answer from the options given below :
 (1) A and C only
 (2) B and E only
 (3) A and D only
 (4) A, D and E only
- Q.29** Given below are two statements : [NEET-2025]
Statement I : Like nitrogen that can form ammonia, arsenic can form arsine
Statement II : Antimony cannot form antimony pentoxide
 In the light of the above statements, choose the most appropriate answer from the options given below :
 (1) Both Statement I and Statement II are correct
 (2) Both Statement I and Statement II are incorrect
 (3) Statement I is correct but Statement II is incorrect
 (4) Statement I is incorrect but Statement II is correct.
- Q.30** The correct order of the wavelength of light absorbed by the following complexes is, [NEET-2025]
 A. $[\text{Co}(\text{NH}_3)_6]^{3+}$ B. $[\text{Co}(\text{CN})_6]^{3-}$
 C. $[\text{Cu}(\text{H}_2\text{O})_4]^{2+}$ D. $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$
 Choose the correct answer from the options given below
 (1) $\text{B} < \text{D} < \text{A} < \text{C}$
 (2) $\text{B} < \text{A} < \text{D} < \text{C}$
 (3) $\text{C} < \text{D} < \text{A} < \text{B}$
 (4) $\text{C} < \text{A} < \text{D} < \text{B}$

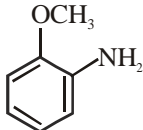
Haloalkanes and Haloarenes

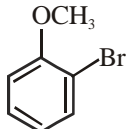
- Q.1** In an S_N1 reaction on chiral centers, there is
 (1) Inversion more than retention leading to partial racemisation.
 (2) 100% retention [AIPMT 2015]
 (3) 100% inversion
 (4) 100% racemisation

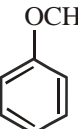
- Q.2** Consider the reaction : [NEET Phase II-2016]
 $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br} + \text{NaCN} \rightarrow \text{CH}_3\text{CH}_2\text{CH}_2\text{CN} + \text{NaBr}$
 This reaction will be the fastest in
 (1) ethanol
 (2) methanol
 (3) N, Nⁿ-dimethylformamide (DMP)
 (4) Water

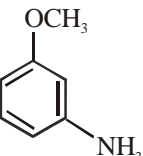
- Q.3** Identify A and predict the type of reaction.



- (1)  and elimination addition reaction.

- (2)  and cine substitution reaction.

- (3)  and cine substitution reaction

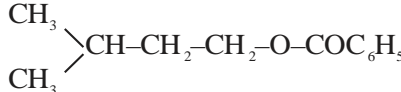
- (4)  and substitution reaction.

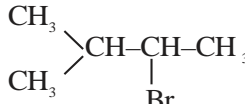
- Q.4** Elimination reaction of 2-Bromo-pentane to form pent-2-ene is [NEET-2020]
 (a) β -Elimination reaction
 (b) Follows Zaitsev rule
 (c) Dehydrohalogenation reaction
 (d) Dehydration reaction
 (1) (a), (c), (d) (2) (b), (c), (d)
 (3) (a), (b), (d) (4) (a), (b), (c)


- Q.5** The correct sequence of bond enthalpy of 'C-X' bond is : [NEET-2021]
 (1) $\text{CH}_3\text{-F} > \text{CH}_3\text{-Cl} > \text{CH}_3\text{-Br} > \text{CH}_3\text{-I}$
 (2) $\text{CH}_3\text{-F} < \text{CH}_3\text{-Cl} > \text{CH}_3\text{-Br} > \text{CH}_3\text{-I}$
 (3) $\text{CH}_3\text{-Cl} > \text{CH}_3\text{-F} > \text{CH}_3\text{-Br} > \text{CH}_3\text{-I}$
 (4) $\text{CH}_3\text{-F} < \text{CH}_3\text{-Cl} < \text{CH}_3\text{-Br} < \text{CH}_3\text{-I}$

- Q.6** The major product of the following chemical reaction is [NEET-2021]



- (1) 


- (2) 

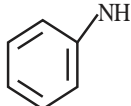
- (3) 

- (4) 

- Q.7** Which of the following is suitable to synthesize chlorobenzene ? [NEET-2022]

- (1) Phenol, NaNO_2 , HCl, CuCl

- (2) , HCl

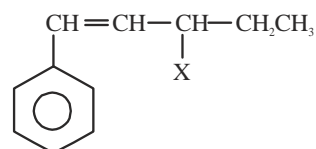
- (3) , HCl, Heating

- (4) Benzene, Cl_2 , anhydrous FeCl_3

- Q.8** The incorrect statement regarding chirality is :

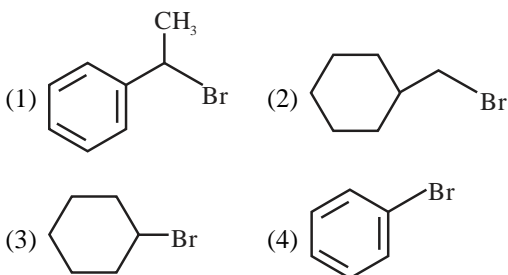
- (1) The product obtained by S_N2 reaction of haloalkane having chirality at the reactive site shows inversion of configuration, [NEET-2022]
 (2) enantiomers are superimposable mirror images of each other
 (3) A racemic mixture shows zero optical rotation.
 (4) S_N1 reaction yields 1:1 mixture of both enantiomers

- Q.9** The given compound [NEET-2023]



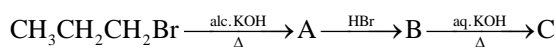
- is an example of _____
 (1) aryl halide (2) allylic halide
 (3) Vinylic halide (4) benzylic halide

- Q.10** The compound that will undergo S_N1 reaction with the fastest rate is [NEET 2024]

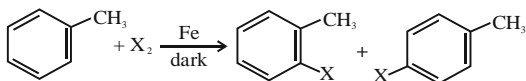


- Q.11** Arrange the following compounds in increasing order of their solution in chloroform : [Re-NEET 2024]
 NaCl , CH_3OH , cyclohexane, CH_3CN
- (1) $\text{NaCl} < \text{CH}_3\text{CN} < \text{CH}_3\text{OH} < \text{Cyclohexane}$
 (2) $\text{CH}_3\text{OH} < \text{CH}_3\text{CN} < \text{NaCl} < \text{Cyclohexane}$
 (3) $\text{NaCl} < \text{CH}_3\text{OH} < \text{CH}_3\text{CN} < \text{Cyclohexane}$
 (4) $\text{Cyclohexane} < \text{CH}_3\text{CN} < \text{CH}_3\text{OH} < \text{NaCl}$

- Q.12** The major product C in the below mentioned reaction is: [Re-NEET 2024]



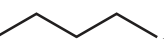
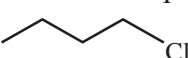
- (1) Propan-1-ol (2) Propan-2-ol
 (3) Propane (4) Propyne
- Q.13** The following reaction method



is not suitable for the preparation of the corresponding haloarene products, due to high reactivity of halogen, when X is: [Re-NEET 2024]

- (1) F (2) I (3) Cl (4) Br
- Q.14** Given below are two statements : [NEET-2025]
Statement I : Benzenediazonium salt is prepared by the reaction of aniline with nitrous acid at 273-278 K. It decomposes easily in the dry state.
Statement II : Insertion of iodine into the benzene ring is difficult and hence iodobenzene is prepared through the reaction of benzenediazonium salt with KI. In the light of the above statements, choose the most appropriate answer from the options given below
- (1) Both Statement I and Statement II are correct
 (2) Both Statement I and Statement II are incorrect
 (3) Statement I is correct but Statement II is incorrect
 (4) Statement I is incorrect but Statement II is correct

- Q.15** Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) :  undergoes S_N2 reaction faster than 

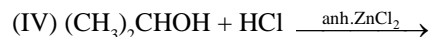
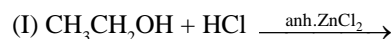
Reason (R) : Iodine is a better leaving group because of its large size. [NEET-2025]

In the light of the above statements, choose the correct answer from the options given below :

- (1) Both **A** and **R** are true and **R** is the correct explanation of **A**.
 (2) Both **A** and **R** are true but **R** is not the correct explanation of **A**.
 (3) **A** is true but **R** is false
 (4) **A** is false but **R** is true

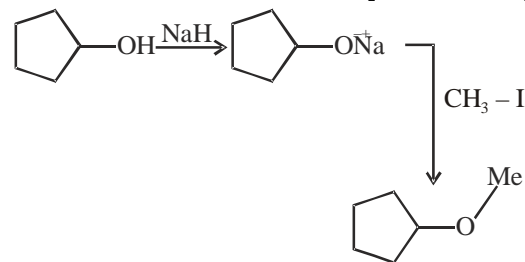
Alcohols, Phenols and Ethers

- Q.1** Which of the following reaction(s) can be used for the preparation of alkyl halides? [AIPMT-2015]



- (1) I and II only (2) IV only
 (3) III and IV only (4) I, III and IV only
- Q.2** Reaction of phenol with chloroform in presence of dilute sodium hydroxide finally introduces which on the following functional group? [AIPMT-2015]
- (1) $-\text{COOH}$ (2) $-\text{CHCl}_2$
 (3) $-\text{CHO}$ (4) $-\text{CH}_2\text{Cl}$

- Q.3** The reaction [NEET - 2016]



Can be classified as

- (1) Dehydration reaction
 (2) Williamson alcohol synthesis reaction.
 (3) Williamson ether synthesis reaction.
 (4) Alcohol formation reaction.
- Q.4** Isopropylbenzene on air oxidation in the presence of dilute acid gives. [NEET-2016]
- (1) $\text{C}_6\text{H}_5\text{COOH}$ (2) $\text{C}_6\text{H}_5\text{COOH}_3$
 (3) $\text{C}_6\text{H}_5\text{CHO}$ (4) $\text{C}_6\text{H}_5\text{OH}$

- Q.5** The most suitable method of separation of 1 : 1 mixture of *ortho* and *para*-nitrophenols is :

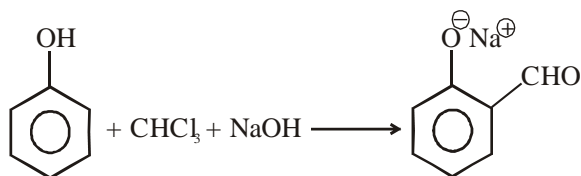
- [NEET-2017]
 (1) chromatography (2) crystallisation
 (3) steam distillation (4) sublimation

Q.6 The heating of phenyl methyl ether with HI produces.
 (1) iodobenzene (2) phenol [NEET- 2017]
 (3) benzene (4) enthyl chloride

Q.7 The compound A on treatment with Na gives B, and with PCl_5 gives C. B and C react together to give diethyl ether. A, B and C are in the order

- (1) $\text{C}_2\text{H}_5\text{Cl}$, C_2H_6 , $\text{C}_2\text{H}_5\text{OH}$ [NEET - 2018]
 (2) $\text{C}_2\text{H}_5\text{OH}$, $\text{C}_2\text{H}_5\text{Cl}$, $\text{C}_2\text{H}_5\text{ONa}$
 (3) $\text{C}_2\text{H}_5\text{OH}$, C_2H_6 , $\text{C}_2\text{H}_5\text{Cl}$
 (4) $\text{C}_2\text{H}_5\text{OH}$, $\text{C}_2\text{H}_5\text{ONa}$, $\text{C}_2\text{H}_5\text{Cl}$

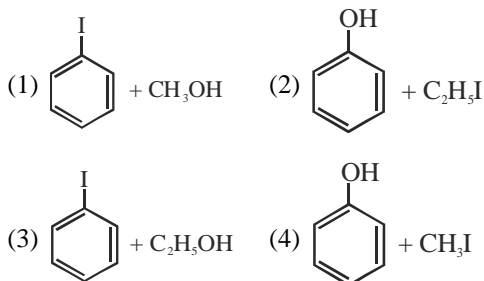
Q.8 In the reaction [NEET - 2018]



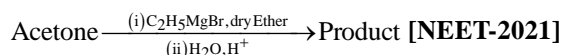
The electrophile involved is

- (1) Dichloromethyl anion ($\ominus\text{CHCl}_2$)
 (2) Formyl cation ($\oplus\text{CHO}$)
 (3) Dichloromethyl cation ($\oplus\text{CHCl}_2$)
 (4) Dichlorocarbene ($:\text{CCl}_2$)

Q.9 Anisole on cleavage with HI gives [NEET-2020]



Q.10 What is the IUPAC name of the organic compound formed in the following chemical reaction ?



- (1) pentan-2-ol (2) pentan-3-ol
 (3) 2-methyl butan-2-ol (4) 2-methyl propan-2-ol

Q.11 Given below are two statement [NEET-2022]

Statement I : The acidic strength of monosubstituted nitrophenol is higher than phenol because of electron withdrawing nitro group.

Statement II : o-nitrophenol, m-nitrophenol and p-nitrophenol will have same acidic strength as they have one nitro group attached to the phenolic ring.

In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) both statement I and statement II are incorrect
 (2) statement I is correct but statement II is incorrect
 (3) statement I is incorrect but statement II is correct
 (4) both statement I and statement II are correct

Q.12 Given below are two statements : [NEET-2022]

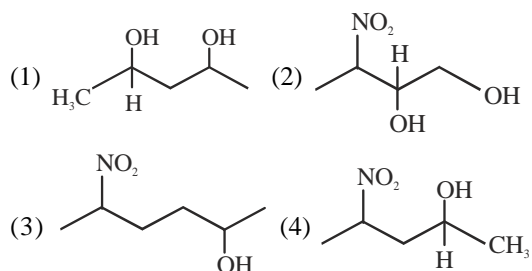
Statement I : In Lucas test, primary, secondary and tertiary alcohols are distinguished on the basis of their reactivity with conc. $\text{HCl} + \text{ZnCl}_2$, known as Lucas Reagent.

Statement II : Primary alcohols are most reactive and immediately produce turbidity at room temperature on reaction with Lucas Reagent.

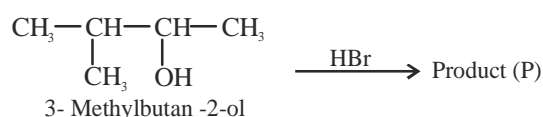
In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) both statement I and statement II are incorrect
 (2) statement I is correct but statement II is incorrect
 (3) statement I is incorrect but statement II is correct
 (4) both statement I and statement II are correct

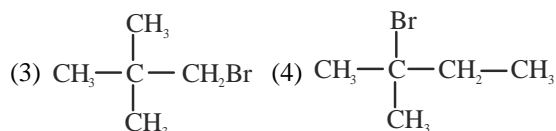
Q.13 Which amongst the following will be most readily dehydrated under acidic conditions ? [NEET-2023]



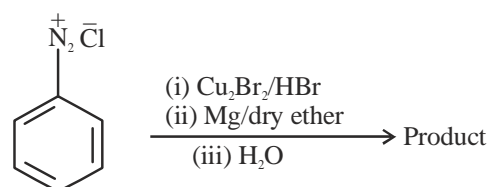
Q.14 Consider the following reaction and identify the product (P). [NEET-2023]

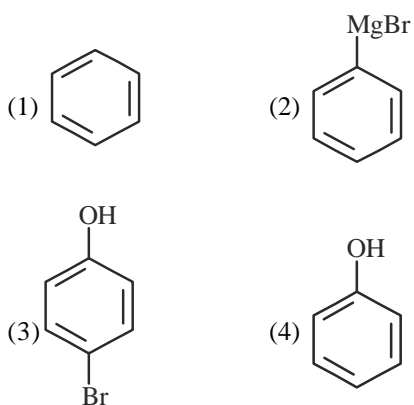


- (1) $\text{CH}_3\text{CH} = \text{CH} - \text{CH}_3$ (2) $\text{CH}_3 - \underset{\text{CH}_3}{\text{CH}} - \underset{\text{Br}}{\text{CH}} - \text{CH}_3$

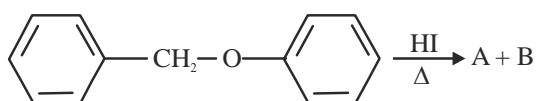


Q.15 Identify the product in the following reaction : [NEET-2023]

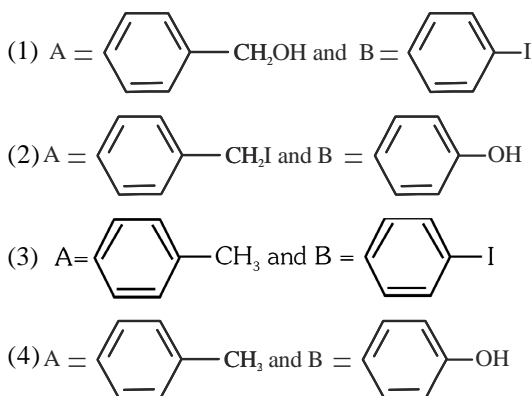




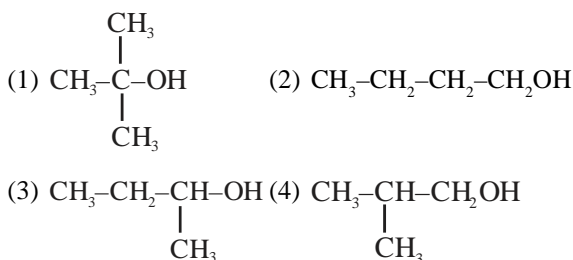
Q.16 Consider the following reaction [NEET-2023]



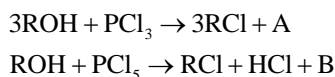
Identify products A and B:-



Q.17 Which one of the following alcohols reacts instantaneously with Lucas reagent? [NEET-2024]

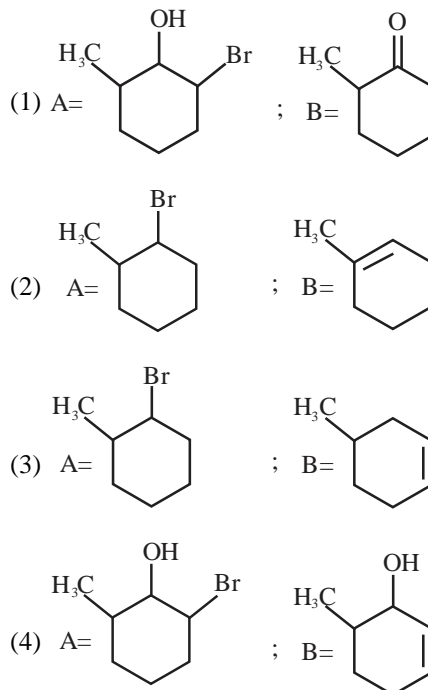
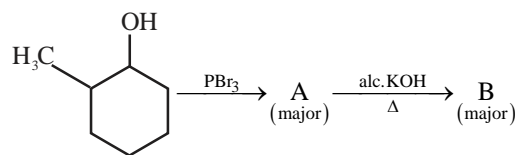


Q.18 The products A and B obtained in the following reactions, respectively, are [NEET-2024]



- (1) H_3PO_3 and POCl_3
 (2) POCl_3 and H_3PO_3
 (3) POCl_3 and H_3PO_4
 (4) H_3PO_4 and POCl_3

Q.19 Major products A and B formed in the following reaction sequence, are [NEET-2024]

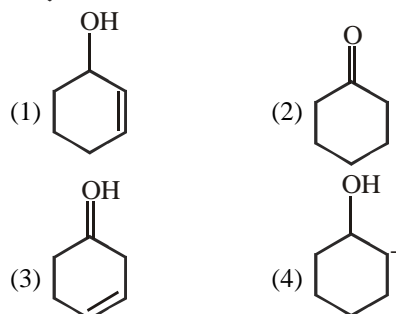
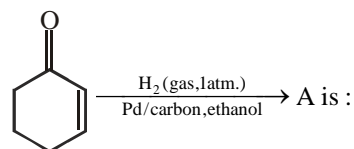


Aldehyde, Ketones and Carboxylic Acids

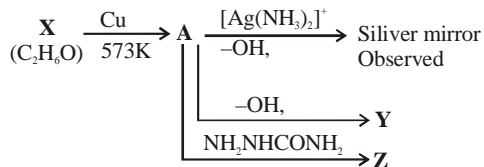
ALDEHYDES AND KETONES

Q.1 Reaction of a carbonyl compound with one of the following reagents involves nucleophilic addition followed by elimination of water. The reagent is :
 (1) Hydrazine in presence of feebly acidic solution
 (2) Hydrocyanic acid [AIPMT 2015]
 (3) Sodium hydrogen sulphite
 (4) a Grignard reagent

Q.2 The correct structure of the product A formed in the reaction. [NEET - 2016]



Q.3 Consider the reactions. [NEET 2016]



Identify, A, X, Y and Z.

- (1) A- Methoxymethane, X - Ethanol, Y-Ethanoic acid, Z-semicarbazide.
- (2) A- Ethanal, X-Ethanol, Y-But-2-enal, Z-semicarbazone.
- (3) A-Ethanol, X-Acetaldehyde, Y-Butanone, Z-Hydrazone.
- (4) A-Methoxymethane, X-Ethanoic acid, Y-Acetate ion, Z-Hydrazine.

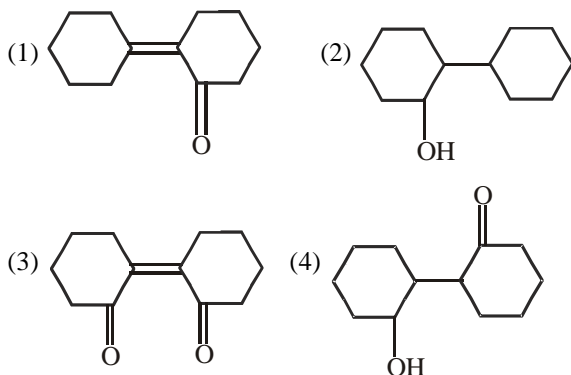
Q.4 The correct statement regarding a carbonyl compound with a hydrogen atom on its alpha-carbon, is [NEET -2016]

- (1) carbonyl compound with a hydrogen atom on its alpha-carbon rapidly equilibrates with its corresponding enol and this process is known as carbonylation.
- (2) a carbonyl compound with a hydrogen atom on its alpha-carbon rapidly equilibrates with its corresponding enol and this process is known as keto-enol tautomerism.
- (3) a carbonyl compound with a hydrogen atom on its alpha-carbon never equilibrates with its corresponding enol.
- (4) a carbonyl compound with a hydrogen atom on its alpha-carbon rapidly equilibrates with its corresponding enol and this process is known as aldehyde-ketone equilibration.

Q.5 Which of the following reagents would distinguish cis-cyclopenta-1,2-diol from the trans-isomer? [NEET-2016]

- (1) MnO_2
- (2) Aluminium isopropoxide
- (3) Acetone
- (4) Ozone

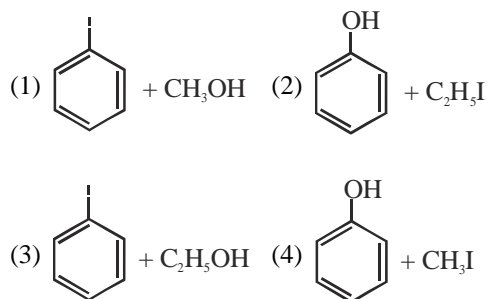
Q.6 Of the following, which is the product formed when cyclohexanone undergoes aldol condensation followed by heating? [NEET-2017]



Q.7 Compound A, $\text{C}_8\text{H}_{11}\text{O}$, is found to react with NaOI (produced by reacting Y with NaOH) and yields a yellow precipitate with characteristic smell. A and Y are respectively [NEET - 2018]

- (1) and I_2
- (2) and I_2
- (3) and I_2
- (4) and I_2

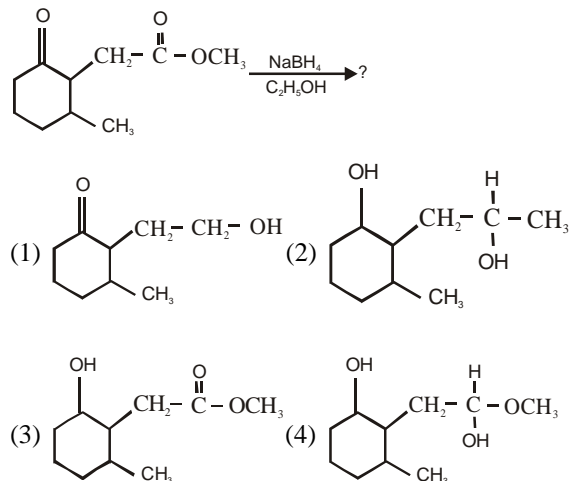
Q.8 Anisole on cleavage with HI gives [NEET-2020]



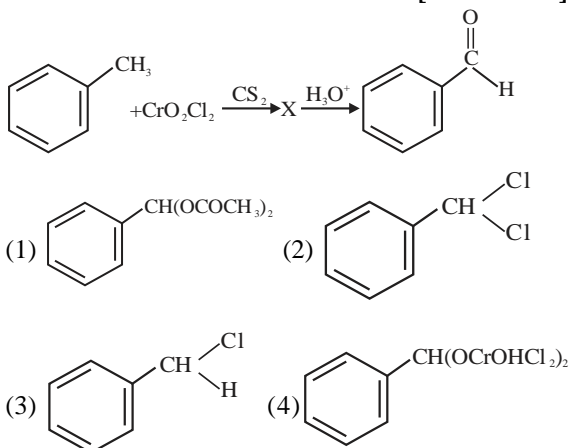
Q.9 Reaction between benzaldehyde and acetophenone in presence of dilute NaOH is known as [NEET-2020]

- (1) Cannizzaro's reaction
- (2) Cross Cannizzaro's reaction
- (3) Cross Aldol condensation
- (4) Aldol condensation

Q.10 The product formed in the following chemical reaction is- [NEET-2021]



- Q.11** The intermediate compound 'X' in the following chemical reaction is : [NEET-2021]



- Q.12** Match List I with List II [NEET-2022]

List I (Products formed)	List II (Reaction of carbonyl compound with)
(a) cyanohydrin	(i) NH_2OH
(b) acetal	(ii) RNH_2
(c) schiff's base	(iii) alcohol
(d) Oxime	(iv) HCN

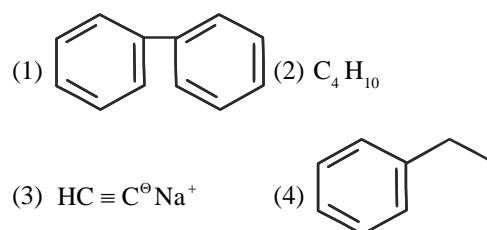
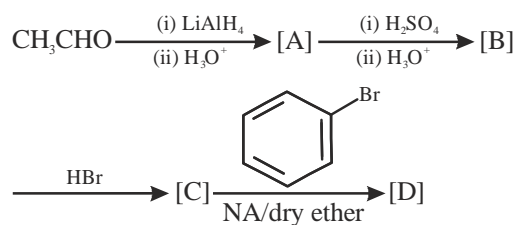
Choose the correct answer from the options given below :

- Q.13** Given below are statements : [NEET-2022]

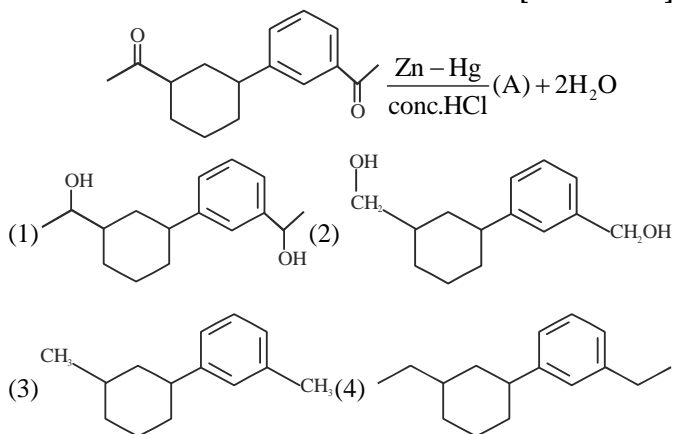
Statement I : The boiling points of aldehydes and ketones are higher than hydrocarbons of comparable molecular masses because of weak molecular association in aldehydes and ketones due to dipole-dipole interactions.

Statement II : The boiling points aldehydes and ketones are lower than the alcohols of similar molecular masses due to the absence of H-bonding. In the light of the statements, choose the most appropriate answer from the options given below :

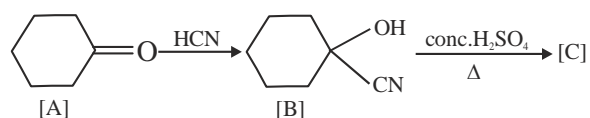
- (1) both statements I and statements II are incorrect
 - (2) statement I is correct but statement II is incorrect
 - (3) statements I is incorrect but statements II is correct
 - (4) both statement I and statements II are correct.
- Q.14** Identify the final product [D] obtained in the following sequence of reactions [NEET-2023]



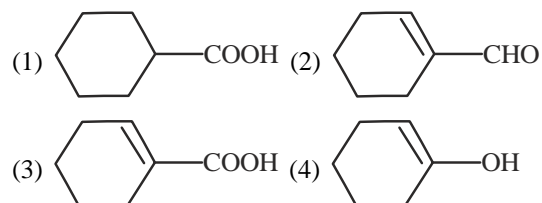
- Q.15** Identify product (A) is the following reaction : [NEET-2023]



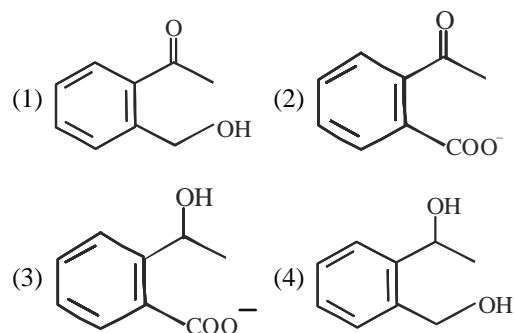
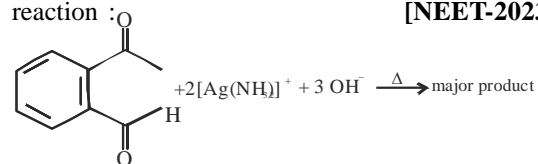
- Q.16** Complete the following reaction :



[C] is _____ [NEET-2023]



- Q.17** Identify the major product obtained in the following reaction : [NEET-2023]



- Q.18** Fehling's solution 'A' is [NEET-2024]
 (1) aqueous sodium citrate
 (2) aqueous copper sulphate
 (3) alkaline copper sulphate
 (4) alkaline solution of sodium potassium tartrate (Rochelle's salt)

- Q.19** Match List I with List II. [NEET-2024]

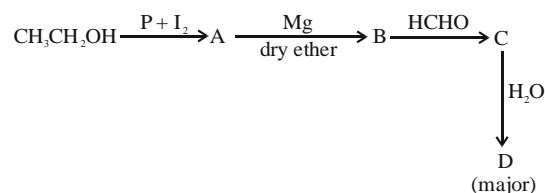
	List-I (Reaction)	List-II (Reagents/Condition)
A		I
B		II CrO ₃
C		III KMnO ₄ /KOH, Δ
D		IV (i) O ₃ (ii) Zn-H ₂ O

Choose the correct answer from the options given below:

- (1) A - I, B - IV, C - II, D - III
 (2) A - IV, B - I, C - III, D - II
 (3) A - III, B - I, C - II, D - IV
 (4) A - IV, B - I, C - II, D - III
- Q.20** Identify the correct reagents that would bring about the following transformation. [NEET-2024]
-
- (1) (i) H₂O/H⁺ (ii) PCC
 (2) (i) H₂O/H⁺ (ii) CrO₃
 (3) (i) BH₃ (ii) H₂O₂/OH⁻ (iii) PCC
 (4) (i) BH₃ (ii) H₂O₂/OH⁻ (iii) alk. KMnO₄ (iv) H₃O⁺
- Q.21** Select the incorrect reaction among the following: [Re-NEET 2024]

- (1) $\text{CH}_3\text{COCl} \xrightarrow[\Delta]{\text{H}_2\text{O}} \text{CH}_3\text{COOH}$
- (2)
- (3) $\text{CH}_3\text{CH}_2\text{OH} \xrightarrow[\text{(ii) H}_3\text{O}^+]{\text{(i) KMnO}_4/\text{OH}^-} \text{CH}_3\text{COOH}$
- (4) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH} \xrightarrow{\text{CrO}_3-\text{H}_2\text{SO}_4} \text{CH}_3\text{CH}_2\text{COOH}$

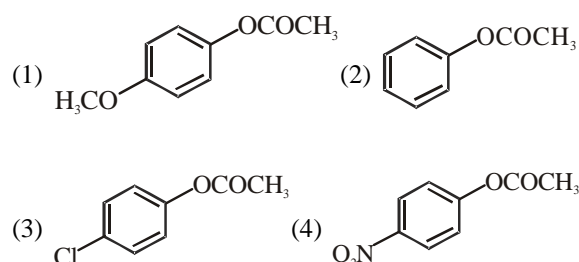
- Q.22** Identify D in the following sequence of reactions: [Re-NEET 2024]



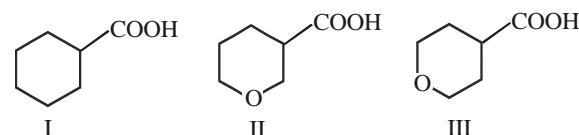
- (1) n-propyl alcohol (2) isopropyl alcohol
 (3) propanal (4) propionic acid

CARBOXYLIC ACID

- Q.23** Which one of the following esters gets hydrolysed most easily under alkaline conditions? [AIPMT 2015]



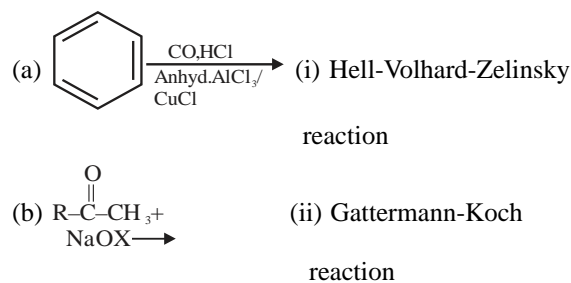
- Q.24** The correct order of strengths of the carboxylic acids. [NEET Phase II-2016]



is :

- (1) I > II > III (2) II > III > I
 (3) III > II > I (4) II > I > III
- Q.25** $\text{CH}_3\text{CH}_2\text{COO}^- \text{Na}^+ \xrightarrow[\text{Heat}]{\text{NaOH, +?}} \text{CH}_3\text{CH}_3 + \text{Na}_2\text{CO}_3$
 Consider the above reaction and identify the missing reagent/chemical. [NEET-2021]
- (1) Red Phosphorus (2) CaO
 (3) DIBAL-H (4) B₂H₆

- Q.26** Match List-I with List-II [NEET-2021]



- (c) $\text{R-CH}_2\text{-OH} + \text{R}'\text{COOH} \xrightarrow{\text{Conc. H}_2\text{SO}_4}$ (iii) Haloform reaction
- (d) $\text{R-CH}_2\text{COOH} \xrightarrow[\text{(ii) H}_2\text{O}]{\text{(i) X}_2/\text{Red P}}$ (iv) Esterification

Choose the **correct** answer from the options given below.

- (1) (a)-(iii), (b)-(ii), (c)-(i), d-(iv)
 (2) (a)-(i), (b)-(iv), (c)-(iii), d-(ii)
 (3) (a)-(ii), (b)-(iii), (c)-(iv), d-(i)
 (4) (a)-(iv), (b)-(i), (c)-(ii), d-(iii)

Q.27 Reaction between acetone and methylmagnesium chloride followed by hydrolysis will give :

[NEET-2022]

- (1) Sec. butyl alcohol (2) Tert. butyl alcohol
 (3) Isobutyl alcohol (4) Isopropyl alcohol

Amines

AMINES

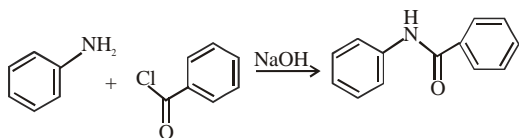
Q.1 Method by which aniline cannot be prepared is :

[AIPMT 2015]

- (1) degradation of benzamide with bromine in alkaline solution.
 (2) reduction of nitrobenzene with H_2/Pd in ethanol.
 (3) potassium salt of phthalimide treated with chlorobenzene followed by hydrolysis with aqueous NaOH solution.
 (4) hydrolysis of phenylisocyanide with acidic solution.

Q.2 The following reaction :

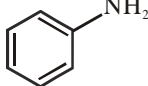
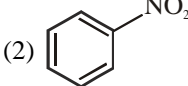
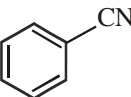
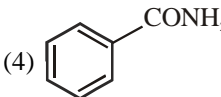
[AIPMT 2015]



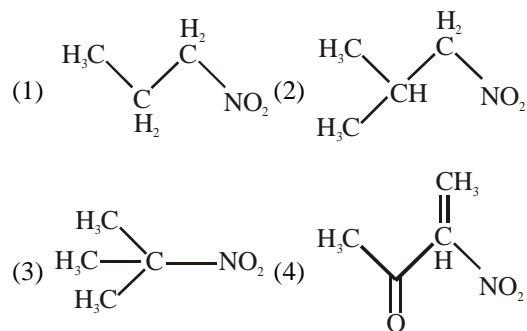
is known by the name

- (1) Perkin's reaction
 (2) Acetylation reaction
 (3) Schotten - Baumann reaction
 (4) Friedel - Craft's reaction

Q.3 A given nitrogen-containing aromatic compound 'A' reacts with Sn/HCl , followed by HNO_2 to give an unstable compound 'B'. 'B', on treatment with phenol, forms a beautiful coloured compound 'C' with the molecular formula $\text{C}_{12}\text{H}_{10}\text{N}_2\text{O}$. The structure of compound 'A' is : [NEET Phase-II 2016]

- (1)  (2) 
 (3)  (4) 

Q.4 Which one of the following nitro-compounds does not react with nitrous acid? [NEET Phase-II 2016]



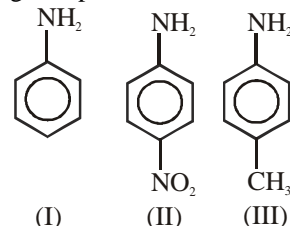
Q.5 The correct statement regarding the basicity of arylamines is : [NEET Phase-I 2016]

- (1) arylamines are generally more basic than alkylamines because of aryl group.
 (2) arylamines are generally more basic than alkylamines because the nitrogen atom in arylamines is sp-hybridised.
 (3) arylamines are generally less basic than alkylamines because the nitrogen lone-pair electrons are delocalised by interaction with the aromatic ring π -electron system.
 (4) arylamines are generally more basic than alkylamines because the nitrogen lone-pair electrons are not delocalised by interaction with the aromatic ring π -electron system.

Q.6 The product formed by the reaction of an aldehyde with a primary amine is : [NEET Phase-I 2016]

- (1) carboxylic acid
 (2) aromatic acid
 (3) Schiff's base
 (4) Ketone

Q.7 The correct increasing order of basic strength for the following compounds is : [NEET - 2017]



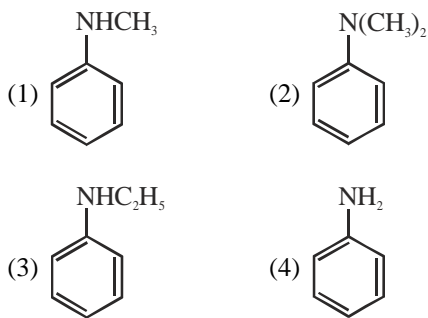
- (1) III < I < II (2) III < II < I
 (3) II < I < III (4) II < III < I

Q.8 Which of the following reactions is appropriate for converting acetamide to methanamine?

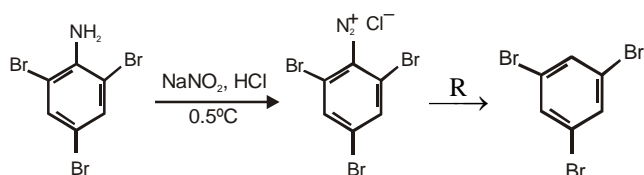
[NEET- 2017]

- (1) Hoffmann hypobromamide reaction.
 (2) Stephen's reaction.
 (3) Gabriel phthalimide synthesis
 (4) Carbylamine reaction.

- Q.9** Which of the following amine will give the carbylamine test? [NEET-2020]

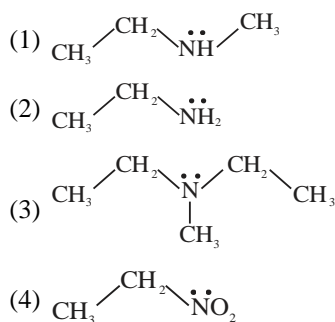


- Q.10** The reagent 'R' in the given sequence of chemical reaction is : [NEET-2021]

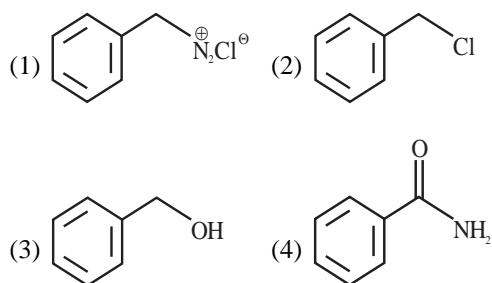
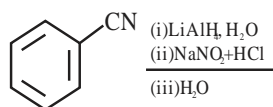


- (1) $\text{CH}_3\text{CH}_2\text{OH}$ (2) HI
(3) CuCN/KCN (4) H_2O

- Q.11** Identify the compound that will react with Hinsberg's reagent to give a solid which dissolves in alkali. [NEET-2021]



- Q.12** The product formed from the following reaction sequence is [NEET-2022]

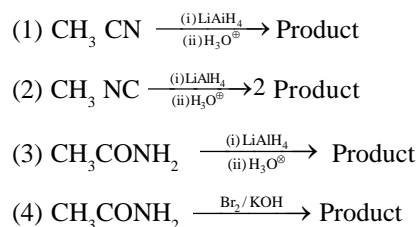


- Q.13** Given below are two statements
Statement I : Primary aliphatic amines react with HNO_2 to give unstable diazonium salts.

Statement II : Primary aromatic amines react with HNO_2 to form diazonium salts which are stable even above 300 K. In the light of the above statements, choose the most appropriate answer from the options given below : [NEET-2022]

- (1) both statement I and statement II are incorrect
(2) statement I is correct but statement II is incorrect
(3) statement I is incorrect but statement II is correct
(4) both statement I and statement II are correct

- Q.14** Which of the following reactions will NOT give primary amine as the product ? [NEET-2023]



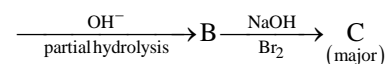
- Q.15** Given below are two statements: [NEET 2024]
Statement I : Aniline does not undergo Friedel-Crafts alkylation reaction.

Statement II : Aniline cannot be prepared through Gabriel synthesis .

In the light of the above statements, choose the correct answer from the options given below:

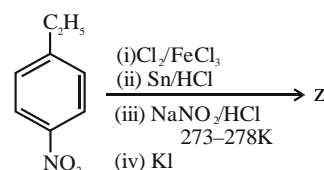
- (1) Statement I is incorrect but Statement II is true
(2) Both statement I and Statement II are true
(3) Both Statement I and Statement II are false
(4) Statement I is correct but Statement II is false

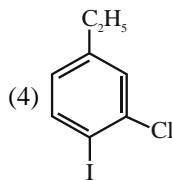
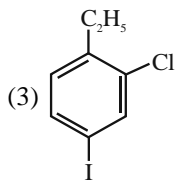
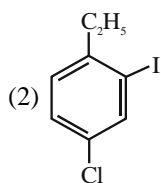
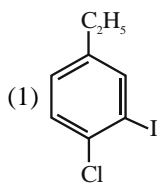
- Q.16** Identify the major product C formed in the following reaction sequence : [NEET 2024]



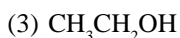
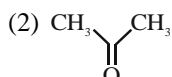
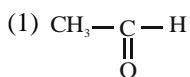
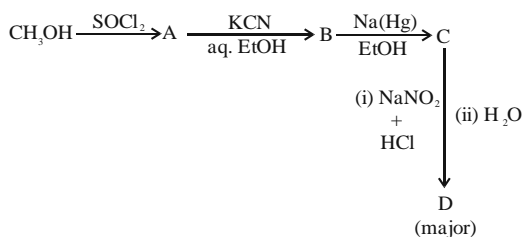
- (1) α - bromobutanoic acid
(2) propylamine
(3) butylamine
(4) butanamide

- Q.17** The major product X formed in the following reactions sequence is: [Re-NEET 2024]





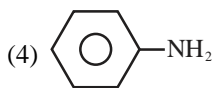
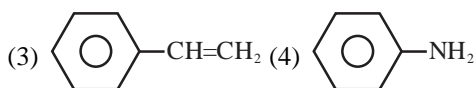
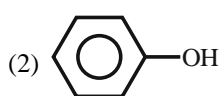
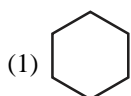
Q.18 The major product D formed in the following reaction sequence is: [Re-NEET 2024]



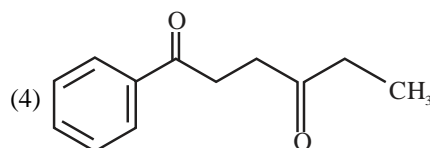
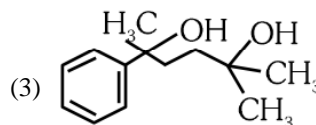
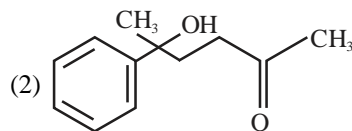
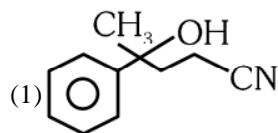
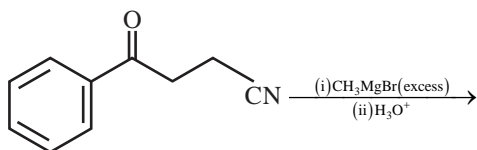
Q.19 The compound that does not undergo Friedel-Crafts alkylation reaction but gives a positive carbylamine test is: [Re-NEET 2024]

- (1) Aniline
 (2) Pyridine
 (3) N-methylaniline
 (4) Triethylamine

Q.20 Which one of the following compounds does not decolourize bromine water? [NEET-2025]



Q.21 The major product of the following reaction is [NEET-2025]



AROMATIC COMPOUNDS

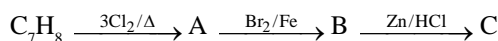
Q.22 The oxidation of benzene by V₂O₅ in the presence of air produces [AIPMT 2015]

- (1) maleic anhydride
 (2) benzoic acid
 (3) benzaldehyde
 (4) benzoic anhydride

Q.23 Nitration of aniline in strong acidic medium also gives m-nitroaniline because [NEET - 2018]

- (1) In absence of substituents nitro group always goes to m-position.
 (2) In electrophilic substitution reactions amino group is meta directive.
 (3) In spite of substituents nitro group always goes to only m-position.
 (4) In acidic (strong) medium aniline is present as anilinium ion.

Q.24 The compound C₇H₈ undergoes the following reactions:



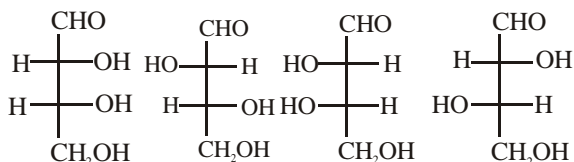
The product 'C' is [NEET - 2018]

- (1) 3-bromo-2,4,6-trichlorotoluene
 (2) o-bromotoluene
 (3) m-bromotoluene
 (4) p-bromotoluene

Biomolecules

- Q.1** The correct corresponding order of names of four aldoses with configuration give below:

[NEET Phase II-2016]



Respectively, is

- (1) L-erythrose, L-threose, L-erythrose, D-threose
- (2) D-threose, L-erythrose, L-threose, L-erythrose
- (3) L-erythrose, L-threose, D-erythrose, D-threose
- (4) D-erythrose, D-threose, L-erythrose, L-threose.

- Q.2** The correct statement regarding RNA and DNA, respectively is : [NEET Phase I-2016]

- (1) the sugar component in RNA is a arabinose and the sugar component in DNA is ribose.
- (2) the sugar component in RNA is 2'-deoxyribose and the sugar component in DNA is arabinose.
- (3) the sugar component in RNA is arabinose and the sugar component in DNA is 2'-deoxyribose.
- (4) the sugar component in RNA is ribose and the sugar component in DNA is 2'-deoxyribose.

- Q.3** The central dogma of molecular genetics states that the genetic information flows from [NEET Phase II-2016]

- (1) Amino acids \rightarrow Proteins \rightarrow DNA
- (2) DNA \rightarrow RNA \leftarrow Proteins
- (3) DNA \rightarrow RNA \rightarrow Proteins
- (4) DNA \rightarrow RNA \rightarrow Carbohydrates

- Q.4** In a protein molecule various amino acids are linked together by : [NEET Phase I-2016]

- (1) peptide bond
- (2) dative bond
- (3) α -glycosidic bond
- (4) β -glycosidic bond

- Q.5** Which one given below is a non-reducing sugar? [NEET Phase I-2016]

- | | |
|-------------|-------------|
| (1) Glucose | (2) Sucrose |
| (3) Maltose | (4) Lactose |

- Q.6** Which of the following statements is not correct? [NEET 2017]

- (1) Ovalbumin is a simple food reserve in egg white.
- (2) Blood proteins thrombin and fibrinogen are involved in blood clotting.
- (3) Denaturation makes the proteins more active.
- (4) Insulin maintains sugar level in the blood of a human body.

- Q.7** The difference between amylose and amylopectin is [NEET - 2018]

- (1) Amylopectin have 1 \rightarrow 4 α -linkage and 1 \rightarrow 6 β -linkage
- (2) Amylose have 1 \rightarrow 4 α -linkage and 1 \rightarrow 6 β -linkage
- (3) Amylopectin have 1 \rightarrow 4 α -linkage and 1 \rightarrow 6 α -linkage
- (4) Amylose is made up of glucose and galactose

- Q.8** Enzymes that utilize ATP in phosphate transfer require an alkaline earth metal (M) as the cofactor. M is : [NEET-2019]

- | | |
|--------|--------|
| (1) Be | (2) Mg |
| (3) Ca | (4) Sr |

- Q.9** The non-essential amino acid among the following is : [NEET-2019]

- | | |
|-------------|-------------|
| (1) valine | (2) leucine |
| (3) alanine | (4) lysine |

- Q.10** Sucrose on hydrolysis gives [NEET-2020]

- (1) α -D-Glucose + β -D-Glucose
- (2) α -D-Glucose + β -D-Fructose
- (3) α -D-Fructose + β -D-Fructose
- (4) α -D-Glucose + β -D-Fructose

- Q.11** Which of the following is a basic amino acid ? [NEET-2020]

- | | |
|-------------|--------------|
| (1) Alanine | (2) Tyrosine |
| (3) Lysine | (4) Serine |

- Q.12** The RBC deficiency is deficiency disease of : [NEET-2021]

- | | |
|----------------------------|-----------------------------|
| (1) Vitamin B ₆ | (2) Vitamin B ₁ |
| (3) Vitamin B ₂ | (4) Vitamin B ₁₂ |

- Q.13** The incorrect statement regarding enzymes is : [NEET-2022]

- (1) like chemical catalysts enzymes reduce the activation energy of bio processes.
- (2) enzymes are polysaccharides
- (3) enzymes are very specific for a particular reaction and substrate
- (4) enzymes are biocatalysts

- Q.14** Given below are two statements: [NEET-2023]

Statement I : A unit formed by the attachment of a base to 1 position of sugar is known as nucleoside
Statement II : When nucleoside is linked to phosphorous acid at 5'-position of sugar moiety, we get nucleotide.

In the light of the above statements, choose the **correct** answer from the options given below:

- (1) Both Statement I and Statement II are false
- (2) Statement I is true but Statement II is false
- (3) Statement I is false but Statement II is true
- (4) Both Statement I and Statement II are true

Q.15 The reagents with which glucose does not react to give the corresponding tests/products are

- A. Tollen's reagent
- B. Schiff's reagent
- C. HCN
- D. NH_2OH
- E. NaHSO_3

Choose the correct options from the given below:

[NEET-2024]

- (1) E and D
- (2) B and C
- (3) A and D
- (4) B and E

Q.16 Given below are two statements:

Statements I: Glycogen is similar to amylose in its structure.

Statements II: Glycogen is found in yeast and fungi also.

[Re-NEET 2024]

In the light of the above statements, choose the correct answer from the options given below:

- (1) Statement I is true but Statement II is false.
- (2) Statement I is false but Statement II is true.
- (3) Both Statement I and Statement II are true.
- (4) Both Statement I and Statement II are false.

Q.17 Match List - I with List - II [NEET-2025]

List-I

List- II

(Name of the Vitamin) (Deficiency disease)

- | | |
|----------------------------|------------------------|
| A. Vitamin B_{12} | I. Cheilosis |
| B. Vitamin D | II. Convulsions |
| C. Vitamin B_2 | III. Rickets |
| D. Vitamin B_6 | IV. Pernicious anaemia |

Choose the correct answer from the options given below:

- (1) A-I, B-III, C-II, D-IV
- (2) A-IV, B-III, C-I, D-II
- (3) A-II, B-III, C-I, D-IV
- (4) A-IV, B-III, C-II, D-I

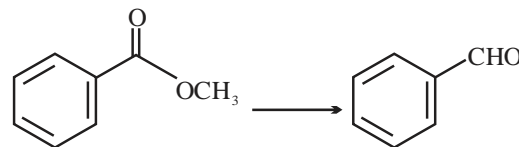
Q.18 Sugar 'X'

[NEET-2025]

- A. is found in honey.
 - B. is a keto sugar.
 - C. exists in α and β - anomeric forms.
 - D. is laevorotatory
- X is :

- (1) D-Glucose
- (2) D-Fructose
- (3) Maltose
- (4) Sucrose

Q.19 Identify the suitable reagent for the following conversion [NEET-2025]



- (1) (i) LiAlH_4 , (ii) $\text{H}^+/\text{H}_2\text{O}$
- (2) (i) $\text{AlH}(\text{iBu})_2$, (ii) H_2O
- (3) (i) NaBH_4 , (ii) $\text{H}^+/\text{H}_2\text{O}$
- (4) $\text{H}_2 / \text{Pd-BaSO}_4$

ANSWER KEY

Solutions

Q.1 (3)	Q.2 (3)	Q.3 (4)	Q.4 (4)	Q.5 (3)	Q.6 (1)	Q.7 (1)	Q.8 (3)	Q.9 (4)	Q.10 (2)
Q.11 (2)	Q.12 (4)	Q.13 (1)	Q.14 (2)	Q.15 (3)	Q.16 (2)	Q.17 (4)	Q.18 (2)	Q.19 (3)	Q.20 (2)

Electrochemistry

Q.1 (1)	Q.2 (3)	Q.3 (4)	Q.4 (2)	Q.5 (2)	Q.6 (3)	Q.7 (2)	Q.8 (4)	Q.9 (3)	Q.10 (1)
Q.11 (4)	Q.12 (1)	Q.13 (2)	Q.14 (1)	Q.15 (Bonus)	Q.16 (4)	Q.17 (3)	Q.18 (4)	Q.19 (2)	Q.20 (2)
Q.21 (3)	Q.22 (1)	Q.23 (3)							

Chemical Kinetics

Q.1 (3)	Q.2 (1)	Q.3 (3)	Q.4 (2)	Q.5 (3)	Q.6 (2)	Q.7 (2)	Q.8 (3)	Q.9 (3)	Q.10 (3)
Q.11 (2)	Q.12 (4)	Q.13 (1)	Q.14 (4)	Q.15 (1)	Q.16 (2)	Q.17 (3)	Q.18 (2)	Q.19 (1)	Q.20 (1)
Q.21 (2)	Q.22 (3)	Q.23 (3)	Q.24 (4)	Q.25 (1)	Q.26 (1)	Q.27 (4)			

The p-Block Elements

Q.1 (4)	Q.2 (4)	Q.3 (1)	Q.4 (3)	Q.5 (1)	Q.6 (1)	Q.7 (4)	Q.8 (3)	Q.9 (1)	Q.10 (1)
Q.11 (4)	Q.12 (1)	Q.13 (4)	Q.14 (2)	Q.15 (1)	Q.16 (4)	Q.17 (1)	Q.18 (2)		

The d and f - Block Elements

Q.1 (4)	Q.2 (2)	Q.3 (3)	Q.4 (2)	Q.5 (2)	Q.6 (1)	Q.7 (2)	Q.8 (2)	Q.9 (3)	Q.10 (4)
Q.11 (1)	Q.12 (4)	Q.13 (1)	Q.14 (3)	Q.15 (1)	Q.16 (1)	Q.17 (2)	Q.18 (2)	Q.19 (2)	Q.20 (4)
Q.21 (2)	Q.22 (4)	Q.23 (1)	Q.24 (2)	Q.25 (3)	Q.26 (3)				

Coordination Compounds

Q.1 (4)	Q.2 (3)	Q.3 (4)	Q.4 (4)	Q.5 (1)	Q.6 (2)	Q.7 (4)	Q.8 (2)	Q.9 (2)	Q.10 (3)
Q.11 (2)	Q.12 (2)	Q.13 (1)	Q.14 (4)	Q.15 (3)	Q.16 (4)	Q.17 (2)	Q.18 (3)	Q.19 (2)	Q.20 (4)
Q.21 (2)	Q.22 (2)	Q.23 (2)	Q.24 (1)	Q.25 (1)	Q.26 (1)	Q.27 (4)	Q.28 (3)	Q.29 (3)	Q.30 (2)

Haloalkanes and Haloarenes

Q.1 (1)	Q.2 (3)	Q.3 (4)	Q.4 (4)	Q.5 (1)	Q.6 (4)	Q.7 (4)	Q.8 (2)	Q.9 (2)	Q.10 (1)
Q.11 (1)	Q.12 (2)	Q.13 (1)	Q.14 (1)	Q.15 (1)					

Alcohols, Phenols and Ethers

Q.1 (4)	Q.2 (3)	Q.3 (3)	Q.4 (4)	Q.5 (3)	Q.6 (2)	Q.7 (4)	Q.8 (4)	Q.9 (4)	Q.10 (3)
Q.11 (2)	Q.12 (2)	Q.13 (1)	Q.14 (4)	Q.15 (1)	Q.16 (2)	Q.17 (1)	Q.18 (1)	Q.19 (2)	

Aldehyde, Ketones and Carboxylic Acids

Q.1 (1)	Q.2 (2)	Q.3 (2)	Q.4 (2)	Q.5 (3)	Q.6 (2)	Q.7 (1)	Q.8 (4)	Q.9 (3)	Q.10 (3)
Q.11 (4)	Q.12 (3)	Q.13 (4)	Q.14 (4)	Q.15 (4)	Q.16 (3)	Q.17 (2)	Q.18 (2)	Q.19 (4)	Q.20 (3)
Q.21 (2)	Q.22 (1)	Q.23 (4)	Q.24 (2)	Q.25 (2)	Q.26 (3)	Q.27 (2)			

Amines

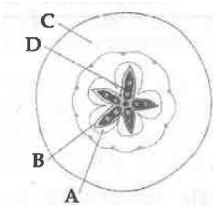
Q.1 (3)	Q.2 (3)	Q.3 (2)	Q.4 (3)	Q.5 (3)	Q.6 (3)	Q.7 (3)	Q.8 (1)	Q.9 (4)	Q.10 (1)
Q.11 (2)	Q.12 (3)	Q.13 (2)	Q.14 (2)	Q.15 (2)	Q.16 (2)	Q.17 (3)	Q.18 (3)	Q.19 (1)	Q.20 (1)
Q.21 (2)	Q.22 (1)	Q.23 (4)	Q.24 (3)						

Biomolecules

Q.1 (4)	Q.2 (4)	Q.3 (3)	Q.4 (1)	Q.5 (2)	Q.6 (3)	Q.7 (3)	Q.8 (2)	Q.9 (3)	Q.10 (2)
Q.11 (3)	Q.12 (4)	Q.13 (2)	Q.14 (2)	Q.15 (4)	Q.16 (2)	Q.17 (2)	Q.18 (2)	Q.19 (2)	

Sexual Reproduction in Flowering Plants

- Q.1** Male gametophyte in angiosperms produces :
[AIPMT-2015]
(1) Single sperm and two vegetative cells
(2) Three sperms
(3) Two sperms and a vegetative cell
(4) Single sperm and a vegetative cell
- Q.2** In angiosperms, microsporogenesis and megasporogenesis :
[AIPMT-2015]
(1) Involve meiosis
(2) Occur in ovule
(3) Occur in anther
(4) Form gametes without further divisions
- Q.3** Coconut water from a tender coconut is:
[AIPMT-2015]
(1) Innermost layers of the seed coat
(2) Degenerated nucellus
(3) Immature embryo
(4) Free nuclear endosperm
- Q.4** Which one of the following fruits is parthenocarpic ?
[AIPMT-2015]
(1) Jackfruit (2) Banana
(3) Brinjal (4) Apple
- Q.5** Cotyledon of maize grain is called:
[NEET Phase I-2016]
(1) Coleoptile (2) Scutellum
(3) Plumule (4) Coleorhiza
- Q.6** Which one of the following statements is not true ?
[NEET Phase I-2016]
(1) Pollen grains of many species cause severe allergies
(2) Stored pollen in liquid nitrogen can be used in the crop breeding programmes.
(3) Tapetum helps in the dehiscence of anther.
(4) Exine of pollen grains is made up of sporopollenin.
- Q.7** Which of the following statements is not correct ?
[NEET Phase I-2016]
(1) Pollen germination and pollen tube growth are regulated by chemical components of pollen interacting with those of the pistil.
(2) Some reptiles have also been reported as pollinators in some plant species.
(3) Pollen grains of many species can germinate on the stigma of a flower, but only one pollen tube of the same species grows into the style.
(4) Insects that consume pollen or nectar without bringing about pollination are called pollen/nectar robbers.
- Q.8** Seed formation without fertilisation in flowering plants involves the process of [NEET Phase I-2016]
(1) Somatic hybridisation
(2) Apomixis
(3) Sporulation
(4) Budding
- Q.9** In majority of angiosperm [NEET Phase II-2016]
(1) egg has a filiform apparatus
(2) there are numerous antipodal cells.
(3) reduction division occurs in the megaspore mother cells.
(4) a small central cell is present in that embryo sac
- Q.10** Pollination in water hyacinth and water lily is brought about by the agency of : [NEET Phase II-2016]
(1) water (2) insects or wind
(3) birds (4) bats
- Q.11** The ovule of an angiosperm is technically equivalent to :
[NEET Phase II-2016]
(1) megasporangium
(2) megasporophyll
(3) megaspore mother cell
(4) megaspore
- Q.12** Functional megaspore in an angiosperm develops into an:
[NEET-2017]
(1) endosperm (2) embryo sac
(3) embryo (4) ovule
- Q.13** Attractants and rewards are required for:
[NEET-2017]
(1) entomophily (2) hydrophily
(3) cleistogamy (4) anemophily
- Q.14** Flowers which have single ovule in the ovary and are packed into inflorescence are usually pollinated by
[NEET-2017]
(1) bee (2) wind
(3) bat (4) water
- Q.15** A dioecious flowering plant prevents both:
[NEET-2017]
(1) autogamy and geitonogamy
(2) geitonogamy and xenogamy
(3) cleistogamy and xenogamy
(4) autogamy and xenogamy
- Q.16** Double fertilisation is exhibited by [NEET-2017]
(1) algae (2) fungi
(3) angiosperms (4) gymnosperms

- Q.17** Which one of the following pairs of plant structures has haploid number of chromosomes? [AIPMT-2008]
 (1) Egg nucleus and secondary nucleus
 (2) Megaspore mother cell and antipodal cells
 (3) Egg cell and antipodal cells
 (4) Nucellus and antipodal cells
- Q.18** Double fertilization is [NEET-2018]
 (1) Fusion of two male gametes with one egg
 (2) Fusion of one male gamete with two polar nuclei
 (3) Fusion of two male gametes of a pollen tube with two different eggs
 (4) Syngamy and triple fusion
- Q.19** Pollen grains can be stored for several years in liquid nitrogen having a temperature of [NEET-2018]
 (1) -196°C (2) -80°C
 (3) -120°C (4) -160°C
- Q.20** Which of the following has proved helpful in preserving pollen as fossils? [NEET-2018]
 (1) Oil content (2) Cellulosic intine
 (3) Pollen kit (4) Sporopollenin
- Q.21** Persistent nucellus in the seed is known as : [NEET-2019]
 (1) Chalaza (2) Perisperm
 (3) Hilum (4) Tegmen
- Q.22** What is the fate of the male gametes discharged in the synergid? [NEET-2019]
 (1) One fuses with the egg, other(s) degenerate(s) in the synergid.
 (2) All fuse with the egg.
 (3) One fuses with the egg, other(s) fuse(s) with synergid nucleus.
 (4) One fuses with the egg and other fuses with central cell nuclei.
- Q.23** The body of the ovule is fused within the funicle at [NEET-2020]
 (1) Micropyle (2) Nucellus
 (3) Chalaza (4) Hilum
- Q.24** The plant parts which consist of two generations - one within the other [NEET-2020]
 (a) Pollen grains inside the anther
 (b) Germinated pollen grain with two male gametes
 (c) Seed inside the fruit
 (d) Embryo sac inside the ovule
 (1) (a), (b) and (c)
 (2) (c) and (d)
 (3) (a) and (d)
 (4) (a) only
- Q.25** The term used for transfer of pollen grains from anthers of one plant to stigma of a different plant which, during pollination, brings genetically different types of pollen grains to stigma, is : [NEET-2021]
 (1) Geitonogamy (2) Chasmogamy
 (3) Cleistogamy (4) Xenogamy
- Q.26** Which part of the fruit, labelled in the given figure makes it a false fruit? [NEET-2022]
- 
- (1) B → Endocarp (2) C → Thalamus
 (3) D → Seed (4) A → Mesocarp
- Q.27** Given below are two statements: [NEET-2022]
Statement I: Cleistogamous flowers are invariably autogamous
Statement II: Cleistogamy is disadvantageous as there is no chance for cross pollination.
 In the light of the above statements, choose the correct answer from the options given below:
 (1) Both **Statement I** and **Statement II** are incorrect
 (2) **Statement I** is correct but **Statement II** is incorrect
 (3) **Statement I** is incorrect but **Statement II** is correct
 (4) Both **Statement I** and **Statement II** are correct
- Q.28** Identify the incorrect statement related to Pollination: [NEET-2022]
 (1) Pollination by wind is more common amongst abiotic pollination
 (2) Flowers produce foul odours to attract flies and beetles to get pollinated
 (3) Moths and butterflies are the most dominant pollinating agents among insects
 (4) Pollination by water is quite rare in flowering plants
- Q.29** In angiosperm, the haploid, diploid and triploid structures of a fertilized embryo sac sequentially are [NEET-2023]
 (1) Antipodals, synergids, and primary endosperm nucleus
 (2) Synergids, Zygote and Primary endosperm nucleus
 (3) Synergids, antipodals and Polar nuclei
 (4) Synergids, Primary endosperm nucleus and zygote

Q.30 Large, colourful, fragrant flowers with nectar are seen in: [NEET-2023]

- (1) bird pollinated plants
- (2) bat pollinated plants
- (3) wind pollinated plants
- (4) insect pollinated plants

Q.31 What is the function of tassels in the corn cob ?

[NEET-2023]

- (1) To trap pollen grains
- (2) To disperse pollen grains
- (3) To protect seeds
- (4) To attract insects

Q.32 Identify the set of correct statements:

- A. The flowers of *Vallisneria* are colourful and produce nectar.
- B. The flowers of water lily are not pollinated by water.
- C. In most of water-pollinated species, the pollen grains are protected from wetting.
- D. Pollen grains of some hydrophytes are long and ribbon like.
- E. In some hydrophytes, the pollen grains are carried passively inside water.

Choose the correct answer from the options given below. [NEET-2024]

- (1) B, C, D and E only
- (2) C, D and E only
- (3) A, B, C and D only
- (4) A, C, D and E only

Q.33 Identify the correct description about the given figure: [NEET-2024]



- (1) Compact inflorescence showing complete autogamy
- (2) Wind pollinated plant inflorescence showing flowers with well exposed stamens.
- (3) Water pollinated flowers showing stamens with mucilaginous covering.
- (4) Cleistogamous flowers showing autogamy.

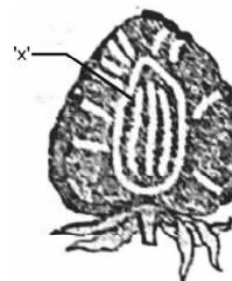
Q.34 Which part of the ovule stores reserve food materials? [Re-NEET 2024]

- (1) Nucellus
- (2) Integument
- (3) Placenta
- (4) Funicle

Q.35 Pollen grains remain preserved as fossils due to the presence of: [Re-NEET 2024]

- (1) Epidermal layer
- (2) Tapetum
- (3) Exine layer
- (4) Intine layer

Q.36 The part marked as 'x' in the given figure is [Re-NEET 2024]



- (1) Endosperm
- (2) Thalamus
- (3) Endocarp
- (4) Mesocarp

Q.37 How many meiotic and mitotic divisions need to occur for the development of a mature female gametophyte from the megaspore mother cell in an angiosperm plant ? [NEET-2025]

- (1) 2 Meiosis and 3 Mitosis
- (2) 1 Meiosis and 2 Mitosis
- (3) 1 Meiosis and 3 Mitosis
- (4) No Meiosis and 3 Mitosis

Q.38 Given below are two statements : One is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**
Assertion (A) : Cells of the tapetum possess dense cytoplasm and generally have more than one nucleus.
Reason (R) : Presence of more than one nucleus in the tapetum increase the efficiency of nourishing the developing microspore mother cells [NEET-2025]

In light of the above statements, choose the most appropriate answer from the options given below:

- (1) Both A and R are true and R is the correct explanation of A.
- (2) Both A and R are true and R is NOT the correct explanation of A.
- (3) A is true but R is false.
- (4) A is false but R is true.

Q.39 Match List-I with List-II. [NEET-2025]

List-I	List-II
A. Scutellum	I. Persistent nucellus
B. Non-albuminous seed	II. Cotyledon of Monocot seed
C. Epiblast	III. Groundnut
D. Perisperm	IV. Rudimentary cotyledon

Choose the option with all **correct** matches.

- (1) A-II, B-III, C-IV, D-I
- (2) A-IV, B-III, C-II, D-I
- (3) A-IV, B-III, C-I, D-II
- (4) A-II, B-IV, C-III, D-I

Q.40 Given below are two statements : One is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : A typical unfertilised, angiosperm embryo sac at maturity is 8 nucleate and 7-celled.

Reason (R) : The egg apparatus has 2 polar nuclei.

In the light of the above statements, choose the correct answer from the options given below : [NEET-2025]

- (1) Both A and R are true and R is the correct explanation of A.
- (2) Both A and R are true but R is NOT the correct explanation of A.
- (3) A is true but R is false.
- (4) A is false but R is true.

Q.41 Given below are two statements : One is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**
Assertion (A) : Both wind and water pollinated flowers are not very colourful and do not produce nectar.

Reason (R) : The flowers produce enormous amount of pollen grains in wind and water pollinated flowers. In the of the above statements, choose the correct answer from the options given below: [NEET-2025]

- (1) Both A and R are true and R is the correct explanation of A.
- (2) Both A and R are true and R as NOT the correct explanation of A.
- (3) A is true but R is false.
- (4) A is false but R is true.

Q.42 Given below are two statements: [NEET-2025]

Statement I : In a floral formula \oplus stands for zygomorphic nature of the flower, and \underline{G} stands for inferior ovary.

Statement II : In a floral formula \oplus stands for actinomorphic nature of the flower and \underline{G} stands for superior ovary.

In the light of the above statements, choose the correct answer from the options given below:

- (1) Both Statement I and Statement II are correct.
- (2) Both Statement I and Statement II are incorrect.
- (3) Statement I is correct but Statement II is incorrect.
- (4) Statement I is incorrect but Statement II is correct.

Human Reproduction

Q.1 Which of the following events is not associated with ovulation in human female ? [AIPMT-2015]

- (1) Release of secondary oocyte
- (2) LH surge
- (3) Decrease in estradiol
- (4) Full development of Graafian follicle

Q.2 In human females, meiosis-II is not completed until : [AIPMT-2015]

- (1) Uterine implantation
- (2) Birth
- (3) Puberty
- (4) Fertilisation

Q.3 Which of the following layers in an antral follicle is acellular ? [AIPMT-2015]

- (1) Stroma
- (2) Zona pellucida
- (3) Granulosa
- (4) Theca interna

Q.4 Ectopic pregnancies are referred to as :

- (1) Implantation of defective embryo in the uterus
- (2) Pregnancies terminated due to hormonal imbalance [AIPMT-2015]
- (3) Pregnancies with genetic abnormality
- (4) Implantation of embryo at site other than uterus

Q.5 Changes in GnRH pulse frequency in females is controlled by circulating levels of : [NEET Phase I-2016]

- (1) Progesterone only
- (2) Progesterone and inhibin
- (3) Estrogen and progesterone
- (4) Estrogen and inhibin

Q.6 Identify the correct statement on 'inhibin' : [NEET Phase I-2016]

- (1) Is produced by granulosa cells in ovary and inhibits the secretion of LH
- (2) Is produced by nurse cells in testes and inhibits the secretion of LH
- (3) Inhibits the secretion of LH, FSH and prolactin
- (4) Is produced by granulosa cells in ovary and inhibits the secretion of FSH

- Q.7** Fertilisation in humans is practically feasible only if : **[NEET Phase II-2016]**
- (1) The ovum and sperms are transported simultaneously to ampullary - isthmic junction of the cervix
 - (2) The sperms are transported into cervix within 48 hrs of release of ovum in uterus
 - (3) The sperms are transported into vagina just after the release of ovum in fallopian tube
 - (4) The ovum and sperms are transported simultaneously to ampullary-isthmic junction of the fallopian tube.
- Q.8** Which of the following depicts the correct pathway of transport of sperms ? **[NEET Phase II-2016]**
- (1) Rete testis → Vasa Efferentia → Epididymis → Vas deferens
 - (2) Rete testis → Epididymis → Vasa Efferentia → Vas deferens
 - (3) Rete testis → Vas deferens → Vasa Efferentia ductules → Epididymis
 - (4) Vasa Efferentia → Rete testis → Vas deferens → Epididymis
- Q.9** Select the incorrect statement: **[NEET Phase I-2016]**
- (1) LH and FSH decrease gradually during the follicular phase
 - (2) LH triggers secretion of androgens from the leydig cells
 - (3) FSH stimulates the sertoli cells which help in spermiogenesis
 - (4) LH triggers ovulation in ovary.
- Q.10** Several hormones like hCG, hPL, estrogen, progesterone are produced by: **[NEET Phase II-2016]**
- (1) ovary
 - (2) placenta
 - (3) fallopian tube
 - (4) pituitary
- Q.11** Match column I with column II and select the correct option using the codes given below : **[NEET Phase II-2016]**
- | Column I | Column II |
|------------------|---------------------------------|
| A. Mons pubis | (i) Embryo formation |
| B. Antrum | (ii) Sperm |
| C. Trophectoderm | (iii) Female external genitalia |
| D. Nebenkern | (iv) Graafian follicle |
- (1) A-iii, B-iv, C-ii, D-i (2) A-iii, B-iv, C-i, D-ii
(3) A-iii, B-i, C-iv, D-ii (4) A-i, B-iv, C-iii, D-ii
- Q.12** Capacitation occurs in : **[NEET-2017]**
- (1) epididymis
 - (2) vas deferens
 - (3) female reproductive tract
 - (4) rete testis
- Q.13** The amnion of mammalian embryo is derived from
- (1) mesoderm and trophoblast **[NEET-2018]**
 - (2) endoderm and mesoderm
 - (3) ectoderm and mesoderm
 - (4) ectoderm and endoderm
- Q.14** Hormones secreted by the placenta to maintain pregnancy are **[NEET-2018]**
- (1) hCG, hPL, progesterogens, estrogens
 - (2) hCG, hPL, estrogens, relaxin, oxytocin
 - (3) hCG, hPL, progesterogens, prolactin
 - (4) hCG, progesterogens, estrogens, glucocorticoids
- Q.15** The difference between spermiogenesis and spermiation is **[NEET-2018]**
- (1) In spermiogenesis, spermatozoa from sertoli cells are released into the cavity of seminiferous tubules while in spermiation spermatozoa are formed.
 - (2) In spermiogenesis, spermatozoa are formed while in spermiation spermatids are formed.
 - (3) In spermiogenesis, spermatids are formed while in spermiation spermatozoa are formed.
 - (4) In spermiogenesis, spermatozoa are formed while in spermiation spermatozoa are released from sertoli cells into the cavity of seminiferous tubules.
- Q.16** Match the items given in Column I with those in Column II and select the correct option given below : **[NEET-2018]**
- | Column I | Column II |
|------------------------|------------------------------------|
| a. Proliferative Phase | i. Breakdown of endometrial lining |
| b. Secretory Phase | ii. Follicular Phase |
| c. Menstruation | iii. Luteal Phase |
- | a | b | c |
|----------|----------|----------|
| (1) ii, | iii, | i |
| (2) i, | iii, | ii |
| (3) iii, | ii, | i |
| (4) iii, | i, | ii |
- Q.17** Select the correct sequence of transport of sperm cells in male reproductive system :- **[NEET-2019]**
- (1) Testis → Epididymis → Vasa efferentia → Rete testis → Inguinal canal → Urethra
 - (2) Seminiferous tubules → Rete testis → Vasa efferentia → Epididymis → Vas deferens → Ejaculatory duct → Urethra → Urethral meatus
 - (3) Seminiferous tubules → Vasa efferentia → Epididymis → Inguinal canal → Urethra
 - (4) Testis → Epididymis → Vasa efferentia → Vas deferens → Ejaculatory duct → Inguinal canal → Urethra → Urethral meatus

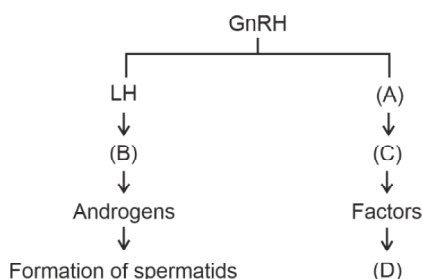
- Q.18** Extrusion of second polar body from egg nucleus occurs : [NEET-2019]
 (1) after entry of sperm but before fertilization
 (2) after fertilization
 (3) before entry of sperm into ovum
 (4) simultaneously with first cleavage
- Q.19** Which of the following hormone levels will cause release of ovum (ovulation) from the graafian follicle? [NEET-2020]
 (1) High concentration of Progesterone
 (2) Low concentration of LH
 (3) Low concentration of FSH
 (4) High concentration of Estrogen
- Q.20** Meiotic division of the secondary oocyte is completed
 (1) At the time of copulation [NEET-2020]
 (2) After zygote formation
 (3) At the time of fusion of a sperm with an ovum
 (4) Prior to ovulation
- Q.21** Match the following columns and select the correct option. [NEET-2020]
- | Column-I | | Column-II | |
|---------------------------|-------|---|-------|
| (a) Placenta | | (i) Androgens | |
| (b) Zona pellucida | | (ii) Human Chorionic gonadotropin (hCG) | |
| (c) Bulbo-urethral glands | | (iii) Layer of the ovum | |
| (d) Leydig cells | | (iv) Lubrication of the Penis | |
| (a) | (b) | (c) | (d) |
| (1) (i) | (iv) | (ii) | (iii) |
| (2) (iii) | (ii) | (iv) | (i) |
| (3) (ii) | (iii) | (iv) | (i) |
| (4) (iv) | (iii) | (i) | (ii) |
- Q.22** Receptors for sperm binding in mammals are present on : [NEET-2021]
 (1) Vitelline membrane (2) Perivitelline space
 (3) Zona pellucida (4) Corona radiata
- Q.23** Which of the following secretes the hormone, relaxin during the later phase of pregnancy ? [NEET-2021]
 (1) Corpus luteum (2) Foetus
 (3) Uterus (4) Graafian follicle
- Q.24** Which of these is not an important component of initiation of parturition in humans ? [NEET-2021]
 (1) Synthesis of prostaglandins
 (2) Release of Oxytocin
 (3) Release of Prolactin
 (4) Increase in estrogen and progesterone ratio
- Q.25** At which stage of life the oogenesis process is initiated? [NEET-2022]
 (1) Embryonic development stage
 (2) Birth
 (3) Adult
 (4) Puberty
- Q.26** Which of the following statements are true for spermatogenesis but **do not** hold true for Oogenesis?
 (a) It results in the formation of haploid gametes
 (b) Differentiation of gamete occurs after the completion of meiosis [NEET-2022]
 (c) Meiosis occurs continuously in a mitotically dividing stem cell population
 (d) It is controlled by the Luteinising hormone (LH) and Follicle Stimulating Hormone (FSH) secreted by the anterior pituitary
 (e) It is initiated at puberty
 Choose the **most appropriate** answer from the options given below:
 (1) (b) and (c) only (2) (b), (d) and (e) only
 (3) (b), (c) and (e) only (4) (c) and (e) only
- Q.27** Given below are two statements: [NEET-2022]
Statement I: The release of sperms into the seminiferous tubules is called spermiation.
Statement II: Spermiogenesis is the process of formation of sperms from spermatogonia.
 In the light of the above statements, choose the most appropriate answer from the options given below:
 (1) Both Statement I and Statement II are incorrect
 (2) Statement I is correct but Statement II is incorrect
 (3) Statement I is incorrect but Statement II is correct
 (4) Both Statement I and Statement II are correct
- Q.28** Given below are two statements : [NEET-2023]
Statement I : Vas deferens receives a duct from seminal vesicle and opens into urethra as the ejaculatory duct.
Statement II : The cavity of the cervix is called cervical canal which along with vagina forms birth canal.
 In the light of the above statements, choose the correct answer from the options given below :
 (1) Both Statement I and Statement II are false.
 (2) Statement I is correct but Statement II is false.
 (3) Statement I incorrect but Statement II is true.
 (4) Both Statement I and Statement II are true.
- Q.29** Given below are two statements : one is labelled as **Assertion A** and the other is labelled as Reason R
Assertion A : Endometrium is necessary for implantation of blastocyst.
Reason R : In the absence of fertilization, the corpus luteum gets degenerated that causes disintegration of endometrium. [NEET-2023]
 In the light of the above statements, choose the correct answer from the options given below :
 (1) Both A and R are true but R is NOT the correct explanation of A.
 (2) A is true but R is false.
 (3) A is false but R is true.
 (4) Both A and R are true and R is the correct explanation of A.

- Q.30** Which of the following statements are correct regarding female reproductive cycle ? [NEET-2023]
- In non-primate mammals, cyclical changes during reproduction are called oestrus cycle.
 - First menstrual cycle begins at puberty and is called menopause.
 - Lack of menstruation may be indicative of pregnancy.
 - Cyclic menstruation extends between menarche and menopause.

Choose the most appropriate answer from the options given below:

- (1) A and B only (2) A, B and C only
- (3) A, C and D only (4) A and D only

- Q.31** Identify the correct option (A), (B), (C), (D) with respect to spermatogenesis. [NEET-2024]



- (1) ICSH, Leydig cells, Sertoli cells, spermatogenesis.
- (2) FSH, Leydig cells, Sertoli cells, spermiogenesis.
- (3) ICSH, Interstitial cells, Leydig cells, spermiogenesis.
- (4) FSH, Sertoli cells, Leydig cells, spermatogenesis.

- Q.32** Given below are two statements : one is labelled as **Assertion A** and the other is labelled as **Reason R** : **Assertion A** : FSH acts upon ovarian follicles in female and Leydig cells in male.

Reason R : Growing ovarian follicles secrete estrogen in female while interstitial cells secrete androgen in male human being.

In the light of the above statements, choose the correct answer from the options given below :

[NEET-2024]

- (1) A is false but R is true
- (2) Both A and R are true and R is the correct explanation of A
- (3) Both A and R are true but R is NOT the correct explanation of A
- (4) A is true but R is false

- Q.33** Which of the following is not a component of fallopian tube? [NEET-2024]

- (1) Ampulla (2) Uterine fundus
- (3) Isthmus (4) Infundibulum

- Q.34** Given below are two statements [NEET-2024]

Statement I: The presence or absence of hymen is not a reliable indicator of virginity.

Statement II: The hymen is torn during the first coitus only.

In the light of the above statements, choose the correct answer from the options given below :

- (1) Statement I is false but Statement II is true
- (2) Both Statement I and Statement II are true
- (3) Both Statement I and Statement II are false
- (4) Statement I is true but Statement II is false

- Q.35** Given below are two statements: One is labelled as **Assertion A** and the other is labelled as **Reason R**:

Assertion A : Breast-feeding during initial period of infant growth is recommended by doctors for bringing a healthy baby. [NEET-2024]

Reason R : Colostrum contains several antibodies absolutely essential to develop resistance for the new born baby.

In the light of the above statements, choose the most appropriate answer from the options given below:

- (1) A is not correct but R is correct
- (2) Both A and R are correct and R is the correct explanation of A
- (3) Both A and R are correct but R is NOT the correct explanation of A
- (4) A is correct but R is not correct

- Q.36** Given below are two statements: One is labelled as **Assertion A** and the other is labelled as **Reason R**.

Assertion A : During menstrual cycle, the ovulation takes place approximately on 14th day.

Reason R : Rapid secretion of LH in the middle of menstrual cycle induces rupture of Graafian follicle and thereby the release of ovum. [Re-NEET-2024]

In the light of the above statements, choose the most appropriate answer from the options given below.

- (1) A is correct but R is not correct.
- (2) A is not correct but R is correct.
- (3) Both A and R are correct and R is the correct explanation of A.
- (4) Both A and R are correct but R is NOT the correct explanation of A.

- Q.37** Arrange the following parts in human mammary gland, traversing the route of milk ejection. [Re-NEET-2024]

- Mammary duct
- Lactiferous duct
- Mammary alveolus
- Ampulla
- Mammary tubule

Choose the correct answer from the options given below:

- (1) D → C → E → A → B
- (2) C → E → B → A → D
- (3) C → E → A → D → B
- (4) A → C → E → D → B

Q.38 Match List-I with List-II relating to human female external genitalia. [Re-NEET-2024]

	List-I (Structures)		List-II (Features)
A.	Mons pubis	I.	A fleshy fold of tissue surrounding the vaginal opening
B.	Clitoris	II.	Fatty cushion of cells covered by skin and hair
C.	Hymen	III.	Tiny finger-like structure above labia minora
D.	Labina majora	IV.	A thin membrane-like structure covering vaginal opening

Choose the **correct** answer from the option given below :

- (1) A-II, B-III, C-IV, D-I (2) A-IV, B-III, C-II, D-I
(3) A-I, B-IV, C-III, D-II (4) A-II, B-III, C-I, D-IV

Q.39 Match List-I with List-II: [Re-NEET-2024]

List-I	List-II
A. Parturition	I. Several antibodies for newborn babies
B. Placenta	II. Collection of ovum after ovulation
C. Colostrum	III. Foetal ejection reflex
D. Fimbriae	IV. Secretion of the hormone hCG

Choose the **correct** answer from the option given below :

- (1) A-III, B-IV, C-I, D-II (2) A-I, B-IV, C-II, D-III
(3) A-II, B-III, C-IV, D-I (4) A-III, B-IV, C-II, D-I

Q.40 Twins are born to a family that lives next door to you. The twins are a boy and a girl. Which of the following must be true? [NEET-2025]

- (1) They are monozygotic twins.
(2) They are fraternal twins
(3) They were conceived through in vitro fertilization.
(4) They have 75% identical genetic content.

Q.41 Match List-I with List-II [NEET-2025]

List-I	List-II
A. Head	I. Enzymes
B. Middle piece	II. Sperm motility
C. Acrosome	III. Energy
D. Tail	IV. Genetic material

Choose the correct answer from the options given below :

- (1) A-IV, B-III, C-I, D-II (2) A-IV, B-III, C-II, D-I
(3) A-III, B-IV, C-II, D-I (4) A-III, B-II, C-I, D-IV

Q.42 Find the correct statements : [NEET-2025]

- A. In human pregnancy, the major organ systems are formed at the end of 12 weeks.
B. In human pregnancy the major organ systems are formed at the end of 8 weeks.

C. In human pregnancy heart is formed after one month of gestation.

D. In human pregnancy, limbs and digits develop by the end of second month.

E. In human pregnancy the appearance of hair is usually observed in the fifth month.

Choose the **correct** answer from the options given below:

- (1) A and E Only (2) B and C Only
(3) B, C, D and E Only (4) A, C, D and E Only

Q.43 Consider the following: [NEET-2025]

A. The reductive division for the human female gametogenesis starts earlier than that of the male gametogenesis.

B. The gap between the first meiotic division and the second meiotic division is much shorter for males compared to females.

C. The first polar body is associated with the formation of the primary oocyte.

D. Luteinizing Hormone (LH) surge leads to disintegration of the endometrium and onset of menstrual bleeding.

Choose the correct answer from the options given below :

- (1) A and B are true (2) A and C are true
(3) B and D are true (4) B and C are true

Q.44 The first menstruation is called : [NEET-2025]

- (1) Menopause (2) Menarche
(3) Diapause (4) Ovulation

Reproductive Health

Q.1 A childless couple can be assisted to have a child through a technique called GIFT. The full form of this technique is : [AIPMT-2015]

- (1) Gamete Internal Fertilisation and Transfer
(2) Germ cell Internal Fallopian Transfer
(3) Gamete Inseminated Fallopian Transfer
(4) Gamete Intra Fallopian Transfer

Q.2 Embryo with more than 16 blastomeres formed due to in vitro fertilisation is transferred into:

[NEET Phase II-2016]

- (1) Uterus (2) Fallopian tube
(3) Fimbriae (4) Cervix

Q.3 Which of the following is hormone-releasing IUD ? [NEET Phase II-2016]

- (1) LNG-20 (2) Multiload 375
(3) Lippes loop (4) Cu 7

Q.4 Which of the following is incorrect regarding vasectomy ? [NEET II-2016]

- (1) No sperm occurs in seminal fluid
(2) No sperm occurs in epididymis
(3) Vasa deferentia is cut and tied
(4) Irreversible sterility

Q.5 Which of the following approaches does not give the defined action of contraceptive? [NEET Phase I-2016]

(1)	Hormonal contraceptives	Prevent/retard entry of sperms, prevent ovulation and fertilisation
(2)	Vasectomy	Prevents spermatogenesis
(3)	Barrier methods	Prevent fertilisation
(4)	Intra uterine devices	Increase phagocytosis of sperms, suppress sperm motility and fertilising capacity of sperms.

Q.6 The function of copper ions in copper releasing IUDs is : [NEET-2017]

- (1) they inhibit gametogenesis.
- (2) they make uterus unsuitable for implantation.
- (3) they inhibit ovulation.
- (4) they suppress sperm motility and fertilising capacity of sperms.

Q.7 In case of a couple where the male is having a very low sperm count, which technique will be suitable for fertilisation? [NEET-2017]

- (1) Gamete intracytoplasmic fallopian transfer
- (2) Artificial insemination
- (3) Intracytoplasmic sperm injection.
- (4) Intrauterine transfer

Q.8 Which of the following sexually transmitted diseases is not completely curable ? [NEET-2019]

- (1) Gonorrhoea
- (2) Genital warts
- (3) Genital herpes
- (4) Chlamydia

Q.9 Which of the following contraceptive methods do involve a role of hormone ? [NEET-2019]

- (1) Lactational amenorrhea, Pills, Emergency contraceptives
- (2) Barrier method, Lactational amenorrhea, Pills
- (3) CuT, Pills, Emergency contraceptives
- (4) Pills, Emergency contraceptives, Barrier methods

Q.10 In which of the following techniques, the embryos are transferred to assist those females who cannot conceive? [NEET-2020]

- (1) GIFT and ZIFT
- (2) ICSI and ZIFT
- (3) GIFT and ICSI
- (4) ZIFT and IUT

Q.11 Select the option including all sexually transmitted diseases. [NEET-2020]

- (1) Gonorrhoea, Malaria, Genital herpes
- (2) AIDS, Malaria, Filariasis
- (3) Cancer, AIDS, Syphilis
- (4) Gonorrhoea, Syphilis, Genital herpes

Q.12 Match List - I with List - II

List-I		List-II	
(a)	Vaults	(i)	Entry of sperm through Cervix is blocked
(b)	IUDs	(ii)	Removal of Vas deferens
(c)	Vasectomy	(iii)	Phagocytosis of sperms with in the Uterus
(d)	Tubectomy	(iv)	Removal of fallopian tube

Choose the correct answer from the options given below. [NEET-2021]

- | | (a) | (b) | (c) | (d) |
|-----|-------|-------|-------|-------|
| (1) | (i) | (iii) | (ii) | (iv) |
| (2) | (ii) | (iv) | (iii) | (i) |
| (3) | (iii) | (i) | (iv) | (ii) |
| (4) | (iv) | (ii) | (i) | (iii) |

Q.13 Which one of the following is an example of Hormone releasing IUD? [NEET-2021]

- (1) LNG 20
- (2) Cu 7
- (3) Multiload 375
- (4) Cut

Q.14 Venereal diseases can spread through : [NEET-2021]

- (a) Using sterile needles
 - (b) Transfusion of blood from infected person
 - (c) infected mother to foetus
 - (d) Kissing
 - (e) Inheritance
- (1) (b), (c) and (d) only
 - (2) (b) and (c) only
 - (3) (a) and (c) only
 - (4) (a), (b) and (c) only

Q.15 Match List -I with List -II with respect to methods of Contraception and their respective actions. [NEET-2022]

List-1	List-II
(a) Diaphragms	(i) Inhibit ovulation and Implantation
(b) Contraceptive Pills	(ii) Increase phagocytosis of sperm within Uterus
(c) Intra uterine Devices/cycle	(iii) Absence of Menstrual and ovulation following parturition
(d) Lactational Amenorrhea	(iv) They cover the cervix blocking the entry of sperms

Choose the **correct answer** from the options given below:

- (1) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
- (2) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)
- (3) (a)-(iii), (b)-(ii), (c)-(i), (d)-(iv)
- (4) (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)

Q.16 Lippe's loop is a type of contraceptive used as : [NEET-2022]

- (1) Vault barrier
- (2) Non-Medicated IUD
- (3) Copper releasing IUD
- (4) Cervical barrier

Q.17 Match List I with List II. [NEET-2023]

List I	List II
A. Vasectomy	I. Oral method
B. Coitus interrupts	II. Barrier method
C. Cervical caps	III. Surgical method
D. Saheli	IV. Natural method

Choose the correct answer from the options given below

- (1) A-III, B-IV, C-II, D-I
- (2) A-II, B-III, C-I, D-IV
- (3) A-IV, B-II, C-I, D-III
- (4) A-III, B-I, C-IV, D-II

Q.18 Given below are two statements: one is labelled as **Assertion A** and the other is labelled as Reason R. **Assertion A** : Amniocentesis for sex determination is one of the strategies of Reproductive and Child Health Care Programme.

Reason R : Ban on amniocentesis checks increasing menace of female foeticide. [NEET-2023]

In the light of the above statements, choose the correct answer from the options given below :

- (1) Both A and R are true and R is NOT the correct explanation of A.
- (2) A is true but R is false.
- (3) A is false but R is true.
- (4) Both A and R are true and R is the correct explanation of A.

Q.19 Which one of the following common sexually transmitted diseases is completely curable when detected early and treated properly ? [NEET-2023]

- (1) Gonorrhoea
- (2) Hepatitis-B
- (3) HIV Infection
- (4) Genital herpes

Q.20 Match List I with List II

List I	List II
A. Non-medicated IUD	I. Multiload 375
B. Copper releasing IUD	II. Progestogens
C. Hormone releasing IUD	III. Lippes loop
D. Implants	IV. LNG-20

Choose the correct answer from the option given below:

- (1) A - III, B - I, C - IV, D - II
- (2) A - III, B - I, C - II, D - IV
- (3) A - I, B - III, C - IV, D - II
- (4) A - IV, B - I, C - II, D - III

Q.21 Which of the following is not a natural/traditional contraceptive method? [NEET-2024]

- (1) Vaults
- (2) Coitus interruptus
- (3) Periodic abstinence
- (4) Lactational amenorrhoea

Q.22 Match List-I with List-II relating to examples of various kind of IUDs and barrier:

List-I		List-II	
A.	Copper releasing IUD	I.	Vaults
B.	Non-medicated IUD	II.	Multiload 375
C.	Contraceptive barrier	III.	LNG-20
D.	Hormone releasing IUD	IV.	Lippes loop

Choose the correct answer from the options given below : [Re-NEET 2024]

- (1) A-II, B-IV, C-III, D-I
- (2) A-IV, B-III, C-I, D-II
- (3) A-II, B-I, C-III, D-IV
- (4) A-II, B-IV, C-I, D-III

Q.23 Following is the list of STD's. Select the diseases which are not completely curable.

A.	Genital warts	B.	Genital herpes
C.	Syphilis	D.	Hepatitis-B
E.	Trichomoniasis		

Choose the correct answer from the options given below : [Re-NEET 2024]

- (1) A and D only
- (2) B and D only
- (3) A and C only
- (4) D and E only

Q.24 What are the potential drawbacks in adoption of the IVF method? [NEET-2025]

- A. High fatality risk to mother
- B. Expensive instruments and reagents
- C. Husband/wife necessary for being donors
- D. Less adoption of orphans
- E. Not available in India
- F. Possibility that the early embryo does not survive

Choose the correct answer from the options given below

- (1) B, D, F only
- (2) A, C, D, F only
- (3) A, B, C, D only
- (4) A, B, C, E, F only

Principles of Inheritance and Variation

Q.1 In his classic experiments on pea plants, Mendel did not use : [AIPMT-2015]

- (1) Seed shape (2) Flower position
(3) Seed colour (4) Pod length

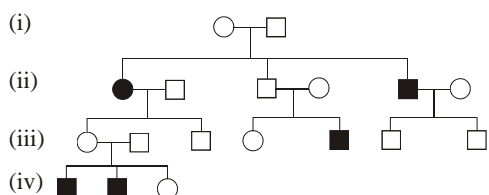
Q.2 A gene showing co-dominance has : [AIPMT 2015]

- (1) Alleles that are recessive to each other
(2) Both alleles independently expressed in the heterozygote
(3) One allele dominant on the other
(4) Alleles tightly linked on the same chromosome

Q.3 A pleiotropic gene [AIPMT-2015]

- (1) controls a trait only in combination with another gene
(2) controls multiple traits in an individual
(3) is expressed only in primitive plants
(4) is a gene evolved during Pliocene.

Q.4 In the following human pedigree, the filled symbols represent the affected individuals. Identify the type of given pedigree. [AIPMT-2015]



- (1) Autosomal recessive (2) X-linked dominant
(3) Autosomal dominant (4) X-linked recessive

Q.5 A tall true breeding garden pea plant is crossed with a dwarf true breeding garden pea plant. When the F_1 plants were selfed the resulting genotypes were in the ratio of : [NEET I-2016]

- (1) 3 : 1 :: Tall : Dwarf
(2) 3 : 1 :: Dwarf : Tall
(3) 1 : 2 : 1 :: Tall homozygous : Tall heterozygous : Dwarf
(4) 1 : 2 : 1 :: Tall heterozygous : Tall homozygous : Dwarf

Q.6 Pick out the correct statements: [NEET I-2016]

- (a) Haemophilia is a sex-linked recessive diseases.
(b) Down's syndrome is due to aneuploidy
(c) Phenylketonuria is an autosomal recessive gene disorder
(d) Sickle cell anaemia is an X-linked recessive gene disorder.
(1) (a), (c) and (d) are correct
(2) (a), (b) and (c) are correct
(3) (a) and (d) are correct
(4) (b) and (d) are correct

Q.7 Which of the following most appropriately describes haemophilia ? [NEET I-2016]

- (1) Chromosomal disorder
(2) Dominant gene disorder
(3) X-linked recessive gene disorder
(4) Recessive gene disorder

Q.8 Match the terms in Column I with their description in Column II and choose the correct option [NEET I-2016]

	Column-I		Column-II
A.	Dominance	(i)	Many genes govern a single
B.	Codominance	(ii)	Character In a heterozygous organism only one allele expresses itself
C.	Pleiotropy	(iii)	In a heterozygous organism both alleles express themselves fully
D.	Polygenic inheritance	(iv)	A single gene influences many characters

- | A | B | C | D |
|----------|-------|------|-------|
| (1) (iv) | (i) | (ii) | (iii) |
| (2) (iv) | (iii) | (i) | (ii) |
| (3) (ii) | (i) | (iv) | (iii) |
| (4) (ii) | (iii) | (iv) | (i) |

Q.9 In a test cross involving F_1 dihybrid flies, more parental type offsprings were produced than the recombinant type offsprings. This indicates :

- (1) The two genes are linked and present on the same chromosome [NEET I-2016]
(2) Both of the characters are controlled by more than one gene
(3) The two genes are located on two different chromosomes
(4) Chromosomes failed to separate during meiosis.

Q.10 If a colour-blind man marries a woman who is homozygous for normal colour vision, the probability of their son being colour-blind is: [NEET II-2016]

- (1) 0 (2) 0.5 (3) 0.75 (4) 1

Q.11 The mechanism that causes a gene to move from one linkage group to another is called. [NEET II-2016]

- (1) inversion (2) duplication
(3) translocation (4) crossing-over

Q.12 Thalassaemia and sickle cell anaemia are caused due to a problem in globin molecule synthesis. Select the correct statement. [NEET-2017]

- (1) Both are due to a quantitative defect in globin chain synthesis.
(2) Thalassaemia is due to less synthesis of globin molecules.

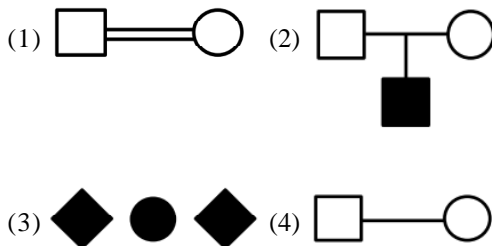
- (3) Sickle cell anaemia is due to a quantitative problem of globin molecules.
 (4) Both are due to a qualitative defect in globin chain synthesis.
- Q.13** The genotypes of a husband and wife are $I^A I^B$ and $I^A i$. Among the blood types of their children, how many different genotypes and phenotypes are possible?
 (1) 3 genotypes, 4 phenotypes [NEET-2017]
 (2) 4 genotypes, 3 phenotypes
 (3) 4 genotypes, 4 phenotypes
 (4) 3 genotypes, 3 phenotypes
- Q.14** A disease caused by a autosomal primary non disjunction is : [NEET-2017]
 (1) Klinefelter's syndrome
 (2) Turner's syndrome
 (3) Sickle cell anaemia
 (4) Down's syndrome
- Q.15** Among the following characters, which one was not considered by Mendel in his experiments on pea? [NEET-2017]
 (1) Trichomes-Glandular or non-glandular
 (2) Seed-Green or yellow
 (3) Pod-Inflated or constricted
 (4) Stem-tall or dwarf
- Q.16** Which one from those given below is the period for Mendel's hybridisation experiments? [NEET-2017]
 (1) 1840-1850 (2) 1857-1869
 (3) 1870-1877 (4) 1856-1863
- Q.17** Select the correct match [NEET-2018]
 (1) T.H. Morgan - Transduction
 (2) $F_2 \times$ Recessive parent - Dihybrid cross
 (3) Ribozyme - Nucleic acid
 (4) G. Mendel - Transformation
- Q.18** Which of the following pairs is wrongly matched? [NEET-2018]
 (1) XO type sex : Grasshopper determination
 (2) ABO blood grouping : Co-dominance
 (3) Starch synthesis in pea : Multiple alleles
 (4) T.H. Morgan : Linkage
- Q.19** A woman has an X-linked condition on one of her X chromosomes. This chromosome can be inherited to [NEET-2018]
 (1) Only grandchildren
 (2) Only sons
 (3) Only daughters
 (4) Both sons and daughters
- Q.20** Which of the following characteristics represent 'Inheritance of blood groups' in humans? [NEET-2018]
 a. Dominance b. Co-dominance
 c. Multiple allele d. Incomplete dominance
 e. Polygenic inheritance
 (1) b, d and e (2) a, b and c
 (3) b, c and e (4) a, c and e
- Q.21** What is the genetic disorder in which an individual has an overall masculine development, gynaecomastia, and is sterile? [NEET-2019]
 (1) Turner's syndrome
 (2) Klinefelter's syndrome
 (3) Edward syndrome
 (4) Down's syndrome
- Q.22** The frequency of recombination between gene pairs on the same chromosome as a measure of the distance between genes was explained by : [NEET-2019]
 (1) T.H. Morgan (2) Gregor J. Mendel
 (3) Alfred Sturtevant (4) Sutton Boveri
- Q.23** In *Antirrhinum* (Snapdragon), a red flower was crossed with a white flower and in F_1 generation, pink flowers were obtained. When pink flowers were selfed, the F_2 generation showed white, red and pink flowers. Choose the incorrect statement from the following : [NEET-2019]
 (1) This experiment does not follow the Principle of Dominance
 (2) Pink colour in F_1 is due to incomplete dominance.
 (3) Ratio of F_2 is $\frac{1}{4}$ (Red) : $\frac{2}{4}$ (Pink) : $\frac{1}{4}$ (White)
 (4) Law of Segregation does not apply in this experiment.
- Q.24** Identify the wrong statement with reference to the gene 'I' that controls ABO blood groups. [NEET-2020]
 (1) A person will have only two of the three alleles.
 (2) When I^A and I^B are present together, they express same type of sugar.
 (3) Allele 'i' does not produce any sugar.
 (4) The gene (I) has three alleles.
- Q.25** Select the correct match [NEET-2020]
 (1) Phenylketonuria - Autosomal dominant trait
 (2) Sickle cell anaemia - Autosomal recessive trait, chromosome-11
 (3) Thalassemia - X linked
 (4) Haemophilia - Y linked
- Q.26** How many true breeding pea plant varieties did Mendel select as pairs, which were similar except in one character with contrasting traits? [NEET-2020]
 (1) 2 (2) 14 (3) 8 (4) 4

- Q.27** The production of gametes by the parents, formation of zygotes, the F_1 and F_2 plants, can be understood from a diagram called : [NEET-2021]
 (1) Punnett square (2) Punnett square
 (3) Net square (4) Bullet square
- Q.28** In a cross between a male and female, both heterozygous for sickle cell anaemia gene, what percentage of the progeny will be diseased ? [NEET-2021]
 (1) 75 % (2) 25 % (3) 100 % (4) 50 %
- Q.29** If a colour blind female marries a man whose mother was also colour blind, what are the chances of her progeny having colour blindness ? [NEET-2022]
 (1) 50% (2) 75%
 (3) 100% (4) 25%
- Q.30** The recombination frequency between the genes a & c is 5%, b & c is 15%, b & d is 9%, a & b is 20%, c & d is 24% and a & d is 29%. What will be the sequence of these genes on a linear chromosome ? [NEET-2022]
 (1) d, b, a, c (2) a, b, c, d
 (3) a, c, b, d (4) a, d, b, c
- Q.31** Which of the following occurs due to the presence of autosomal linked dominant trait ? [NEET-2022]
 (1) Myotonic dystrophy
 (2) Haemophilia
 (3) Thalassemia
 (4) Sickle cell anaemia
- Q.32** Given below are two statements: one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**. [NEET-2022]
Assertion (A): Mendel's law of Independent Assortment does not hold good for the genes that are located closely on the same chromosome.
Reason (R): Closely located genes assort independently.
 In the light of the above statements, choose the **correct answer** from the options given below:
 (1) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
 (2) (A) is correct but (R) is not correct
 (3) (A) is not correct but (R) is correct
 (4) Both (A) and (R) are correct and (R) is the correct explanation of (A)
- Q.33** XO type of sex determination can be found in: [NEET-2022]
 (1) Birds (2) Grasshoppers
 (3) Monkeys (4) *Drosophila*
- Q.34** Given below are two statements: [NEET-2022]
Statement I: Mendel studied seven pairs of contrasting traits in pea plants and proposed the Laws of Inheritance
Statement II: Seven characters examined by Mendel in his experiment on pea plants were seed shape and colour, flower colour, pod shape and colour, flower position and stem height
 In the light of the above statements, choose the **correct answer** from the options given below:
 (1) Both **Statement I** and **Statement II** are incorrect
 (2) **Statement I** is correct but **Statement II** is incorrect
 (3) **Statement I** is incorrect but **Statement II** is correct
 (4) Both **Statement I** and **Statement II** are correct
- Q.35** Broad palm with single palm crease is visible in a person suffering from - [NEET-2023]
 (1) Turner's syndrome
 (2) Klinefelter's syndrome
 (3) Thalassemia
 (4) Down's syndrome
- Q.36** The phenomenon of pleiotropism refers to [NEET-2023]
 (1) presence of two alleles, each of the two genes controlling a single trait.
 (2) a single gene affecting multiple phenotypic expression.
 (3) more than two genes affecting a single character.
 (4) presence of several alleles of a single gene controlling a single crossover.
- Q.37** Frequency of recombination between gene pairs on same chromosome as a measure of the distance between genes to map their position on chromosome, was used for the first time by [NEET-2023]
 (1) Sutton and Boveri (2) Alfred Sturtevant
 (3) Henking (4) Thomas Hunt Morgan
- Q.38** Which of the following statements are correct about Klinefelter's Syndrome? [NEET-2023]
 A. This disorder was first described by Langdon Down (1866).
 B. Such an individual has overall masculine development. However, the feminine development is also expressed.
 C. The affected individual is short statured.
 D. Physical, psychomotor and mental development is retarded.
 E. Such individuals are sterile.

Choose the correct answer from the options given below:

- (1) C and D only (2) B and E only
(3) A and E only (4) A and B only

Q.39 Which one of the following symbols represents mating between relatives in human pedigree analysis? [NEET-2023]



Q.40 A pink flowered Snapdragon plant was crossed with a red flowered Snapdragon plant. What type of phenotype/s is/are expected in the progeny? [NEET-2024]

- (1) Red, Pink as well as white flowered plants
(2) Only red flowered plants
(3) Red flowered as well as pink flowered plants
(4) Only pink flowered plants

Q.41 Match List I with List II

List I	List II
A. Two or more alternative forms of a gene	I. Back cross
B. Cross of F_1 progeny with homozygous recessive parent	II. Ploidy
C. Cross of F_1 progeny with any of the parents	III. Allele
D. Number of chromosome sets in plant	IV. Test cross

Choose the correct answer from the options given below: [NEET-2024]

- (1) A - IV, B - III, C - II, D - I
(2) A - I, B - II, C - III, D - IV
(3) A - II, B - I, C - III, D - IV
(4) A - III, B - IV, C - I, D - II

Q.42 Which one of the following can be explained on the basis of Mendel's Law of Dominance?

- A. Out of one pair of factors one is dominant and the other is recessive.
B. Alleles do not show any expression and both the characters appear as such in F_2 generation.
C. Factors occur in pairs in normal diploid plants.
D. The discrete unit controlling a particular character is called factor.

E. The expression of only one of the parental characters is found in a monohybrid cross.

Choose the correct answer from the options given below: [NEET-2024]

- (1) A, B, C, D and E (2) A, B and C only
(3) A, C, D and E only (4) B, C and D only

Q.43 In a plant, black seed color (BB/Bb) is dominant over white seed color (bb). In order to find out the genotype of the black seed plant, with which of the following genotype will you cross it? [NEET-2024]

- (1) BB/Bb (2) BB
(3) bb (4) Bb

Q.44 Match List I with List II :

List I	List II
A. Down's syndrome	I. 11 th chromosome
B. α -Thalassemia	II. 'X' chromosome
C. β -Thalassemia	III. 21 st chromosome
D. Klinefelter's syndrome	IV. 16 th chromosome

Choose the correct answer from the options given below : [NEET-2024]

- (1) A - IV, B - I, C - II, D - III
(2) A - I, B - II, C - III, D - IV
(3) A - II, B - III, C - IV, D - I
(4) A - III, B - IV, C - I, D - II

Q.45 As per ABO blood grouping system, the blood group of father is B^+ , mother is A^+ and child is O^+ . Their respective genotype can be

- (A) $I^B i / I^A i / ii$ (B) $I^B I^B / I^A I^A / ii$
(C) $I^A I^B / i I^A / I^B i$ (D) $I^A i / I^B i / I^A i$
(E) $i I^B / i I^A / I^A I^B$

Choose the most appropriate answer from the options given below : [NEET-2024]

- (1) D & E only (2) A only
(3) B only (4) C & B only

Q.46 Given below are two statements:

Statement I: When many alleles of a single gene govern a character, it is called polygenic inheritance.

Statement II: In Polygenic inheritance, the effect of each allele is additive.

In the light of the above statements, choose the **correct** answer from the options given below.

[Re-NEET 2024]

- (1) Statement I is true but Statement II is false
(2) Statement I is false but Statement II is true
(3) Both Statement I and Statement II are true
(4) Both Statement I and Statement II are false

Q.47 Match List-I with List-II:

List-I Type of Inheritance		List-II Example	
A.	Incomplete dominance	I.	Blood groups in human
B.	Co-dominance	II.	Flower colour in <i>Antirrhinum</i>
C.	Pleiotropy	III.	Skin colour in human
D.	Polygenic inheritance	IV.	Phenylketonuria

Choose the correct answer from the options given below: [Re-NEET 2024]

- (1) A-III, B-IV, C-II, D-I (2) A-II, B-I, C-IV, D-III
(3) A-II, B-III, C-I, D-IV (4) A-IV, B-I, C-III, D-II

Q.48 Given below are two statements:

Statement I: Failure of segregation of chromatids during cell cycle resulting in the gain or loss of whole set of chromosome in an organism is known as aneuploidy.

Statement II: Failure of cytokinesis after anaphase stage of cell division results in the gain or loss of a chromosome is called polyploidy. [Re-NEET 2024]

In the light of the above statements, choose the correct answer from the options given below:

- (1) Statement I is true but Statement II is false
(2) Statement I is false but Statement II is true
(3) Both Statement I and Statement II are true
(4) Both Statement I and Statement II are false

Q.49 When a tall pea plant with round seeds was selfed, it produced the progeny of: [Re-NEET 2024]

- (a) Tall plants with round seeds and
(b) Tall plants with wrinkled seeds.

Identify the genotype of the parent plant.

- (1) TtRr (2) TtRR (3) TTRR (4) TTRr

Q.50 Aneuploidy is a chromosomal disorder where chromosome number is not the exact copy of its haploid set of chromosomes, due to :

- A. Substitution B. Addition
C. Deletion D. Translocation
E. Inversion

Choose the most appropriate answer from the options given below : [Re-NEET 2024]

- (1) C and D only (2) D and E only
(3) A and B only (4) B and C only

Q.51 The mother has A⁺ blood group the father has B⁺ and the child is A⁺. What can be the possibility of genotypes of all three, respectively? [Re-NEET 2024]

- A. I^AI^A | I^Bi | I^Bi B. I^AI^A | I^Bi | I^Ai
C. I^B | I^AI^A | I^AI^B D. I^AI^A | I^BI^B | I^Ai
E. I^Ai | I^Bi | I^Ai

Choose the correct answer from the option given below:

- (1) C and D (2) D and A
(3) A and B (4) B and E

Q.52 Genes R and Y follow independent assortment. If RRYy produce round yellow seeds and rryy produce wrinkled green seeds, what will be the phenotypic ratio of the F₂ generation? [NEET-2025]

- (1) Phenotypic ratio - 1:2:1
(2) Phenotypic ratio - 3 : 1
(3) Phenotypic ratio - 9 : 3 : 3 : 1
(4) Phenotypic ratio - 9 : 7

Q.53 Histones are enriched with - [NEET-2025]

- (1) Lysine & Arginine
(2) Leucine & Lysine
(3) Phenylalanine & Leucine
(4) Phenylalanine & Arginine

Q.54 What is the pattern of inheritance for polygenic trait? [NEET-2025]

- (1) Mendelian inheritance pattern
(2) Non-mendelian inheritance pattern
(3) Autosomal dominant pattern
(4) X-linked recessive inheritance pattern

Molecular Basis of Inheritance

Q.1 The process of transfer of genetic information from DNA to RNA is called : [AIPMT-2015]

- (1) Transcription (2) Translation
(3) Replication (4) Degeneracy

Q.2 Satellite DNA is important because it: [AIPMT-2015]

- (1) Does not code for proteins and is same in all members of the population
(2) Codes for enzymes needed for DNA replication
(3) Codes for proteins needed in cell cycle
(4) Shows high degree of polymorphism in population and also the same degree of polymorphism in an individual, which is heritable from parents to children.

Q.3 Which one of the following is the starter codon ? [NEET I-2016]

- (1) UAA (2) UAG (3) AUG (4) UGA

Q.4 Which of the following is required as inducer (s) for the expression of Lac operon ? [NEET I-2016]

- (1) Lactose
(2) Lactose and Galactose
(3) Glucose
(4) Galactose

- Q.5** A molecule that can act as a genetic material must fulfil the traits given below, except : [NEET II -2016]
 (1) It should be able to express itself in the form of 'Mendelian characters'.
 (2) It should be able to generate its replica.
 (3) It should be unstable structurally and chemically
 (4) It should provide the scope for slow changes that are required for evolution.
- Q.6** A complex of ribosomes attached to a single strand of RNA is known as : [NEET I-2016]
 (1) Polypeptide (2) Okazaki fragment
 (3) Polysome (4) Polymer
- Q.7** Which of the following is not required for any of the techniques of DNA fingerprinting available at present ? [NEET I-2016]
 (1) Restriction enzymes
 (2) DNA-DNA hybridisation
 (3) Polymerase chain reaction
 (4) Zinc finger analysis
- Q.8** The equivalent of a structural gene is : [NEET II -2016]
 (1) Muton (2) Cistron (3) Operon (4) Recon
- Q.9** Which of the following rRNA acts as structural RNA as well as ribozyme in bacteria? [NEET II-2016]
 (1) 5S rRNA (2) 18S rRNA
 (3) 23S rRNA (4) 5.8S rRNA
- Q.10** DNA-dependent RNA polymerase catalyses transcription on one strand of the DNA which is called the : [NEET II-2016]
 (1) Template strand (2) Coding strand
 (3) Alpha strand (4) Anti-strand
- Q.11** Taylor conducted the experiments to prove semiconservative mode of chromosome replication on: [NEET II-2016]
 (1) *Vinca rosea*
 (2) *Vicia faba*
 (3) *Drosophila melanogaster*
 (4) *E.coli*
- Q.12** The final proof for DNA as the genetic material came from the experiments of : [NEET-2017]
 (1) Hershey and Chase
 (2) Avery, MacLeod and McCarty
 (3) Hargobind Khorana
 (4) Griffith
- Q.13** If there are 999 bases in an RNA that code for a protein with 333 amino acids, and the base at position 901 is deleted such that the length of the RNA becomes 998 bases, how many codons will be altered? [NEET-2017]
 (1) 11 (2) 33 (3) 333 (4) 1
- Q.14** During DNA replication, Okazaki fragments are used to elongate. [NEET-2017]
 (1) the lagging strand towards replication fork.
 (2) the leading strand away from replication fork.
 (3) the lagging strand away from the replication fork.
 (4) the leading strand towards replication fork.
- Q.15** Which of the following RNAs should be most abundant in animal cell? [NEET-2017]
 (1) tRNA (2) mRNA
 (3) miRNA (4) rRNA
- Q.16** Spliceosomes are not found in cells of: [NEET-2017]
 (1) fungi (2) animals
 (3) bacteria (4) plants
- Q.17** The association of histone H₁ with a nucleosome indicates that : [NEET-2017]
 (1) DNA replication is occurring
 (2) the DNA is condensed into a chromatin fibre.
 (3) the DNA double helix is exposed.
 (4) transcription is occurring
- Q.18** The experimental proof for semiconservative replication of DNA was first shown in a [NEET-2018]
 (1) Plant (2) Bacterium
 (3) Fungus (4) Virus
- Q.19** Select the correct match [NEET-2018]
 (1) Matthew Meselson - *Pisum sativum* and F. Stahl
 (2) Alfred Hershey and - TMV Martha Chase
 (3) Alec Jeffreys - *Streptococcus pneumonia*
 (4) Francois Jacob and - Lac operon Jacques Monod
- Q.20** All of the following are part of an operon except [NEET-2018]
 (1) an enhancer (2) structural genes
 (3) an operator (4) a promoter
- Q.21** AGGTATCGCAT is a sequence from the coding strand of a gene. What will be the corresponding sequence of the transcribed mRNA? [NEET-2018]
 (1) ACCUAUGCGAU
 (2) UGGTUTCGCAT
 (3) AGGUAUCGCAU
 (4) UCCAUAAGCGUA
- Q.22** Purines found both in DNA and RNA are [NEET-2019]
 (1) Adenine and thymine
 (2) Adenine and guanine
 (3) Guanine and cytosine
 (4) Cytosine and thymine

- Q.23** Under which of the following conditions will there be no change in the reading frame of following mRNA 5'AACAGCGGUGCUAAU3' [NEET-2019]
 (1) Insertion of G at 5th position
 (2) Deletion of G from 5th position
 (3) Insertion of A at G at 4th and 5th positions respectively
 (4) Deletion of GGU from 7th, 8th and 9th positions
- Q.24** Which of the following features of genetic code does allow bacteria to produce human insulin by recombinant DNA technology ? [NEET-2019]
 (1) Genetic code is not ambiguous
 (2) Genetic code is redundant
 (3) Genetic code is nearly universal
 (4) Genetic code is specific
- Q.25** Match the following genes of the Lac operon with their respective products. [NEET-2019]
 (a) i gene (i) b-galactosidase
 (b) z gene (ii) Permease
 (c) a gene (iii) Repressor
 (d) y gene (iv) Transacetylase
 Select the correct option.

(a)	(b)	(c)	(d)
(1) (i)	(iii)	(ii)	(iv)
(2) (iii)	(i)	(ii)	(iv)
(3) (iii)	(i)	(iv)	(ii)
(4) (iii)	(iv)	(i)	(ii)
- Q.26** The first phase of translation is [NEET-2020]
 (1) Recognition of DNA molecule
 (2) Amino-acylation of tRNA
 (3) Recognition of an anti-codon
 (4) Binding of mRNA to ribosome
- Q.27** Name the enzyme that facilitates opening of DNA helix during transcription. [NEET-2020]
 (1) DNA helicase
 (2) DNA polymerase
 (3) RNA polymerase
 (4) DNA ligase
- Q.28** Which of the following statements is correct? [NEET-2020]
 (1) Adenine pairs with thymine through one H-bond
 (2) Adenine pairs with thymine through three H-bonds
 (3) Adenine does not pair with thymine
 (4) Adenine pairs with thymine through two H-bonds
- Q.29** If the distance between two consecutive base pairs is 0.34 nm and the total number of base pairs of a DNA double helix in a typical mammalian cell is 6.6×10^9 bp, then the length of the DNA is approximately [NEET-2020]
 (1) 2.5 meters (2) 2.2 meters
 (3) 2.7 meters (4) 2.0 meters
- Q.30** Complete the flow chart on central dogma. [NEET-2021]
 (a) $\text{DNA} \xrightarrow{(b)} \text{mRNA} \xrightarrow{(c)} (d)$
 (1) (a)-Translation; (b)-Replication; (c)-Transcription; (d)-Transduction
 (2) (a)-Replication; (b)-Transcription; (c)-Translation; (d)-Protein
 (3) (a)-Transduction; (b)-Translation; (c)-Replication; (d)-Protein
 (4) (a)-Replication; (b)-Transcription; (c)-Transduction; (d)-Protein
- Q.31** Identify the correct statement. [NEET-2021]
 (1) RNA polymerase binds with Rho factor to terminate the process of transcription in bacteria.
 (2) the coding strand in a transcription unit is copied to an mRNA.
 (3) Split gene arrangement is characteristic of prokaryotes.
 (4) In capping, methyl guanosine triphosphate is added to the 3' end of hnRNA.
- Q.32** What is the role of RNA polymerase III in the process of transcription in eukaryotes? [NEET-2021]
 (1) Transcribes tRNA, 5s rRNA and snRNA
 (2) Transcribes precursor of mRNA
 (3) Transcribes only snRNAs
 (4) Transcribes rRNAs (28S, 18S and 5.8S)
- Q.33** If Adenine makes 30% of the DNA molecule, what will be the percentage of Thymine, Guanine and Cytosine in it ? [NEET-2021]
 (1) T : 20 ; G : 20 ; C : 30
 (2) T : 30 ; G : 20 ; C : 20
 (3) T : 20 ; G : 25 ; C : 25
 (4) T : 20 ; G : 30 ; C : 20
- Q.34** Which of the following RNAs is not required for the synthesis of protein? [NEET-2021]
 (1) tRNA (2) rRNA
 (3) siRNA (4) mRNA
- Q.35** Which one of the following statements about Histones is **wrong** ? [NEET-2021]
 (1) The pH of histones is slightly acidic.
 (2) Histones are rich in amino acids - Lysine and Arginine.
 (3) Histones carry positive charge in the side chain.
 (4) Histones are organized to form a unit of 8 molecules.
- Q.36** **Statement I** : The codon 'AUG' codes for methionine and phenylalanine.
Statement II : 'AAA' and 'AAG' both codons code for the amino acid lysine.

In the light of the above statements, choose the **correct** answer from the options given below.

[NEET-2021]

- (1) Both Statements I and Statements II are false
- (2) Statements I is correct but Statements II is false
- (3) Statement I is incorrect but Statements II is true
- (4) Both Statement I and Statement II are true

Q.37 Ten *E.coli* cells with ^{15}N - dsDNA are incubated in medium containing ^{14}N nucleotide. After 60 minutes, how many *E.coli* cells will have DNA totally free from ^{15}N ? [NEET-2022]

- (1) 40 cells
- (2) 60 cells
- (3) 80 cells
- (4) 20 cells

Q.38 If the length of a DNA molecule is 1.1 metres, what will be the approximate number of base pairs ? [NEET-2022]

- (1) 6.6×10^9 bp
- (2) 3.3×10^6 bp
- (3) 6.6×10^6 bp
- (4) 3.3×10^9 bp

Q.39 In an *E.coli* strain *i* gene gets mutated and its product can not bind the inducer molecule. If growth medium is provided with lactose, what will be the outcome? [NEET-2022]

- (1) *z*, *y*, *a* genes will be transcribed
- (2) *z*, *y*, *a* genes will not be translated
- (3) RNA polymerase will bind the promoter region
- (4) Only *z* gene will get transcribed

Q.40 If a geneticist uses the blind approach for sequencing the whole genome of an organism, followed by assignment of function to different segments, the methodology adopted by him is called as: [NEET-2022]

- (1) Gene mapping
- (2) Expressed sequence tags
- (3) Bioinformatics
- (4) Sequence annotation

Q.41 DNA polymorphism forms the basis of: [NEET-2022]

- (1) DNA finger printing
- (2) Both genetic mapping and DNA finger printing
- (3) Translation
- (4) Genetic mapping

Q.42 Read the following statements and choose the set of **correct** statements: [NEET-2022]

- (a) Euchromatin is loosely packed chromatin
- (b) Heterochromatin is transcriptionally active
- (c) Histone octamer is wrapped by negatively charged DNA in nucleosome
- (d) Histones are rich in lysine and arginine
- (e) A typical nucleosome contains 400 bp of DNA helix

Choose the **correct answer** from the options given below:

- (1) (a), (c), (d) Only
- (2) (b),(e) Only
- (3) (a),(c),(e) Only
- (4) (b), (d), (e) Only

Q.43 Which one of the following is the sequence on corresponding coding strand, if the sequence on mRNA formed is as follows [NEET-2023]

- (1) 3'UAGCUAGCUAGCUAGCUA GCUAGCU AGC 5'
- (2) 5' ATCGATCGATCGATCGATCG ATCGATCG 3'
- (3) 3' ATCGATCGATCGATCGATCG ATCGATCG 5'
- (4) 5' UAGCUAGCUAGCUAGCUAGC UAGC UAGC 3'

Q.44 Given below are two statements: [NEET-2023]

Statement I : In prokaryotes, the positively charged DNA is held with some negatively charged proteins in a region called nucleoid.

Statement II : In eukaryotes, the negatively charged DNA is wrapped around the positively charged histone octamer to form nucleosome.

In the light of the above statements, choose the correct answer from the options given below :

- (1) Both Statement I and Statement II are false.
- (2) Statement I is correct but Statement II is false.
- (3) Statement I incorrect but Statement II is true.
- (4) Both Statement I and Statement II are true.

Q.45 Given below are two statements: [NEET-2023]

Statement I : RNA mutates at a faster rate.

Statement II : Viruses having RNA genome and shorter life span mutate and evolve faster.

In the light of the above statements, choose the correct answer from the options given below :

- (1) Both Statement I and Statement II are false.
- (2) Statement I is true but Statement II is false.
- (3) Statement I false but Statement II is true.
- (4) Both Statement I and Statement II are true.

Q.46 Unequivocal proof that DNA is the genetic material was first proposed by [NEET-2023]

- (1) Alfred Hershey and Martha Chase
- (2) Avery, Macleod and McCarthy
- (3) Wilkins and Franklin
- (4) Frederick Griffith

Q.47 Match List I with List II [NEET-2023]

- | List I | List II |
|-------------|---------------------------|
| A. Gene 'a' | I. β -galactosidase |
| B. Gene 'y' | II. Transacetylase |
| C. Gene 'i' | III. Permease |
| D. Gene 'z' | IV. Repressor protein |

Choose the correct answer from the options given below

- (1) A-II, B-III, C-IV, D-I
- (2) A-III, B-IV, C-I, D-II
- (3) A-III, B-I, C-IV, D-II
- (4) A-II, B-I, C-IV, D-III

Q.48 A transcription unit in DNA is defined primarily by the three regions in DNA and these are with respect to upstream and down stream end; [NEET-2024]

- (1) Promotor, Structural gene, Terminator
- (2) Repressor, Operator gene, Structural gene
- (3) Structural gene, Transposons, Operator gene
- (4) Inducer, Repressor, Structural gene

Q.49 Match List I with List II

List I	List II
A. Frederick Griffith	I. Genetic code
B. Francois Jacob & Jacque Monod	II. Semi-conservative mode of DNA replication
C. Har Gobind Khorana	III. Transformation
D. Meselson & Stahl	IV. Lac operon

Choose the correct answer from the options given below: [NEET-2024]

- (1) A-IV, B-I, C-II, D-III(2) A-III, B-II, C-I, D-IV
- (3) A-III, B-IV, C-I, D-II(4) A-II, B-III, C-IV, D-I

Q.50 Which of the following statement is correct regarding the process of replication in *E.coli*? [NEET-2024]

- (1) The DNA dependent DNA polymerase catalyses polymerization in 5' → 3' direction
- (2) The DNA dependent DNA polymerase catalyses polymerization in one direction that is 3' → 5'
- (3) The DNA dependent RNA polymerase catalyses polymerization in one direction, that is 5' → 3'
- (4) The DNA dependent DNA polymerase catalyses polymerization in 5' → 3' as well as 3' → 5' direction

Q.51 Which one is the correct product of DNA dependent RNA polymerase to the given template? [NEET-2024]

3'TACATGGCAAATATCCATTCA5'

- (1) 5'ATGTACCGTTTATAGGTAAGT3'
- (2) 5'AUGUACCGUUUAUAGGUAAGU3'
- (3) 5'AUGUAAAGUUUAUAGGUAAGU3'
- (4) 5'AUGUACCGUUUAUAGGGAAGU3'

Q.52 Match List I with List II:

List I	List II
A. RNA polymerase III	I. snRNPs
B. Termination of transcription	II. Promotor
C. Splicing of Exons	III. Rho factor
D. TATA box	IV. SnRNAs, tRNA

Choose the correct answer from the options given below : [NEET-2024]

- (1) A - IV, B - III, C - I, D - II
- (2) A - II, B - IV, C - I, D - III
- (3) A - III, B - II, C - IV, D - I
- (4) A - III, B - IV, C - I, D - II

Q.53 Given below are two statements regarding RNA polymerase in prokaryotes. [Re-NEET 2024]

Statement I: In prokaryotes. RNA polymerase is capable of catalysing the process of elongation during transcription.

Statement II: RNA polymerase associate transiently with Rho' factor to initiate transcription.

In the light of the above statements, choose the correct answer from the options given below :

- (1) Statement I is true but Statement II is false
- (2) Statement I is false but Statement II is true
- (3) Both Statement I and Statement II are true
- (4) Both Statement I and Statement II are false

Q.54 Which of the following is a nucleotide?

[Re-NEET 2024]

- (1) Uridine
- (2) Adenylic acid
- (3) Guanine
- (4) Guanosine

Q.55 Given below are two statements:

Statement I: In eukaryotes there are three RNA polymerases in the nucleus in addition to the RNA polymerase found in the organelles.

Statement II: All the three RNA polymerases in eukaryotic nucleus have different roles.

In the light of the above statements, choose the correct answer from the options given below:

[Re-NEET 2024]

- (1) Statement I is correct but Statement II is incorrect
- (2) Statement I is incorrect but Statement II is correct
- (3) Both Statement I and Statement II are correct
- (4) Both Statement I and Statement II are incorrect

Q.56 Match List-I with List-II:

List-I		List-II	
A.	Histones	I.	Loosely packed chromatin
B.	Nucleosome	II.	Densely packed Chromatin
C.	Euchromatin	III.	Positively charged basic proteins
D.	Heterochromatin	IV.	DNA wrapped around histone octamer

Choose the correct answer from the options given below : [Re-NEET 2024]

- (1) A-IV, B-III, C-II, D-I
- (2) A-III, B-I, C-IV, D-II
- (3) A-II, B-III, C-IV, D-I
- (4) A-III, B-IV, C-I, D-II

- Q.57** Given below are two statements :
Statement I: In the lac operon, the z gene codes for beta-galactosidase which is primarily responsible for the hydrolysis of lactose into galactose and glucose.
Statement II: In addition to lactose, glucose or galactose can also induce lac operon.
 In the light of the above statements, choose the correct answer from the options given below :

[Re-NEET 2024]

- (1) Statement I is true but Statement II is false
 (2) Statement I is false but Statement II is true
 (3) Both Statement I and Statement II are true
 (4) Both Statement I and Statement II are false

- Q.58** Which factor is important for termination of transcription ? [NEET-2025]

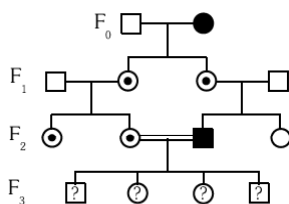
- (1) α (alpha) (2) α (sigma)
 (3) ρ (rho) (4) γ (gamma)

- Q.59** Who proposed that the genetic code for amino acids should be made up of three nucleotides ?

[NEET-2025]

- (1) George Gamow (2) Francis Crick
 (3) Jacques Monod (4) Franklin Stahl

- Q.60** With the help of given pedigree, find out the probability for the birth of a child having no disease and being a carrier (has the disease mutation in one allele of the gene) in F_3 generation. [NEET-2025]



- Unaffected male
 ■ Affected male
 ⊙ Carrier female
 ○ Unaffected female
 ● Affected female

- (1) 1/4 (2) 1/2 (3) 1/8 (4) Zero

- Q.61** Match List-I with List-II. [NEET-2025]

- List-I** **List-II**
 A. Adenosine I. Nitrogen base
 B. Adenylic acid II. Nucleotide
 C. Adenine III. Nucleoside
 D. Alanine IV. Amino acid

Choose the option with all correct matches :

- (1) A-III, B-IV, C-II, D-I
 (2) A-III, B-II, C-IV, D-I
 (3) A-III, B-II, C-I, D-IV
 (4) A-II, B-III, C-I, D-IV

- Q.62** Which of the following are the post-transcriptional events in an eukaryotic cell ? [NEET-2025]

- A. Transport of pre-mRNA to cytoplasm prior to splicing.
 B. Removal of introns and joining of exons.
 C. Addition of methyl group 5' end of hnRNA.
 D. Addition of adenine residues at 3' end of hnRNA.
 E. Base pairing of two complementary RNAs.

Choose the correct answer from the options given below:

- (1) A, B, C only (2) B, C, D only
 (3) B, C, E only (4) C, D, E only

- Q.63** Match List-I with List-II. [NEET-2025]

	<i>List-I</i>		<i>List-II</i>
A.	Alfred Hershey and Martha Chase	I.	Streptococcus pneumoniae
B.	Euchromatin	II.	Densely packed and dark-stained
C.	Frederick Griffith	III.	Loosely packed and light-stained
D.	Heterochromatin	IV.	DNA as genetic material confirmation

Choose the correct answer from the options given below :

- (1) A-II, B-IV, C-I, D-III
 (2) A-IV, B-II, C-I, D-III
 (3) A-IV, B-III, C-I, D-II
 (4) A-III, B-II, C-IV, D-I

- Q.64** Which chromosome in the human genome has the highest number of genes ? [NEET-2025]

- (1) Chromosome X (2) Chromosome Y
 (3) Chromosome 1 (4) Chromosome 10

- Q.65** Given below are two statements: [NEET-2025]

Statement I : In the RNA world, RNA is considered the first genetic material evolved to carry out essential life processes. RNA acts as a genetic material and also as a catalyst for some important biochemical reactions in living systems. Being reactive, RNA is unstable.

Statement II : DNA evolved from RNA and is a more stable genetic material. Its double helical strands being complementary, resist changes by evolving repairing mechanism.

In the light of the above statements, choose the most appropriate answer from the options given below:

- (1) Both statement I and statement II are correct.
 (2) Both statement I and statement II are incorrect.
 (3) Statement I is correct but statement II is incorrect.
 (4) Statement I is incorrect but statement II is correct.

Evolution

- Q.1** The wings of a bird and the wings of an insect are : [AIPMT-2015]
 (1) Phylogenetic structures and represent divergent evolution
 (2) Homologous structures and represent convergent evolution
 (3) Homologous structures and represent divergent evolution
 (4) Analogous structures and represent convergent evolution
- Q.2** Following are the two statements regarding the origin of life : [NEET I-2016]
 (A) The earliest organisms that appeared on the earth were non-green and presumably anaerobes.
 (B) The first autotrophic organisms were the chemoautotrophs that never released oxygen.
 Of the above statements which one of the following options is correct ?
 (1) Both (A) and (B) are correct
 (2) Both (A) and (B) are false
 (3) (A) is correct but (B) is false
 (4) (B) is correct but (A) is false.
- Q.3** Which of the following structures is homologous to the wing of a bird ? [NEET I-2016]
 (1) Hind limb of rabbit
 (2) Flipper of whale
 (3) Dorsal fin of a shark
 (4) Wing of a moth
- Q.4** Analogous structures are a result of : [NEET I-2016]
 (1) Shared ancestry (2) Stabilising selection
 (3) Divergent evolution (4) Convergent evolution
- Q.5** In Hardy-Weinberg equation, the frequency of heterozygous individual is represented by : [NEET II-2016]
 (1) p^2 (2) $2pq$ (3) pq (4) q^2
- Q.6** Which of the following is the correct sequence of events in the origin of life ? [NEET II-2016]
 I. Formation of protobionts
 II. Synthesis of organic monomers
 III. Synthesis of organic polymers
 IV. Formation of DNA-based genetic systems
 (1) I, II, III, IV (2) I, III, II, IV
 (3) II, III, I, IV (4) II, III, IV, I
- Q.7** Genetic drift operates in : [NEET II-2016]
 (1) Small isolated population
 (2) Large isolated population
 (3) Non-reproductive population
 (4) Slow reproductive population
- Q.8** The chronological order of human evolution from early to the recent is : [NEET II-2016]
 (1) *Australopithecus* → *Ramapithecus* → *Homo habilis* → *Homo erectus*
 (2) *Ramapithecus* → *Australopithecus* → *Homo habilis* → *Homo erectus*
 (3) *Ramapithecus* → *Homo habilis* → *Australopithecus* → *Homo erectus*
 (4) *Australopithecus* → *Homo habilis* → *Ramapithecus* → *Homo erectus*
- Q.9** According to Hugo de Vries, the mechanism of evolution is [NEET-2018]
 (1) Phenotypic variations
 (2) Saltation
 (3) Multiple step mutations
 (4) Minor mutations
- Q.10** Among the following sets of examples for divergent evolution, select the **incorrect** option [NEET-2018]
 (1) Brain of bat, man and cheetah
 (2) Heart of bat, man and cheetah
 (3) Forelimbs of man, bat and cheetah
 (4) Eye of octopus, bat and man
- Q.11** The similarity of bone structure in the forelimbs of many vertebrates is an example of [NEET-2018]
 (1) Convergent evolution
 (2) Analogy
 (3) Homology
 (4) Adaptive radiation
- Q.12** Variations caused by mutation, as proposed by Hugo de Vries, are [NEET-2019]
 (1) random and directional
 (2) random and directionless
 (3) small and directional
 (4) small and directionless
- Q.13** In a species, the weight of new born ranges from 2 to 5 kg. 97% of the new born with an average weight between 3 to 3.3kg survive whereas 99% of the infants born with weights from 2 to 2.5 kg or 4.5 to 5 kg die. Which type of selection process is taking place ? [NEET-2019]
 (1) Directional Selection
 (2) Stabilizing Selection
 (3) Disruptive Selection
 (4) Cyclical Selection
- Q.14** Match the hominids with their correct brain size : [NEET-2019]
 (a) *Homo habilis* (i) 900 cc
 (b) *Homo neanderthalensis* (ii) 1350 cc
 (c) *Homo erectus* (iii) 650-800 cc
 (d) *Homo sapiens* (iv) 1400 cc

Select the correct option.

- | | | | |
|-----------|-------|------|------|
| (a) | (b) | (c) | (d) |
| (1) (iii) | (i) | (iv) | (ii) |
| (2) (iii) | (ii) | (i) | (iv) |
| (3) (iii) | (iv) | (i) | (ii) |
| (4) (iv) | (iii) | (i) | (ii) |

Q.15 Flippers of Penguins and Dolphins are examples of
[NEET-2020]

- (1) Convergent evolution (2) Industrial melanism
(3) Natural selection (4) Adaptive radiation

Q.16 Embryological support for evolution was disapproved by
[NEET-2020]

- (1) Alfred Wallace (2) Charles Darwin
(3) Oparin (4) Karl Ernst von Baer

Q.17 From his experiments, S.L. Miller produced amino acids by mixing the following in a closed flask
[NEET-2020]

- (1) CH₃, H₂, NH₄ and water vapour at 800°C
(2) CH₄, H₂, NH₃ and water vapour at 600°C
(3) CH₃, H₂, NH₃ and water vapour at 600°C
(4) CH₄, H₂, NH₃ and water vapour at 800°C

Q.18 Which of the following refer to correct example(s) of organisms which have evolved due to changes in environment brought about by anthropogenic action?

- (a) Darwin's Finches of Galapagos islands.
(b) Herbicide resistant weeds.
(c) Drug resistant eukaryotes.
(d) Man-created breeds of domesticated animals like dogs.
[NEET-2020]

- (1) (a) and (c) (2) (b), (c) and (d)
(3) only (d) (4) only (a)

Q.19 The factor that leads to Founder effect in a population is:
[NEET-2021]

- (1) Genetic recombination (2) Mutation
(3) Genetic drift (4) Natural selection

Q.20 Match List - I with List - II [NEET-2021]

	List-I		List-II
(a)	Adaptive radiation	(i)	Selection of resistant varieties due to excessive use of herbicides and pesticides
(b)	Convergent evolution	(ii)	Bones of forelimbs in Man and Whale
(c)	Divergent evolution	(iii)	Wings of Butterfly and Bird
(d)	Evolution by anthropogenic action	(iv)	Darwin finches

- | | | | |
|-----------|-------|-------|-------|
| (a) | (b) | (c) | (d) |
| (1) (iii) | (ii) | (i) | (ii) |
| (2) (ii) | (i) | (iv) | (iii) |
| (3) (i) | (iv) | (iii) | (ii) |
| (4) (iv) | (iii) | (ii) | (i) |

Q.21 Which of the following statements is **not** true ?
[NEET-2022]

- (1) Sweet potato and potato is an example of analogy
(2) Homology indicates common ancestry
(3) Flippers of penguins and dolphins are a pair of homologous organs
(4) Analogous structures are a result of convergent evolution

Q.22 Natural selection where more individuals acquire specific character value other than the mean character value, leads to:
[NEET-2022]

- (1) Directional change
(2) Disruptive change
(3) Random change
(4) Stabilising change

Q.23 Select the correct group/set of Australian Marsupials exhibiting adaptive radiation.
[NEET-2023]

- (1) Numbat, Spotted cuscus, Flying phalanger
(2) Mole, Flying squirrel, Tasmanian tiger cat
(3) Lemur, Anteater, Wolf
(4) Tasmanian wolf, Bobcat, Marsupial mole

Q.24 Which one of the following factors will not affect the Hardy-Weinberg equilibrium? [NEET-2024]

- (1) Constant gene pool
(2) Genetic recombination
(3) Genetic drift
(4) Gene migration

Q.25 The flippers of the Penguins and Dolphins are the examples of the
[NEET-2024]

- (1) Divergent evolution
(2) Adaptive radiation
(3) Natural selection
(4) Convergent evolution

Q.26 Given below are some stages of human evolution. Arrange them in correct sequence. (Past to Recent)

- A. *Homo habilis*
B. *Homo sapiens*
C. *Homo neanderthalensis*
D. *Homo erectus*

Choose the correct sequence of human evolution from the options given below: [NEET-2024]

- (1) A - D - C - B
(2) D - A - C - B
(3) B - A - D - C
(4) C - B - D - A

Q.27 Match List I with List II:

List I

- A. Mesozoic Era
B. Proterozoic Era
C. Cenozoic Era
D. Paleozoic Era

List II

- I. Lower invertebrates
II. Fish & Amphibia
III. Birds & Reptiles
IV. Mammals

Choose the correct answer from the options given below : **[NEET-2024]**

- (1) A - III, B - I, C - IV, D - II
(2) A - II, B - I, C - III, D - IV
(3) A - III, B - I, C - II, D - IV
(4) A - I, B - II, C - IV, D - III

Q.28 Match List-I with List-II:

List-I		List-II	
A.	Gene pool	I.	Stable within a generation
B.	Genetic drift	II.	Change in gene frequency by chance
C.	Gene flow	III.	Transfer of genes into or out of population
D.	Gene frequency	IV.	Total number of genes and their alleles

Choose the correct answer from the options given below : **[Re-NEET 2024]**

- (1) A-III, B-II, C-I, D-IV
(2) A-IV, B-II, C-III, D-I
(3) A-I, B-II, C-III, D-IV
(4) A-II, B-III, C-IV, D-I

Q.29 Which evolutionary phenomenon is depicted by the sketch given in figure? **[Re-NEET 2024]**



- (1) Artificial selection
(2) Genetic drift
(3) Convergent evolution
(4) Adaptive radiation

Q.30 Match List-I with List-II:

List-I		List-II	
A.	Lemur	I.	Flying phalanger
B.	Bobcat	II.	Numbat
C.	Anteater	III.	Spotted cuscus
D.	Flying squirrels	IV.	Tasmanian tiger cat

Choose the correct answer from the options given below : **[Re-NEET 2024]**

- (1) A-III, B-IV, C-II, D-I
(2) A-III, B-II, C-IV, D-I
(3) A-IV, B-III, C-II, D-I
(4) A-IV, B-II, C-III, D-I

Q.31 Match List-I with List-II:

List-I		List-II	
A.	Living Fossil	I.	Elongated canine teeth
B.	Connecting Link	II.	Vermiform appendix
C.	Vestigial Organ	III.	<i>Echidna</i>
D.	Atavism	IV.	<i>Latimeria</i>

Choose the correct answer from the options given below : **[Re-NEET 2024]**

- (1) A-IV, B-III, C-II, D-I
(2) A-IV, B-II, C-III, D-I
(3) A-IV, B-III, C-I, D-II
(4) A-III, B-IV, C-I, D-II

Q.32 What is the correct order (old to recent) of periods in Paleozoic era? **[Re-NEET 2024]**

- (1) Silurian, Devonian, Permian, Carboniferous
(2) Silurian, Devonian, Carboniferous, Permian
(3) Permian, Devonian, Silurian, Carboniferous
(4) Silurian, Carboniferous, Permian, Devonian

Q.33 Sweet potato and potato represent a certain type of evolution. Select the correct combination of terms to explain the evolution. **[NEET-2025]**

- (1) Analogy, convergent
(2) Homology, divergent
(3) Homology, convergent
(4) Analogy, divergent

Human Health and Disease

- Q.1** Which of the following diseases is caused by a protozoan ? [AIPMT-2015]
 (1) Babesiosis (2) Blastomycosis
 (3) Syphilis (4) Influenza
- Q.2** Which of the following immunoglobulins does constitute the largest percentage in human milk ? [AIPMT-2015]
 (1) IgA (2) IgG (3) IgD (4) IgM
- Q.3** Grafted kidney may be rejected in a patient due to : [AIPMT-2015]
 (1) Passive immune response
 (2) Innate immune response
 (3) Humoral immune response
 (4) Cell-mediated immune response
- Q.4** If you suspect major deficiency of antibodies in a person, to which of the following would you look for confirmatory evidence ? [AIPMT-2015]
 (1) Haemocytes (2) Serum globulins
 (3) Fibrinogen in plasma (4) Serum albumins
- Q.5** Which of the following is correct regarding AIDS causative agent HIV ? [NEET II-2016]
 (1) HIV is enveloped virus containing one molecule of single-stranded RNA and one molecule of reverse transcriptase.
 (2) HIV is enveloped virus that contains two identical molecules of single-stranded RNA and two molecules of reverse transcriptase.
 (3) HIV is unenveloped retrovirus.
 (4) HIV does not escape but attacks the acquired immune response.
- Q.6** Which of the following sets of diseases is caused by bacteria ? [NEET II-2016]
 (1) Cholera and tetanus
 (2) Typhoid and smallpox
 (3) Tetanus and mumps
 (4) Herpes and influenza
- Q.7** In higher vertebrates, the immune system can distinguish self-cells and non-self. If this property is lost due to genetic abnormality and it attacks self-cells, then it leads to : [NEET I-2016]
 (1) Autoimmune disease (2) Active immunity
 (3) Allergic response (4) Graft rejection.
- Q.8** Antivenom injection contains preformed antibodies while polio drops that are administered into the body contain : [NEET I-2016]
 (1) Gamma globulin
 (2) Attenuated pathogens
 (3) Activated pathogens
 (4) Harvested antibodies
- Q.9** Which of the following statements is not true for cancer cells in relation to mutations ? [NEET I-2016]
 (1) Mutations inactivate the cell control
 (2) Mutations inhibit production of telomerase
 (3) Mutations in proto-oncogenes accelerate the cell cycle
 (4) Mutations destroy telomerase inhibitor
- Q.10** Transplantation of tissues / organs fails often due to non-acceptance by the patient's body. Which type of immune response is responsible for such rejections?
 (1) Cell - mediated immune response [NEET-2017]
 (2) Hormonal immune response
 (3) Physiological immune response
 (4) Autoimmune response
- Q.11** MALT constitutes about _____ of the lymphoid tissue in human body. [NEET-2017]
 (1) 20% (2) 70% (3) 10% (4) 50%
- Q.12** Which part of poppy plant is used to obtain the drug "Smack"? [NEET-2018]
 (1) Roots (2) Latex
 (3) Flowers (4) Leaves
- Q.13** In which disease does mosquito transmitted pathogen cause chronic inflammation of lymphatic vessels? [NEET-2018]
 (1) Ringworm disease (2) Ascariasis
 (3) Elephantiasis (4) Amoebiasis
- Q.14** Which of the following is not an autoimmune disease? [NEET-2018]
 (1) Alzheimer's disease (2) Rheumatoid arthritis
 (3) Psoriasis (4) Vitiligo
- Q.15** Colostrum, the yellowish fluid, secreted by mother during the initial days of lactation is very essential to impart immunity to the new born infants because it contains :- [NEET-2019]
 (1) Natural killer cells (2) Monocytes
 (3) Macrophages (4) Immunoglobulin A
- Q.16** Identify the correct pair representing the causative agent of typhoid fever and the confirmatory test for typhoid. [NEET-2019]
 (1) *Plasmodium vivax*/UTI test.
 (2) *Streptococcus pneumoniae*/Widal test
 (3) *Salmonella typhi*/Anthrone test
 (4) *Salmonella typhi*/Widal test
- Q.17** Which of the following immune responses is responsible for rejection of kidney graft ? [NEET-2019]
 (1) Auto- immune response
 (2) Humoral immune response
 (3) Inflammatory immune response
 (4) Cell-mediated immune response

- Q.18** The infectious stage of Plasmodium that enters the human body is [NEET-2020]
 (1) Sporozoites
 (2) Female gametocytes
 (3) Male gametocytes
 (4) Trophozoites
- Q.19** Match the following diseases with the causative organism and select the correct option. [NEET-2020]
Column -I **Column-II**
 (1) Typhoid (i) *Wuchereria*
 (b) Pneumonia (ii) *Plasmodium*
 (c) Filariasis (iii) *Salmonella*
 (d) Malaria (iv) *Haemophilus*
 (1) (b) (c) (d)
 (1) (iii) (iv) (i) (ii)
 (2) (ii) (i) (iii) (iv)
 (3) (iv) (i) (ii) (iii)
 (4) (i) (iii) (ii) (iv)
- Q.20** Identify the wrong statement with reference to immunity. [NEET-2020]
 (1) When ready-made antibodies are directly given, it is called "Passive immunity".
 (2) Active immunity is quick and gives full response.
 (3) Foetus receives some antibodies from mother, it is an example for passive immunity.
 (4) When exposed to antigen (living or dead) antibodies are produced in the host's body. It is called "Active immunity".
- Q.21** Match List - I with List - II [NEET-2021]
- | List - I | List II |
|---------------|-----------------------------------|
| a. Filariasis | (i) <i>Haemophilus influenzae</i> |
| b. Amoebiasis | (ii) <i>Trichophyton</i> |
| c. Pneumonia | (iii) <i>Wuchereria bancrofti</i> |
| d. Ringworm | (iv) <i>Entamoeba histolytica</i> |
- (a) (b) (c) (d)
 (1) (iii) (iv) (i) (ii)
 (2) (i) (ii) (iv) (iii)
 (3) (ii) (iii) (i) (iv)
 (4) (iv) (i) (iii) (ii)
- Q.22** Select the **incorrect** statement with respect to acquired immunity. [NEET-2022]
 (1) Anamnestic response is elicited on subsequent encounters with the same pathogen.
 (2) Anamnestic response is due to memory of first encounter.
 (3) Acquired immunity is non-specific type of defence present at the time of birth.
 (4) Primary response is produced when our body encounters a pathogen for the first time.
- Q.23** Given below are two statements: [NEET-2022]
Statement I: Autoimmune disorder is a condition where body defence mechanism recognizes its own cells as foreign bodies.
Statement II: Rheumatoid arthritis is a condition where body does not attack self cells.
 In the light of the above statements, choose the **most appropriate** answer from the options given below:
 (1) Both **Statement I** and **Statement II** are incorrect
 (2) **Statement I** is correct but **Statement II** is incorrect
 (3) **Statement I** is incorrect but **Statement II** is correct
 (4) Both **Statement I** and **Statement II** are correct
- Q.24** Match List I with List II. [NEET-2023]
List I **List II**
 A. Ringworm I. *Haemophilus influenzae*
 B. Filariasis II. *Trichophyton*
 C. Malaria III. *Wuchereria bancrofti*
 D. Pneumonia IV. *Plasmodium vivax*
 Choose the correct answer from the options given below
 (1) A-II, B-III, C-I, D-IV (2) A-III, B-II, C-I, D-IV
 (3) A-III, B-II, C-IV, D-I (4) A-II, B-III, C-IV, D-I
- Q.25** In which blood corpuscles, the HIV undergoes replication and produces progeny viruses? [NEET-2023]
 (1) B-lymphocytes (2) Basophils
 (3) Eosinophils (4) T_H cells
- Q.26** Match List I with List II [NEET-2023]
List I **List II**
 A. Heroin I. Effect on cardiovascular system
 B. Marijuana II. Slow down body function
 C. Cocaine III. Painkiller
 D. Morphine IV. Interfere with transport of dopamine
 Choose the correct answer from the options given below :
 (1) A-I, B-II, C-III, D-IV (2) A-IV, B-III, C-II, D-I
 (3) A-III, B-IV, C-I, D-II (4) A-II, B-I, C-IV, D-III
- Q.27** Given below are two statements :
Statement I : Bone marrow is the main lymphoid organ where all blood cells including lymphocytes are produced. [NEET-2024]
Statement II : Both bone marrow and thymus provide micro environments for the development and maturation of T-lymphocytes.
 In the light of above statements, choose the most appropriate answer from the options given below :
 (1) Statement I is incorrect but Statement II is correct.
 (2) Both Statement I and Statement II are correct.
 (3) Both Statement I and Statement II are incorrect.
 (4) Statement I is correct but Statement II is incorrect.

Q.28 Match List I with List II : [NEET-2024]

List I	List II
A. Typhoid	I. Fungus
B. Leishmaniasis	II. Nematode
C. Ringworm	III. Protozoa
D. Filariasis	IV. Bacteria

Choose the correct answer from the options given below:

- (1) A - II, B - IV, C - III, D - I
 (2) A - I, B - III, C - II, D - IV
 (3) A - IV, B - III, C - I, D - II
 (4) A - III, B - I, C - IV, D - II

Q.29 Match List I with List II : [NEET-2024]

List I	List II
A. Cocaine	I. Effective sedative in surgery
B. Heroin	II. <i>Cannabis sativa</i>
C. Morphine	III. <i>Erythroxylum</i>
D. Marijuana	IV. <i>Papaver somniferum</i>

Choose the correct answer from the options given below:

- (1) A - III, B - IV, C - I, D - II
 (2) A - IV, B - III, C - I, D - II
 (3) A - I, B - III, C - II, D - IV
 (4) A - II, B - I, C - III, D - IV

Q.30 Match List I with List II : [NEET-2024]

List I	List II
A. Common cold	I. Plasmodium
B. Haemozoin	II. Typhoid
C. Widal test	III. Rhinoviruses
D. Allergy	IV. Dust mites

Choose the correct answer from the options given below :

- (1) A - IV, B - II, C - III, D - I
 (2) A - II, B - IV, C - III, D - I
 (3) A - I, B - III, C - II, D - IV
 (4) A - III, B - I, C - II, D - IV

Q.31 Which of the following are Autoimmune disorders?

- A. Myasthenia gravis
 B. Rheumatoid arthritis
 C. Gout
 D. Muscular dystrophy
 E. Systemic Lupus Erythematosus (SLE)

Choose the most appropriate answer from the options given below: [NEET-2024]

- (1) C, D & E only (2) A, B & D only
 (3) A, B & E only (4) B, C & E only

Q.32 Match List-I with List-II:

List-I		List-II	
A.	Malignant tumors	I.	Destroy tumors
B.	MALT	II.	AIDS
C.	NACO	III.	Metastasis
D.	α -Interferons	IV.	Lymphoid tissue

Choose the correct answer from the options given below : [Re-NEET 2024]

- (1) A-III, B-IV, C-II, D-I (2) A-IV, B-III, C-II, D-I
 (3) A-III, B-IV, C-I, D-II (4) A-III, B-I, C-IV, D-II

Q.33 Match List-I with List-II:

List-I		List-II	
A.	B-Lymphocytes	I.	Passive immunity
B.	Interferons	II.	Cell mediated immunity
C.	T-Lymphocytes	III.	Produce an army of proteins in response to pathogens
D.	Colostrum	IV.	Innate immunity

Choose the correct answer from the options given below : [Re-NEET 2024]

- (1) A-I, B-IV, C-II, D-III (2) A-IV, B-II, C-III, D-I
 (3) A-III, B-IV, C-II, D-I (4) A-II, B-IV, C-I, D-III

Q.34 Which of the following type of immunity is present at the time of birth and is a non-specific type of defence in the human body ? [NEET-2025]

- (1) Acquired Immunity
 (2) Innate Immunity
 (3) Cell-mediated Immunity
 (4) Humoral Immunity

Q.35 After maturation, in primary lymphoid organs, the lymphocytes migrate for interaction with antigens to secondary lymphoid organs) / tissue(s) like:

- A. thymus B. bone marrow
 C. spleen D. lymph nodes
 E. Peyer's patches

Choose the correct answer from the options given below : [NEET-2025]

- (1) B, C, D only (2) A, B, C only
 (3) E, A, B only (4) C, D, E only

Q.36 Identify the statement that is NOT correct. [NEET-2025]

- (1) Each antibody has two light and two heavy chains.
 (2) The heavy and light chains are held together by disulfide bonds.
 (3) Antigen binding site is located at C-terminal region of antibody molecules.
 (4) Constant region of heavy and light chains are located at C-terminus of antibody molecules.

Q.37 Neoplastic characteristics of cells refer to:

- A. A mass of proliferating cell [NEET-2025]
 B. Rapid growth of cells
 C. Invasion and damage to the surrounding tissue
 D. Those confined to original location

Choose the correct answer from the options given below

- (1) A, B only (2) A, B, C only
 (3) A, B, D only (4) B, C, D only

- Q.38** Which are correct : [NEET-2025]
- A. Computed tomography and magnetic resonance imaging detect cancers of internal organs.
- B. Chemotherapeutic drugs are used to kill noncancerous cells.
- C. α -interferon activate the cancer patients' immune system and helps in destroying the tumour.
- D. Chemotherapeutic drugs are biological response modifiers.
- E. In the case of leukaemia blood cell counts are decreased.
- Choose the correct answer from the options given below :
- (1) B and D only (2) D and E only
(3) C and D only (4) A and C only

Microbes in Human Welfare

- Q.1** The primitive prokaryotes responsible for the production of biogas from the dung of ruminant animals, include the : [NEET I-2016]
- (1) Methanogens (2) Eubacteria
(3) Halophiles (4) Thermoacidophiles
- Q.2** Which of the following is wrongly matched in the given table ? [NEET I-2016]

	Microbe	Product	Application
(1)	Streptococcus	Streptokinase	Removal of clot from blood vessel
(2)	Clostridium butylicum	Lipase	Removal of oil stains
(3)	Trichoderma polysporum	Cyclosporin A	Immunosuppressive drug
(4)	Monascus purpureus	Statins	Lowering of blood cholesterol

- Q.3** Match column I with column II and select the correct option using the codes given below: [NEET II-2016]
- | Column I | Column II |
|-------------------|--------------------------|
| (A) Citric acid | (i) <i>Trichoderma</i> |
| (B) Cyclosporin A | (ii) <i>Clostridium</i> |
| (C) Statins | (iii) <i>Aspergillus</i> |
| (D) Butyric acid | (iv) <i>Monascus</i> |
- (1) A-(iii), B-(i), C-(ii), D-(iv)
(2) A-(iii), B-(i), C-(iv), D-(ii)
(3) A-(i), B-(iv), C-(ii), D-(iii)
(4) A-(iii), B-(iv), C-(i), D-(ii)

- Q.4** Select the mismatch : [NEET-2017]
- (1) *Rhodospirillum* - Mycorrhiza
(2) *Anabaena* - Nitrogen fixer
(3) *Rhizobium* - Alfalfa
(4) *Frankia* - Alnus

- Q.5** Which of the following in sewage treatment removes suspended solids? [NEET-2017]
- (1) Secondary treatment
(2) Primary treatment
(3) Sludge treatment
(4) Tertiary treatment

- Q.6** Which of the following is correctly matched for the product produced by them? [NEET-2017]
- (1) *Methanobacterium*-Lactic acid
(2) *Penicillium notatum*-Acetic acid
(3) *Saccharomyces cerevisiae*-Ethanol
(4) *Acetobacter aceti*-Antibiotics

- Q.7** Match the following organisms with the products they produce :- [NEET-2019]
- | | |
|-------------------------------------|-------------------|
| (a) <i>Lactobacillus</i> | (i) Cheese |
| (b) <i>Saccharomyces cerevisiae</i> | (ii) Curd |
| (c) <i>Aspergillus niger</i> | (iii) Citric Acid |
| (d) <i>Acetobacter aceti</i> | (iv) Bread |
| | (v) Acetic Acid |

Select the correct option.

- | (a) | (b) | (c) | (d) |
|---------|-----|-----|-----|
| (1) ii | iv | v | iii |
| (2) ii | iv | iii | v |
| (3) iii | iv | v | i |
| (4) ii | i | iii | v |

- Q.8** Which of the following is a commercial blood cholesterol lowering agent ? [NEET-2019]
- (1) Cyclosporin A (2) statin
(3) Streptokinase (4) Lipases

- Q.9** Which of the following is put into Anaerobic sludge digester for further sewage treatment? [NEET-2020]
- (1) Floating debris
(2) Effluents of primary treatment
(3) Activated sludge
(4) Primary sludge

- Q.10** Match the following columns and select the correct option. [NEET-2020]
- | Column-I | Column-II |
|-----------------------------------|---------------------------------------|
| (a) <i>Clostridium butylicum</i> | (i) Cyclosporin-A |
| (b) <i>Trichoderma polysporum</i> | (ii) Butyric Acid |
| (c) <i>Monascus purpureus</i> | (iii) Citric Acid |
| (d) <i>Aspergillus niger</i> | (iv) Blood cholesterol lowering agent |
- | (a) | (b) | (c) | (d) |
|-----------|-------|------|-------|
| (1) (ii) | (i) | (iv) | (iii) |
| (2) (i) | (ii) | (iv) | (iii) |
| (3) (iv) | (iii) | (ii) | (i) |
| (4) (iii) | (iv) | (ii) | (i) |

Q.11 Identify the microorganism which is responsible for the production of an immunosuppressive molecule cyclosporin A: [NEET-2022]

- (1) *Clostridium butylicum*
- (2) *Aspergillus niger*
- (3) *Streptococcus cerevisiae*
- (4) *Trichoderma polysporum*

Q.12 Match List I with List II [NEET-2024]

List I

- A. *Clostridium butylicum*
- B. *Saccharomyces cerevisiae*
- C. *Trichoderma polysporum*
- D. *Streptococcus sp.*

List II

- I. Ethanol
- II. Streptokinase
- III. Butyric acid
- IV. Cyclosporin-A

Choose the correct answer from the options given below:

- (1) A - IV, B - I, C - III, D - II
- (2) A - III, B - I, C - II, D - IV
- (3) A - II, B - IV, C - III, D - I
- (4) A - III, B - I, C - IV, D - II

Q.13 Following are the steps involved in action of toxin in Bt. Cotton

- A. The inactive toxin converted into active form due to alkaline pH of gut of insect.
- B. *Bacillus thuringiensis* produce crystals with toxic insecticidal proteins.
- C. The alkaline pH solubilises the crystals.
- D. The activated toxin binds to the surface of midgut cells, creates pores and causes death of the insect.
- E. The toxin proteins exist as inactive protoxins in bacteria.

Choose the correct sequence of steps from the options given below: [Re-NEET 2024]

- (1) E → C → B → A → D
- (2) B → C → A → E → D
- (3) A → E → B → D → C
- (4) B → E → C → A → D

Q.14 Match List-I with List-II relating to microbes and their products:

List-I (Microbes)		List-II (Products)	
A.	<i>Streptococcus</i>	I.	Citric acid
B.	<i>Trichoderma polysporum</i>	II.	Clot buster
C.	<i>Monascus purpureus</i>	III.	Cyclosporin A
D.	<i>Aspergillus niger</i>	IV.	Statins

Choose the correct answer from the options given below: [Re-NEET 2024]

- (1) A-II, B-III, C-IV, D-I
- (2) A-I, B-II, C-III, D-IV
- (3) A-I, B-III, C-II, D-IV
- (4) A-I, B-IV, C-II, D-III

Q.15 Given below are two statements: [Re-NEET 2024]

Statement I: Antibiotics are chemicals produced by microbes that kill other microbes.

Statement II: Antibodies are chemicals formed in body that eliminate microbes.

In the light of the above statements, choose the most appropriate answer from the options given below.

- (1) Statement I is correct but Statement II is incorrect
- (2) Statement I is incorrect but Statement II is correct
- (3) Both Statement I and Statement II are correct
- (4) Both Statement I and Statement II are incorrect

Q.16 Which of the following microbes is **NOT** involved in the preparation of household products?[NEET-2025]

- A. *Aspergillus niger*
- B. *Lactobacillus*
- C. *Trichoderma polysporum*
- D. *Saccharomyces cerevisiae*
- E. *Propionibacterium sharmanii*

Choose the correct answer from the options given below :

- (1) A and B only
- (2) A and C only
- (3) C and D only
- (4) C and E only

Q.17 Streptokinase produced by bacterium *Streptococcus* is used for [NEET-2025]

- (1) Curd production
- (2) Ethanol production
- (3) Liver disease treatment
- (4) Removing clots from blood vessels

Q.18 Which of following organisms cannot fix nitrogen ?

- A. *Azotobacter*
- B. *Oscillatoria*
- C. *Anabaena*
- D. *Volvox*
- E. *Nostoc*

Choose the correct answer from the options given below : [NEET-2025]

- (1) A only
- (2) D only
- (3) B only
- (4) E only

Q.19 Which of the following is an example of non-distilled alcoholic beverage produced by yeast?[NEET-2025]

- (1) Whisky
- (2) Brandy
- (3) Beer
- (4) Rum

Biotechnology : Principles and Processes

Q.1 The DNA molecule to which the gene of interest is integrated for cloning is called : [AIPMT-2015]

- (1) Template
- (2) Carrier
- (3) Transformer
- (4) Vector

Q.2 The cutting of DNA at specific locations became possible with the discovery of : [AIPMT-2015]

- (1) Selectable markers
- (2) Ligases
- (3) Restriction enzymes
- (4) Probes

Q.3 The introduction of T-DNA into plants involves : [AIPMT-2015]

- (1) Exposing the plants to cold for a brief period
- (2) Allowing the plant roots to stand in water
- (3) Infection of the plant by *Agrobacterium tumefaciens*
- (4) Altering the pH of the soil, then heat-shocking the plants.

- Q.4** Which of the following restriction enzymes produces blunt ends ? [NEET Phase I-2016]
 (1) SalI (2) EcoRV
 (3) XhoI (4) Hind III
- Q.5** The Taq polymerase enzyme is obtained from : [NEET Phase I-2016]
 (1) *Bacillus subtilis*
 (2) *Pseudomonas putida*
 (3) *Thermus aquaticus*
 (4) *Thiobacillus ferrooxidans*
- Q.6** Which of the following is a restriction endonuclease ? [NEET Phase I-2016]
 (1) DNaseI (2) RNase
 (3) Hind II (4) Protease
- Q.7** Which of the following is not a feature of the plasmids? [NEET Phase I-2016]
 (1) Transferable
 (2) Single-stranded
 (3) Independent replication
 (4) Circular structure
- Q.8** Stirred-tank bioreactors have been designed for : [NEET Phase II-2016]
 (1) Purification of product
 (2) Addition of preservatives to the product
 (3) Availability of oxygen throughout the process
 (4) Ensuring anaerobic conditions in the culture vessel.
- Q.9** Which of the following is not a component of downstream processing ? [NEET Phase II-2016]
 (1) Separation (2) Purification
 (3) Preservation (4) Expression
- Q.10** A foreign DNA and plasmid cut by the same restriction endonuclease can be joined to form a recombinant plasmid using : [NEET Phase II-2016]
 (1) EcoRI (2) Taq polymerase
 (3) Polymerase III (4) Ligase
- Q.11** The DNA fragments separated on an agarose gel can be visualised after staining with : [NEET-2017]
 (1) Acetocarmine
 (2) aniline blue
 (3) ethidium bromide
 (4) bromophenol blue
- Q.12** DNA fragments are : [NEET-2017]
 (1) negatively charged
 (2) neutral
 (3) either positively or negatively charged depending on their size
 (4) positively charged
- Q.13** A gene whose expression helps to identify transformed cell is known as: [NEET-2017]
 (1) vector
 (2) plasmid
 (3) structural gene
 (4) selectable marker
- Q.14** What is the criterion for DNA fragments movement on agarose gel during gel electrophoresis? [NEET-2017]
 (1) The smaller the fragment size, the farther it moves.
 (2) Positively charged fragments move to farther end.
 (3) Negatively charged fragments do not move.
 (4) The larger the fragment size, the farther it moves.
- Q.15** The process of separation and purification of expressed protein before marketing is called. [NEET-2017]
 (1) downstream processing
 (2) bioprocessing
 (3) postproduction processing
 (4) upstream processing
- Q.16** Which of the following is commonly used as a vector for introducing a DNA fragment in human lymphocytes? [NEET-2018]
 (1) λ phage (2) Ti plasmid
 (3) Retrovirus (4) pBR 322
- Q.17** Use of bioresources by multinational companies and organisations without authorisation from the concerned country and its people is called [NEET-2018]
 (1) Biodegradation
 (2) Biopiracy
 (3) Bio-infringement
 (4) Bioexploitation
- Q.18** In India, the organisation responsible for assessing the safety of introducing genetically modified organisms for public use is [NEET-2018]
 (1) Research Committee on Genetic Manipulation (RCGM)
 (2) Council for Scientific and Industrial Research (CSIR)
 (3) Indian Council of Medical Research (ICMR)
 (4) Genetic Engineering Approval Committee (GEAC)
- Q.19** The correct order of steps in Polymerase Chain Reaction (PCR) is [NEET-2018]
 (1) Denaturation, Extension, Annealing
 (2) Annealing, Extension, Denaturation
 (3) Extension, Denaturation, Annealing
 (4) Denaturation, Annealing, Extension

- Q.20** Following statements describe the characteristics of the enzyme Restriction endonuclease. Identify the incorrect statement. [NEET-2019]
 (1) The enzyme cuts DNA molecule at identified position within the DNA
 (2) The enzyme binds DNA at specific sites and cuts only one of the two strands.
 (3) The enzyme cuts the sugar-phosphate backbone at specific sites on each strand.
 (4) The enzyme recognizes a specific palindromic nucleotide sequence in the DNA
- Q.21** In gel electrophoresis, separated DNA fragments can be visualized with the help of [NEET-2020]
 (1) Ethidium bromide in UV radiation
 (2) Acetocarmine in UV radiation
 (3) Ethidium bromide in infrared radiation
 (4) Acetocarmine in bright blue light
- Q.22** Identify the wrong statement with regard to Restriction Enzymes. [NEET-2020]
 (1) They cut the strand of DNA at palindromic sites.
 (2) They are useful in genetic engineering.
 (3) Sticky ends can be joined by using DNA ligases.
 (4) Each restriction enzyme functions by inspecting the length of a DNA sequence.
- Q.23** Which of the following is **not** an application of PCR (Polymerase Chain Reaction) ? [NEET-2021]
 (1) Gene amplification
 (2) Purification of isolated protein
 (3) Detection of gene mutation
 (4) Molecular diagnosis
- Q.24** DNA strands on a gel stained with ethidium bromide when viewed under UV radiation, appear as : [NEET-2021]
 (1) Bright orange bands
 (2) Dark red bands
 (3) Bright blue bands
 (4) Yellow bands
- Q.25** During the purification process for recombinant DNA technology, addition of chilled ethanol precipitates out: [NEET-2021]
 (1) DNA (2) Histones
 (3) Polysaccharides (4) RNA
- Q.26** Which of the following is a correct sequence of steps in a PCR (Polymerase Chain Reaction)? [NEET-2021]
 (1) Denaturation, Extension, Annealing
 (2) Extension, Denaturation, Annealing
 (3) Annealing, Denaturation, Extension
 (4) Denaturation, Annealing, Extension
- Q.27** Plasmid pBR322 has PstI restriction enzyme site within gene amp^R that confers ampicillin resistance. If this enzyme is used for inserting a gene for β -galactoside production and the recombinant plasmid is inserted in an *E.coli* strain [NEET-2021]
 (1) the transformed cells will have the ability to resist ampicillin as well as produce β -galactoside .
 (2) it will lead to lysis of host cell.
 (3) it will be able to produce a novel protein with dual ability.
 (4) it will not be able to confer ampicillin resistance to the host cell.
- Q.28** During the process of gene amplification using PCR, if every high temperature is not maintained in the beginning, the which of the following steps of PCR will be affected first ? [NEET-2021]
 (1) Extension (2) Denaturation
 (3) Ligation (4) Annealing
- Q.29** Which of the following is **not** a desirable feature of a cloning vector ? [NEET-2022]
 (1) Presence of a marker gene
 (2) Presence of single restriction enzyme site
 (3) Presence of two or more recognition sites
 (4) Presence of origin of replication
- Q.30** Given below are two statements:
Statement I: Restriction endonucleases recognise specific sequence to cut DNA known as palindromic nucleotide sequence.
Statement II: Restriction endonucleases cut the DNA strand a little away from the centre of the palindromic site. [NEET-2022]
 In the light of the above statements, choose the **most appropriate** answer from the options given below:
 (1) Both **Statement I** and **Statement II** are incorrect
 (2) **Statement I** is correct but **Statement II** is incorrect
 (3) **Statement I** is incorrect but **Statement II** is correct
 (4) Both **Statement I** and **Statement II** are correct
- Q.31** In the following palindromic base sequences of DNA, which one can be cut easily by particular restriction enzyme ? [NEET-2022]
 (1) 5' GA AT TC 3'; 3' CT TA AG 5'
 (2) 5' CT CA GT 3'; 3' GAG TC A 5'
 (3) 5' GT AT TC 3'; 3' CAT A AG 5'
 (4) 5' GATA CT 3'; 3' CT AT GA 5'
- Q.32** Given below are two statements: one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.
Assertion (A): Polymerase chain reaction is used in DNA amplification
Reason (R): The ampicillin resistant gene is used as selectable marker to check transformation.

In the light of the above statements, choose the **correct** answer from the options given below:

[NEET-2022]

- (1) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
- (2) (A) is correct but (R) is not correct
- (3) (A) is not correct but (R) is correct
- (4) Both (A) and (R) are correct and (R) is the correct explanation of (A)

Q.33 Which one of the following statement is **not true** regarding gel electrophoresis technique ?

- (1) The separated DNA fragments are stained by using ethidium bromide. [NEET-2022]
- (2) The presence of chromogenic substrate gives blue coloured DNA bands on the gel.
- (3) Bright orange coloured bands of DNA can be observed in the gel when exposed to UV light.
- (4) The process of extraction of separated DNA strands from gel is called elution.

Q.34 Which of the following is not a cloning vector ?

[NEET-2023]

- (1) YAC
- (2) pBR322
- (3) Probe
- (4) BAC

Q.35 Main steps in the formation of Recombinant DNA are given below. Arrange these steps in a correct sequence. [NEET-2023]

- A. Insertion of recombinant DNA into the host cell.
 - B. Cutting of DNA at specific location by restriction enzyme.
 - C. Isolation of desired DNA fragment.
 - D. Amplification of gene of interest using PCR.
- Choose the correct answer from the options given below:

- (1) C, A, B, D
- (2) C, B, D, A
- (3) B, D, A, C
- (4) B, C, D, A

Q.36 In gene gun method used to introduce alien DNA into host cells, microparticles of _____ metal are used. [NEET-2023]

- (1) Zinc
- (2) Tungsten or gold
- (3) Silver
- (4) Copper

Q.37 During the purification process for recombinant DNA technology, addition of chilled ethanol precipitates out [NEET-2023]

- (1) DNA
- (2) Histones
- (3) Polysaccharides
- (4) RNA

Q.38 Upon exposure to UV radiation, DNA stained with ethidium bromide will show [NEET-2023]

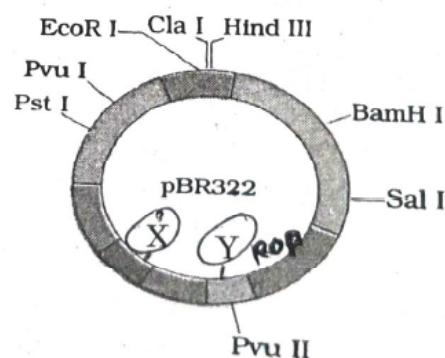
- (1) Bright blue colour
- (2) Bright yellow colour
- (3) Bright orange colour
- (4) Bright red colour

Q.39 Which of the following statements is incorrect?

[NEET-2024]

- (1) Bio-reactors have an agitator system, an oxygen delivery system and foam control system
- (2) A bio-reactor provides optimal growth conditions for achieving the desired product
- (3) Most commonly used bio-reactors are of stirring type
- (4) Bio-reactors are used to produce small scale bacterial cultures

Q.40 The following diagram showing restriction sites in *E. coli* cloning vector pBR322. Find the role of 'X' and 'Y' genes : [NEET-2024]



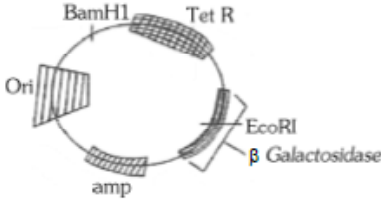
- (1) Gene 'X' is responsible for recognitions sites and 'Y' is responsible for antibiotic resistance.
- (2) The gene 'X' is responsible for resistance to antibiotics and 'Y' for protein involved in the replication of Plasmid.
- (3) The gene 'X' is responsible for controlling the copy number of the linked DNA and 'Y' for protein involved in the replication of Plasmid.
- (4) The gene 'X' is for protein involved in replication of Plasmid and 'Y' for resistance to antibiotics.

Q.41 What is the fate of a piece of DNA carrying only gene of interest which is transferred into an alien organism?

- A. The piece of DNA would be able to multiply itself independently in the progeny cells of the organism.
- B. It may get integrated into the genome of the recipient.
- C. It may multiply and be inherited along with the host DNA.
- D. The alien piece of DNA is not an integral part of chromosome.
- E. It shows ability to replicate.

Choose the correct answer from the options given below: [NEET-2024]

- (1) A and E only
- (2) A and B only
- (3) D and E only
- (4) B and C only

- Q.42** Hind II always cuts DNA molecules at a particular point called recognition sequence and it consists of: [NEET-2024]
 (1) 10 bp (2) 8 bp
 (3) 6 bp (4) 4 bp
- Q.43** The “Ti plasmid” of *Agrobacterium tumefaciens* stands for [NEET-2024]
 (1) Temperature independent plasmid
 (2) Tumour inhibiting plasmid
 (3) Tumor independent plasmid
 (4) Tumor inducing plasmid
- Q.44** In a chromosome, there is a specific DNA sequence, responsible for initiating replication. It is called as: [Re-NEET 2024]
 (1) Recognition sequence
 (2) Cloning site
 (3) Restriction site
 (4) *ori* site
- Q.45** Identify the incorrect statement related to get electrophoresis. [Re-NEET 2024]
 (1) Separated DNA fragments can be directly seen under UV radiation
 (2) Separated DNA can be extracted from get piece
 (3) Fragment of DNA moves toward anode
 (4) Sieving effect of agarose gel helps in separation of DNA fragments
- Q.46** Recombinant DNA molecule can be created normally by cutting the vector DNA and source DNA respectively with: [Re-NEET 2024]
 (1) Hind II, Hind II (2) Hind II, Alu I
 (3) Hind II, EcoR I (4) Hind II, BamHI
- Q.47** Select the restriction endonuclease enzymes whose restriction sites are present for the tetracycline resistance (*tet^R*) gene in the pBR322 cloning vector. [Re-NEET 2024]
 (1) Bam HI and Sal I
 (2) Sal I and Pst I
 (3) Pst I and Pvu I
 (4) Pvu I and Bam HI
- Q.48** Which of the following are correct about EcoRI ?
 A. Cut the DNA with blunt end
 B. Cut the DNA with sticky end
 C. Recognise a specific palindromic sequence
 D. Cut the DNA between the base G and A when encounters the DNA sequence ‘GAATTC’
 E. Exonuclease
 Choose the correct answer from the options given below: [Re-NEET 2024]
 (1) B, C, E only (2) A, D, E only
 (3) A, C, D only (4) B, C, D only
- Q.49** Following are the steps involved in the process of PCR.
 A. Annealing
 B. Amplification (~1 billion times)
 C. Denaturation
 D. Treatment with Taq polymerase and deoxynucleotides
 E. Extension
 Choose the correct sequence of steps of PCR from the options given below : [Re-NEET 2024]
 (1) C → A → D → E → B
 (2) A → B → E → D → C
 (3) A → C → E → D → B
 (4) D → B → E → C → A
- Q.50** Polymerase chain reaction (PCR) amplifies DNA following the equation. [NEET-2025]
 (1) N^2 (2) 2^n
 (3) $2n + 1$ (4) $2N^2$
- Q.51** 
- In the above represented plasmid an alien piece of DNA is inserted at EcoRI site. Which of the following strategies will be chosen to select the recombinant colonies ? [NEET-2025]
 (1) Using ampicillin & tetracyclin containing medium plate
 (2) Blue color colonies will be selected
 (3) White color colonies will be selected.
 (4) Blue color colonies grown on ampicillin plates can be selected.
- Q.52** The blue and white selectable markers have been developed which differentiate recombinant colonies from non-recombinant colonies on the basis of their ability to produce colour in the presence of a chromogenic substrate. [NEET-2025]
 Given below are two statements about this method :
Statement-I : The blue coloured colonies have DNA insert in the plasmid and they are identified as recombinant colonies.
Statement-II : The colonies without blue colour have DNA insert in the plasmid and are identified as recombinant colonies.
 In the light of the above statements, choose the **most appropriate** answer from the options given below :
 (1) Both Statement I and Statement II are correct
 (2) Both Statement I and Statement II is incorrect
 (3) Statement I is correct but Statement II is incorrect
 (4) Statement 1 is incorrect but Statement II is correct

- Q.53** Which of the following enzyme(s) are NOT essential for gene cloning ? [NEET-2025]
 A. Restriction enzymes B. DNA ligase
 C. DNA mutase D. DNA recombinase
 E. DNA polymerase
 Choose the correct answer from the options given below :
 (1) C and D only (2) A and B only
 (3) D and E only (4) B and C only
- Q.54** Given below are two statements : [NEET-2025]
Statement I : The DNA fragments extracted from gel electrophoresis can be used in construction of recombinant DNA.
Statement II : Smaller size DNA fragments are observed near anode while larger fragments are found near the wells in an agarose gel.
 In the light of the above statements, choose the most appropriate answer from the options given below:
 (1) Both statement I and statement II are correct
 (2) Both statement I and statement II are incorrect
 (3) Statement I is correct but statement II is incorrect
 (4) Statement I is incorrect but statement II is correct

Biotechnology and Its Applications

- Q.1** Golden rice is a genetically modified crop plant where the incorporated gene is meant for biosynthesis of : [AIPMT-2015]
 (1) Omega 3 (2) Vitamin A
 (3) Vitamin B (4) Vitamin C
- Q.2** Which kind of therapy was given in 1990 to a four year old girl with adenosine deaminase (ADA) deficiency? [NEET II-2016]
 (1) Gene therapy (2) Chemotherapy
 (3) Immunotherapy (4) Radiation therapy
- Q.3** Bt cotton variety that was developed by the introduction of toxin gene of *Bacillus thuringiensis* (Bt) is resistant to [NEET-2020]
 (1) Fungal diseases (2) Plant nematodes
 (3) Insect predators (4) Insect pests
- Q.4** Match the following columns and select the correct option. [NEET-2020]

Column-I	Column-II
(a) Bt cotton	(i) Gene therapy
(b) Adenosine deaminase deficiency	(ii) Cellular defence
(c) RNAi	(iii) Detection of HIV infection
(d) PCR	(iv) <i>Bacillus thuringiensis</i>

(a)	(b)	(c)	(d)
(1) (iii)	(ii)	(i)	(iv)
(2) (ii)	(iii)	(iv)	(i)
(3) (i)	(ii)	(iii)	(iv)
(4) (iv)	(i)	(ii)	(iii)
- Q.5** Match the organism with its use in biotechnology. [NEET-2020]

(a) <i>Bacillus thuringiensis</i>	(i) Cloning vector
(b) <i>Thermus aquaticus</i>	(ii) Construction of first rDNA molecule
(c) <i>Agrobacterium tumefaciens</i>	(iii) DNA polymerase
(d) <i>Salmonella typhimurium</i>	(iv) Cry proteins

 Select the correct option from the following:

(a)	(b)	(c)	(d)
(1) (iv)	(iii)	(i)	(ii)
(2) (iii)	(ii)	(iv)	(i)
(3) (iii)	(iv)	(i)	(ii)
(4) (ii)	(iv)	(iii)	(i)
- Q.6** Which of the following statements is not correct? [NEET-2020]
 (1) The proinsulin has an extra peptide called C-peptide.
 (2) The functional insulin has A and B chains linked together by hydrogen bonds.
 (3) Genetically engineered insulin is produced in *E.Coli*.
 (4) In man insulin is synthesised as a proinsulin
- Q.7** When gene targeting involving gene amplification is attempted in an individual's tissue to treat disease, it is known as : [NEET-2021]
 (1) Gene therapy
 (2) Molecular diagnosis
 (3) Safety testing
 (4) Biopiracy
- Q.8** For effective treatment of the disease, early diagnosis and understanding its pathophysiology is very important. Which of the following molecular diagnostic techniques is very useful for early detection [NEET-2021]
 (1) Southern Blotting Technique
 (2) ELISA Technique
 (3) Hybridization Technique
 (4) Western Blotting Technique
- Q.9** With regard to insulin choose correct options. [NEET-2021]
 (a) C-peptide is not present in mature insulin.
 (b) The insulin produced by rDNA technology has C-peptide.
 (c) The pro-insulin has C-peptide.
 (d) A-peptide and B-peptide of insulin are interconnected by disulphide bridges.
 Choose the correct answer from the options given below.
 (1) (b) and (c) only
 (2) (a), (c), and (d) only
 (3) (a) and (d) only
 (4) (b) and (d) only

Q.10 Statements related to human Insulin are given below. Which statement(s) is/ are **correct** about genetically engineered Insulin ? [NEET-2022]

- Pro-hormone insulin contain extra stretch of C peptide
- A-peptide and B-peptide chains of insulin were produced separately in *E.coli*, extracted and combined by creating disulphide bond between them.
- Insulin used for treating Diabetes was extracted from Cattles and Pigs.
- Pro-hormone Insulin needs to be processed for converting into a mature and functional hormone.
- Some patients develop allergic reactions to the foreign insulin.

Choose the **most appropriate** answer from the options given below:

- (b) only
- (c) and (d) only
- (c), (d) and (e) only
- (a), (b) and (d) only

Q.11 In gene therapy of Adenosine Deaminase (ADA) deficiency, the patient requires periodic infusion of genetically engineered lymphocytes because: [NEET-2022]

- Gene isolated from marrow cells producing ADA is introduced into cells at embryonic stages
- Lymphocytes from patient's blood are grown in culture, outside the body.
- Genetically engineered lymphocytes are not immortal cells.
- Retroviral vector is introduced into these lymphocytes.

Q.12 Transposons can be used during which one of the following? [NEET-2022]

- Gene silencing
- Autoradiography
- Gene sequencing
- Polymerase Chain Reaction

Q.13 Which one of the following techniques does not serve the purpose of early diagnosis of a disease for its early treatment ? [NEET-2023]

- Serum and Urine analysis
- Polymerase Chain Reaction (PCR) technique
- Enzyme Linked Immuno-Sorbent Assay (ELISA) technique
- Recombinant DNA Technology

Q.14 Match List I with List II : [NEET-2024]

- | List I | List II |
|------------------------------|--------------------|
| A. α - I antitrypsin | I. Cotton bollworm |
| B. Cry IAb | II. ADA deficiency |
| C. Cry IAc | III. Emphysema |
| D Enzyme replacement therapy | IV Corn borer |

Choose the correct answer form the options given below:

- A - II, B - IV, C - I, D - III
- A - II, B - I, C - IV, D - III
- A - III, B - I, C - II, D - IV
- A - III, B - IV, C - I, D - II

Q.15 Which of the following are fused in somatic hybridization involving two varieties of plants? [NEET-2024]

- Pollens
- Callus
- Somatic embryos
- Protoplasts

Q.16 Given below are two statements: [NEET-2024]

Statement I : Bt toxins are insect group specific and coded by a gene cry IAc.

Statement II : Bt toxin exists as inactive protoxin in *B. thuringiensis*. However, after ingestion by the insect the inactive protoxin gets converted into active form due to acidic pH of the insect gut.

In the light of the above statements, choose the correct answer from the options given below:

- Statement I is false but Statement II is true
- Both Statement I and Statement II are true
- Both Statement I and Statement II are false
- Statement I is true but Statement II is false

Q.17 The capacity to generate a whole plant from any cell of the plant is called: [NEET-2024]

- Somatic hybridization
- Totipotency
- Micropropagation
- Differentiation

Q.18 Given below are two statements:

Statement I: The Indian Government has set up GEAC, which will make decisions regarding the validity of GM research.

Statement II: Biopiracy is the term used to refer to the use of bio-resources by native people.

In the light of the above statements, choose the correct answer from the options given below :

[Re-NEET 2024]

- Statement I is true but Statement II is false
- Statement I is false but Statement II is true
- Both Statement I and Statement II are true
- Both Statement I and Statement II are false

Q.19 Match List-I with List-II:

List-I		List-II	
A.	Genetically engineered Human Insulin	I.	Gene therapy
B.	GM Cotton	II.	<i>E. coil</i>
C.	ADA Deficiency	III.	Antigen-antibody interaction
D.	ELISA	IV.	<i>Bacillus thuringiensis</i>

Choose the correct answer from the options given below : **[Re-NEET 2024]**

- (1) A-III, B-II, C-IV, D-I (2) A-II, B-I, C-IV, D-III
(3) A-IV, B-III, C-I, D-II (4) A-II, B-IV, C-I, D-III

Q.20 The *Bt* toxin in genetically engineered *Bt* cotton kills the pest by: **[Re-NEET 2024]**

- (1) Creating pores in the midgut
(2) Damaging the respiratory system
(3) Degenerating the nervous system
(4) Altering the pH of body fluids

Q.21 Given below are two statements :

Statement I: RNA interference takes place in all Eukaryotic organisms as method of cellular defense.

Statement II: RNAi involves the silencing of a specific mRNA due to a complementary single-stranded RNA molecule that binds and prevents translation of mRNA **[Re-NEET 2024]**

In the light of the above statements, choose the correct answer from the options given below.

- (1) Statement I is true but Statement II is false.
(2) Statement I is false but Statement II is true.
(3) Both Statement I and Statement II are true.
(4) Both Statement I and Statement II are false.

Q.22 Why can't insulin be given orally to diabetic patients ? **[NEET-2025]**

- (1) Human body will elicit strong immune response
(2) It will be digested in Gastro-intestinal (GI) tract
(3) Because of structural variation
(4) Its bioavailability will be increased

Q.23 Given below are two statements : **[NEET-2025]**

Statement I : Transfer RNAs and ribosomal RNA do not interact with mRNA.

Statement II : RNA interference (RNAi) takes place in all eukaryotic organisms as a method of cellular defence.

In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) Both Statement I and Statement II are correct
(2) Both Statement I and Statement II are incorrect
(3) Statement I is correct but Statement II is incorrect
(4) Statement I is incorrect but Statement II is correct

Q.24 Which of the following genetically engineered organisms was used by Eli Lilly to prepare human insulin ? **[NEET-2025]**

- (1) Bacterium
(2) Yeast
(3) Vims
(4) Phage

Q.25 Silencing of specific mRNA is possible via RNAi because of - **[NEET-2025]**

- (1) Complementary dsRNA
(2) Inhibitory ssRNA
(3) Complementary tRNA
(4) Non-complimentary ssRNA

Organisms and Populations

- Q.1** In which of the following interactions both partners are adversely affected ? [AIPMT-2015]
 (1) Parasitism (2) Mutualism
 (3) Competition (4) Predation
- Q.2** An association of individuals of different species living in the same habitat and having functional interactions is : [AIPMT-2015]
 (1) Ecosystem
 (2) Population
 (3) Ecological niche
 (4) Biotic community
- Q.3** When does the growth rate of a population following the logistic model equal zero ? The logistic model is given as $dN/dt = rN(1 - N/K)$: [NEET I-2016]
 (1) When N/K equals zero
 (2) When death rate is greater than birth rate
 (3) When N/K is exactly one
 (4) When N nears the carrying capacity of the habitat
- Q.4** Gause's principle of competitive exclusion states that [NEET I-2016]
 (1) No two species can occupy the same niche indefinitely for the same limiting resources
 (2) Larger organisms exclude smaller ones through competition
 (3) More abundant species will exclude the less abundant species through competition.
 (4) Competition for the same resources exclude species having different food preferences.
- Q.5** If '+' sign is assigned to beneficial interaction, '-' sign to detrimental and 'O' sign to neutral interaction, then the population interaction represented by '+' '-' refers to [NEET II-2016]
 (1) Mutualism (2) Amensalism
 (3) Commensalism (4) Parasitism
- Q.6** The principle of competitive exclusion was stated by : [NEET II-2016]
 (1) C. Darwin (2) G.F. Gause
 (3) Mac Arthur (4) Verhulst and Pearl
- Q.7** Mycorrhizae are the example of : [NEET-2017]
 (1) ammensalism (2) antibiosis
 (3) mutualism (4) fungistasis
- Q.8** Asymptote in a logistic growth curve is obtained when : [NEET-2017]
 (1) $K = N$
 (2) $K > N$
 (3) $K < N$
 (4) the value of 'r' approaches zero.
- Q.9** Natality refers to [NEET-2018]
 (1) Number of individuals leaving the habitat
 (2) Birth rate
 (3) Death rate
 (4) Number of individuals entering a habitat
- Q.10** Niche is [NEET-2018]
 (1) the range of temperature that the organism needs to live
 (2) the physical space where an organism lives
 (3) all the biological factors in the organism's environment
 (4) the functional role played by the organism where it lives
- Q.11** Which one of the following population interactions is widely used in medical science for the production of antibiotics? [NEET-2018]
 (1) Parasitism (2) Mutualism
 (3) Commensalism (4) Amensalism
- Q.12** In a growing population of a country,
 (1) reproductive and pre-reproductive individuals are equal in number. [NEET-2018]
 (2) reproductive individuals are less than the post-reproductive individuals.
 (3) pre-reproductive individuals are more than the reproductive individuals.
 (4) pre-reproductive individuals are less than the reproductive individuals.
- Q.13** Match Column - I with Column - II. [NEET-2019]
- | Column - I | Column - II |
|----------------|---|
| (a) Saprophyte | (i) Symbiotic association of fungi with plant roots |
| (b) Parasite | (ii) Decomposition of dead organic materials |
| (c) Lichens | (iii) Living on living plants or animals |
| (d) Mycorrhiza | (iv) Symbiotic association of algae and fungi |
- Choose the correct answer from the options given below :
- | (a) (b) (c) (d) | (a) (b) (c) (d) |
|-------------------------|-------------------------|
| (1) (i) (ii) (iii) (iv) | (2) (iii) (ii) (i) (iv) |
| (3) (ii) (i) (iii) (iv) | (4) (ii) (iii) (iv) (i) |
- Q.14** Which of the following is not an attribute of a population? [NEET-2020]
 (1) Natality (2) Mortality
 (3) Species interaction (4) Sex ratio
- Q.15** Amensalism can be represented as : [NEET-2021]
 (1) Species A (+) ; Species B (+)
 (2) Species A (-) ; Species B (-)
 (3) Species A (+) ; Species B (0)
 (4) Species A (-) ; Species B (0)

- Q.16** Competition in nature, which mechanism the competing species might have evolved for their survival? [NEET-2021]
 (1) Competitive release
 (2) Mutualism
 (3) Predation
 (4) Resource partitioning
- Q.17** **Assertion (A)** : A person goes to high altitude and experiences 'altitude sickness' with symptoms like breathing difficulty and Heart palpitations.
Reason (R) : Due to low atmospheric pressure at high altitude. the body does not get sufficient oxygen. In the light of the above statements, choose the correct answer from the options given below. [NEET-2021]
 (1) Both (A) and (R) are true but (R) is not the correct explanation of (A)
 (2) (A) is true but (R) is false
 (3) (A) is false but (R) is true
 (4) Both (A) and (R) are true and (R) is the correct explanation of (A)
- Q.18** Match List - I with List - II. [NEET-2021]
- | List-I | | List-II | |
|--------|--------------------------|---------|----------------------|
| (a) | Allen's Rule | (i) | Kangaroo rat |
| (b) | Physiological adaptation | (ii) | Desert lizard |
| (c) | Behavioural adaptation | (iii) | Marine fish at depth |
| (d) | Biochemical adaptation | (iv) | Polar seal |
- Choose the correct answer from the options given below
- | | | | |
|----------|-------|-------|-------|
| (a) | (b) | (c) | (d) |
| (1) (iv) | (i) | (iii) | (ii) |
| (2) (iv) | (i) | (ii) | (iii) |
| (3) (iv) | (iii) | (ii) | (i) |
| (4) (iv) | (ii) | (iii) | (i) |
- Q.19** If '8' *Drosophila* in a laboratory population of '80' died during a week, the death rate in the population is _____ individuals per *Drosophila* per week. [NEET-2022]
 (1) 10 (2) 1.0 (3) zero (4) 0.1
- Q.20** While explaining interspecific interaction of population, (+) sign is assigned for beneficial interaction, (-) sign is assigned for detrimental interaction and (0) for neutral interaction. Which of the following interactions can be assigned (+) for one species and (-) for another species involved in the interaction? [NEET-2022]
 (1) Amensalism (2) Commensalism
 (3) Competition (4) Predation
- Q.21** Which one of the following statements cannot be connected to Predation? [NEET-2022]
 (1) It might lead to extinction of a species
 (2) Both the interacting species are negatively impacted
 (3) It is necessitated by nature to maintain the ecological balance
 (4) It helps in maintaining species diversity in a community
- Q.22** Match List I with List II [NEET-2023]
- | List I
(Interaction) | List II
(Species A and B) |
|-------------------------|------------------------------|
| A. Mutualism | I. +(A), O (B) |
| B. Commensalism | II. -(A), O (B) |
| C. Amensalism | III. +(A), -(B) |
| D. Parasitism | IV. +(A), +(B) |
- Choose the correct below:
 (1) A-IV, B-I, C-II, D-III
 (2) A-IV, B-III, C-I, D-II
 (3) A-III, B-I, C-IV, D-II
 (4) A-IV, B-II, C-I, D-III
- Q.23** Given below are two statements : [NEET-2023]
Statement I : Gause's 'Competitive Exclusion Principle' states that two closely related species competing for the same resources cannot co-exist indefinitely and competitively inferior one will be eliminated eventually.
Statement II : In general, carnivores are more adversely affected by competition than herbivores. In the light of the above statements, choose the correct answer from the options given below:
 (1) Both Statement I and Statement II are false.
 (2) Statement I is correct but Statement II is false.
 (3) Statement I is incorrect but Statement II is true.
 (4) Both Statement I and Statement II are true.
- Q.24** Match List I with List II [NEET-2023]
- | List I
(Interacting species) | List II
(Name of Interaction) |
|--|----------------------------------|
| A. A Leopard and a Lion in a forest/grassland | I. Competition |
| B. A Cuckoo laying egg in a Crow's nest | II. Brood parasitism |
| C. Fungi and root of a higher plant in Mycorrhizae | III. Mutualism |
| D. A cattle egret and a Cattle in a field | IV. Commensalism |
- Choose the correct answer from the options given below
 (1) A-I, B-II, C-IV, D-III
 (2) A-III, B-IV, C-I, D-II
 (3) A-II, B-III, C-I, D-IV
 (4) A-I, B-II, C-III, D-IV

Q.25 The equation of Verhulst-Pearl logistic growth is

$$\frac{dN}{dt} = rN \left[\frac{K - N}{K} \right].$$

From this equation, K indicates: [NEET-2024]

- (1) Population density
- (2) Intrinsic rate of natural increase
- (3) Biotic potential
- (4) Carrying capacity

Q.26 Given below are two statements:

Statement I: Gause's competitive exclusion principle states that two closely related species competing for different resources cannot exist indefinitely.

Statement II: According to Gause's principle, during competition, the inferior will be eliminated. This may be true if resources are limiting.

In the light of the above statements, choose the correct answer from the options given below :

[NEET-2024]

- (1) Statement I is false but Statement II is true.
- (2) Both Statement I and Statement II are true.
- (3) Both Statement I and Statement II are false.
- (4) Statement I is true but Statement II is false.

Q.27 When will the population density increase, under special conditions? When the number of:

[Re-NEET 2024]

- (1) Deaths exceeds number of births and also number of emigrants equals number of immigrants.
- (2) Births plus number of immigrants equals number of deaths plus number of emigrants.
- (3) Births plus number of emigrants is more than the number of deaths plus number of immigrants.
- (4) Births plus number of immigrants is more than the sum of number of deaths and number of emigrants.

Q.28 Match List-I with List-II :

List-I		List-II	
A.	Predator	I.	<i>Ophrys</i>
B.	Mutualism	II.	<i>Pisaster</i>
C.	Parasitism	III.	Female wasp and fig
D.	Sexual deceit	IV.	Plasmodium

Choose the correct answer from the options given below :

[Re-NEET 2024]

- (1) A-III, B-II, C-I, D-IV
- (2) A-IV, B-I, C-II, D-III
- (3) A-II, B-III, C-I, D-IV
- (4) A-II, B-III, C-IV, D-I

Q.29 Match List-I with List-II:

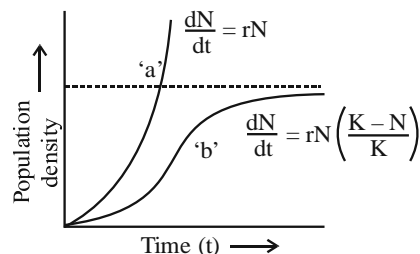
List-I		List-II	
A.	Migratory flamingoes and resident fish in South American lakes	I.	Interference competition
B.	Abingdon tortoise became extinct after introduction of goats in their habitat	II.	Competitive release
C.	<i>Chathamalus</i> expands its distributional range in the absence of <i>Balanus</i>	III.	Resource Partitioning
D.	Five closely related species of Warblers feeding in different location on same tree	IV.	Interspecific competition

Choose the correct answer from the options given below :

[Re-NEET 2024]

- (1) A-I, B-IV, C-III, D-II
- (2) A-IV, B-I, C-II, D-III
- (3) A-III, B-I, C-II, D-IV
- (4) A-II, B-IV, C-III, D-I

Q.30 What do 'a' and 'b' represent in the following population growth curve? [Re-NEET 2024]



- (1) 'a' represents exponential growth when responses are not limiting the growth; and 'b' represents logistic growth when responses are limiting the growth.
- (2) 'a' represents logistic growth when responses are not limiting the growth; 'b' represents exponential growth when responses are limiting the growth.
- (3) 'a' represents carrying capacity and 'b' shows logistic growth when responses are limiting the growth.
- (4) 'a' represents exponential growth when responses are not limiting the growth and 'b' shows carrying capacity.

Q.31 Which one of the following equations represents the Verhulst-Pearl Logistic Growth of population?

[NEET-2025]

- (1) $\frac{dN}{dt} = r \left(\frac{K - N}{K} \right)$
- (2) $\frac{dN}{dt} = rN \left(\frac{K - N}{K} \right)$
- (3) $\frac{dN}{dt} = rN \left(\frac{N - K}{N} \right)$
- (4) $\frac{dN}{dt} = N \left(\frac{r - K}{K} \right)$

- Q.32** Given below are two statements: [NEET-2025]
Statement I: Fig fruit is a non-vegetarian fruit as it has enclosed fig wasps in it.
Statement II: Fig wasp and fig tree exhibit mutual relationship as fig wasp completes its life cycle in fig fruit and fig fruit gets pollinated by fig wasp.
 In the light of the above statements, choose the most appropriate answer from the options, given below:
 (1) Both statement I and statement II are correct
 (2) Both statement I and statement II are incorrect
 (3) Statement I is correct but statement II is incorrect
 (4) Statement I is incorrect but statement II is correct
- Q.33** Epiphytes that are growing on a mango branch is an example of which of the following? [NEET-2025]
 (1) Commensalism (2) Mutualism
 (3) Predation (4) Amensalism

Ecosystem

- Q.1** In which of the following both pairs have correct combination? [AIPMT-2015]

(1)	Gaseous nutrient cycle	Nitrogen and Sulphur
	Sedimentary nutrient cycle	Carbon and Phosphorus
(2)	Gaseous nutrient cycle	Sulphur and Phosphorus
	Sedimentary nutrient cycle	Carbon and Nitrogen
(3)	Gaseous nutrient cycle	Carbon and Nitrogen
	Sedimentary nutrient cycle	Sulphur and Phosphorus
(4)	Gaseous nutrient cycle	Carbon and Sulphur
	Sedimentary nutrient cycle	Nitrogen and Phosphorus

- Q.2** The term ecosystem was coined by : [NEET Phase I-2016]
 (1) E. Haeckel (2) E. Warming
 (3) E.P. Odum (4) A.G. Tansley
- Q.3** Which one of the following is a characteristic feature of cropland ecosystem? [NEET Phase I-2016]
 (1) Absence of weeds
 (2) Ecological succession
 (3) Absence of soil organisms
 (4) Least genetic diversity
- Q.4** The primary producers of the deep-sea hydrothermal vent ecosystem are : [NEET Phase II-2016]
 (1) green algae (2) chemosynthetic bacteria
 (3) blue-green algae (4) coral reefs
- Q.5** Which ecosystem has the maximum biomass? [NEET-2017]
 (1) Grassland ecosystem
 (2) Pond ecosystem
 (3) Lake ecosystem
 (4) Forest ecosystem
- Q.6** What type of ecological pyramid would be obtained with the following data? [NEET-2018]
 Secondary consumer : 120 g
 Primary consumer : 60 g
 Primary producer : 10 g
 (1) Upright pyramid of numbers
 (2) Pyramid of energy
 (3) Inverted pyramid of biomass
 (4) Upright pyramid of biomass
- Q.7** Which of the following ecological pyramids is generally inverted? [NEET-2019]
 (1) Pyramid of numbers in grassland
 (2) Pyramid of energy
 (3) Pyramid of biomass in a forest
 (4) Pyramid of biomass in a sea
- Q.8** Match the trophic levels with their correct species examples in grassland ecosystem. [NEET-2020]
 (A) Fourth trophic level (i) Crow
 (B) Second trophic level (ii) Vulture
 (C) First trophic level (iii) Rabbit
 (D) Third trophic level (iv) Grass
 Select the correct option
 (a) (b) (c) (d)
 (1) (iii) (ii) (i) (iv)
 (2) (iv) (iii) (ii) (i)
 (3) (i) (ii) (iii) (iv)
 (4) (ii) (iii) (iv) (i)
- Q.9** In relation to Gross primary productivity and Net primary productivity of an ecosystem, which one of the following statements is correct? [NEET-2020]
 (1) Gross primary productivity is always more than net primary productivity
 (2) Gross primary productivity and Net primary productivity are one and same
 (3) There is no relationship between Gross primary productivity and Net primary productivity
 (4) Gross primary productivity is always less than net primary productivity
- Q.10** In the equation $GPP - R = NPP$ represents : [NEET-2021]
 (1) Retardation factor
 (2) Environment factor
 (3) Respiration losses
 (4) Radiant energy
- Q.11** Which of the following statements is **not** correct? [NEET-2021]
 (1) Pyramid of biomass in sea is generally upright.
 (2) Pyramid of energy is always upright.
 (3) Pyramid of numbers in a grassland ecosystem is upright.
 (4) Pyramid of biomass in sea is generally inverted.

Q.12 The amount of nutrients, such as carbon, nitrogen, phosphorus and calcium present in the soil at any given time, is referred as: [NEET-2021]

- (1) Climax community
- (2) Standing state
- (3) Standing crop
- (4) Climax

Q.13 Detritivores breakdown detritus into smaller particles. This process is called : [NEET-2022]

- (1) Fragmentation
- (2) Humification
- (3) Decomposition
- (4) Catabolism

Q.14 Which one of the following will accelerate phosphorus cycle ? [NEET-2022]

- (1) Volcanic activity
- (2) Weathering of rocks
- (3) Rain fall and storms
- (4) Burning of fossil fuels

Q.15 Given below are two statements:

Statement I: Decomposition is a process in which the detritus is degraded into simpler substances by microbes.

Statement II: Decomposition is faster if the detritus is rich in lignin and chitin

In the light of the above statements, choose the correct answer from the options given below:

[NEET-2022]

- (1) Both **Statement I** and **Statement II** are incorrect
- (2) **Statement I** is correct but **Statement II** is incorrect
- (3) **Statement I** is incorrect but **Statement II** is correct
- (4) Both **Statement I** and **Statement II** are correct

Q.16 Identify the correct statements : [NEET-2023]

- A. Detritivores perform fragmentation.
- B. The humus is further degraded by some microbes during mineralization.
- C. Water soluble inorganic nutrients go down into the soil and get precipitated by a process called leaching.
- D. The detritus food chain begins with living organisms.
- E. Earthworms break down detritus into smaller particles by a process called catabolism.

Choose the correct answer from the option given below:

- (1) B, C, D only
- (2) C, D, E only
- (3) D, E, A only
- (4) A, B, C only

Q.17 In the equation [NEET-2023]

$$\boxed{GPP - R = NPP}$$

GPP is Gross Primary Productivity

NPP is Net Primary Productivity

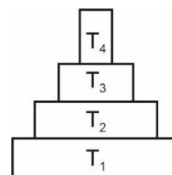
R here is ____.

- (1) Respiratory quotient
- (2) Respiratory loss
- (3) Reproductive allocation
- (4) Photosynthetically active radiation

Q.18 In an ecosystem if the Net Primary Productivity (NPP) of first trophic level is $100x$ ($\text{kcal m}^{-2} \text{ yr}^{-1}$), what would be the GPP (Gross Primary Productivity) of the third trophic level of the same ecosystem? [NEET-2024]

- (1) $\frac{100x}{3x} (\text{kcal m}^{-2}) \text{ yr}^{-1}$
- (2) $\frac{x}{10} (\text{kcal m}^{-2}) \text{ yr}^{-1}$
- (3) $x (\text{kcal m}^{-2}) \text{ yr}^{-1}$
- (4) $10x (\text{kcal m}^{-2}) \text{ yr}^{-1}$

Q.19 Consider the pyramid of energy of an ecosystem given below:



If T_4 is equivalent to 1000 J, what is the value at T_1 [Re-NEET 2024]

- (1) $\frac{10000}{10}$ J
- (2) $\frac{10000}{10} \times 4$ J
- (3) 10,000 J
- (4) 10,00,000 J

Q.20 Which one of the following is not a limitation of ecological pyramids? [Re-NEET 2024]

- (1) Saprophytes are not given any place of ecological pyramids
- (2) It assumes a simple food chain, that almost never exists in nature
- (3) It accommodates a food web
- (4) It does not take into account the same species belonging to two or more trophic levels

Q.21 Given below are two statements : [NEET-2025]

Statement I : In ecosystem, there is unidirectional flow of energy of sun from producers of consumers.

Statement II : Ecosystems are exempted from 2nd law of thermodynamics.

In the light of the above statements, choose the most appropriate answer from the options given below:

- (1) Both statement-I and statement-II are correct
- (2) Both statement-I and statement-II are incorrect
- (3) Statement-I is correct but statement II is incorrect
- (4) Statement-I is incorrect but statement II is correct

Q.22 Which of the following is the unit of productivity of an ecosystem ? [NEET-2025]

- (1) gm^{-2}
- (2) KCal m^{-2}
- (3) KCal m^{-3}
- (4) $(\text{KCal m}^{-2})\text{yr}^{-1}$

Q.23 Given below are two statements : [NEET-2025]

Statement I : The primary source of energy in an ecosystem is solar energy.

Statement II : The rate of production of organic matter during photosynthesis in an ecosystem is called net primary productivity (NPP).

In the light of the above statements, choose the most appropriate answer from the options given below:

- (1) Both statement I and statement II are correct.
- (2) Both statement I and statement II are incorrect.
- (3) Statement I is correct but statement II is incorrect.
- (4) Statement I is incorrect but statement II is correct.

Biodiversity and Conservation

Q.1 The species confined to a particular region and not found elsewhere is termed as : [AIPMT-2015]

- (1) Endemic
- (2) Rare
- (3) Keystone
- (4) Alien

Q.2 Which is the National Aquatic Animal of India ? [NEET I-2016]

- (1) Blue whale
- (2) Sea-horse
- (3) Gangetic shark
- (4) River dolphin

Q.3 How many hotspots of biodiversity in the world have been identified till date by Norman Myers ? [NEET II-2016]

- (1) 17
- (2) 25
- (3) 34
- (4) 43

Q.4 Which of the following National Parks is home to the famous musk deer or hangul ? [NEET II-2016]

- (1) Keibul Lamjao National Park, Manipur
- (2) Bandhavgarh National Park, Madhya Pradesh
- (3) Eaglenest Wildlife Sanctuary, Arunachal Pradesh
- (4) Dachigam National Park, Jammu and Kashmir

Q.5 Red list contains data or information on : [NEET II-2016]

- (1) All economically important plants
- (2) Plants whose products are in international trade
- (3) Threatened species
- (4) Marine vertebrates only

Q.6 Which one of the following is related to ex-situ conservation of threatened animals and plants? [NEET-2017]

- (1) Biodiversity hotspots
- (2) Amazon rainforest
- (3) Himalayan region
- (4) Wildlife safari parks

Q.7 Alexander van Humboldt described for the first time: [NEET-2017]

- (1) laws of limiting factor
- (2) species area relationships
- (3) population growth equation
- (4) ecological biodiversity

Q.8 The region of biosphere reserve which is legally protected and where no human activity is allowed is known as: [NEET-2017]

- (1) buffer zone
- (2) transition zone
- (3) restoration zone
- (4) core zone

Q.9 Which of the following is the most important causes for animals and plants being driven to extinction ? [NEET-2019]

- (1) Habitat loss and fragmentation
- (2) Drought and floods
- (3) Economic exploitation
- (4) Alien species invasion

Q.10 The Earth Summit held in Rio de Janeiro in 1992 was called : [NEET-2019]

- (1) to reduce CO_2 emissions and global warming.
- (2) for conservation of biodiversity and sustainable utilization of its benefits.
- (3) to assess threat posed to native species by invasive weed species.
- (4) for immediate steps to discontinue use of CFCs that were damaging the ozone layer.

Q.11 Agenda-21 was adopted in [NEET-2020]

- (1) Kyoto protocol
- (2) Earth summit
- (3) Helsinki declaration
- (4) Montreal protocol

Q.12 According to Robert May, the global species diversity is about [NEET-2020]

- (1) 20 million
- (2) 50 million
- (3) 7 million
- (4) 1.5 million

Q.13 Which of the following regions of the globe exhibits highest species diversity? [NEET-2020]

- (1) Madagascar
- (2) Himalayas
- (3) Amazon forests
- (4) Western Ghats of India

- Q.14** *In-situ* conservation refers to: [NEET-2022]
 (1) Conserve only high risk species
 (2) Conserve only endangered species
 (3) Conserve only extinct species
 (4) Protect and conserve the whole ecosystem
- Q.15** Which of the following is **not** a method of *ex situ* conservation? [NEET-2022]
 (1) National Parks
 (2) Micro-propagation
 (3) Cryopreservation
 (4) *In vitro* fertilization
- Q.16** Habitat loss and fragmentation, over exploitation, alien species invasion and co-extinction are causes for: [NEET-2022]
 (1) Competition
 (2) Biodiversity loss
 (3) Natality
 (4) Population explosion
- Q.17** The historic Convention on Biological Diversity. The Earth Summit' was held in Rio de Janeiro in the year: [NEET-2023]
 (1) 1992
 (2) 1986
 (3) 2002
 (4) 1985
- Q.18** Among 'The Evil Quartet', which one is considered the most important cause driving extinction of species [NEET-2023]
 (1) Over exploitation for economic gain
 (2) Alien species invasions
 (3) Co-extinctions
 (4) Habitat loss and fragmentation
- Q.19** These are regarded as major causes of biodiversity loss:
 A. Over exploitation
 B. Co-extinction
 C. Mutation
 D. Habitat loss and fragmentation
 E. Migration
 Choose the correct option: [NEET-2024]
 (1) A, B and D only
 (2) A, C and D only
 (3) A, B, C and D only
 (4) A, B and E only
- Q.20** List of endangered species was released by [NEET-2024]
 (1) IUCN
 (2) GEAC
 (3) WWF
 (4) FOAM
- Q.21** Tropical regions show greatest level of species richness because
 A. Tropical latitudes have remained relatively undisturbed for millions of years, hence more time was available for species diversification.
 B. Tropical environments are more seasonal.
 C. More solar energy is available in tropics.
 D. Constant environments promote niche specialization.
 E. Tropical environments are constant and predictable.
 Choose the correct answer from the options given below. [NEET-2024]
 (1) A, B and D only
 (2) A, C, D and E only
 (3) A and B only
 (4) A, B and E only
- Q.22** The type of conservation in which the threatened species are taken out from their natural habitat and placed in special setting where they can be protected and given special care is called [NEET-2024]
 (1) Sustainable development
 (2) *in-situ* conservation
 (3) Biodiversity conservation
 (4) Semi-conservative method
- Q.23** Match List I with List II [NEET-2024]

List I	List II
A. Robert May	I. Species-Area relationship
B. Alexander von Humboldt	II. Long term ecosystem experiment using out door plots
C. Paul Ehrlich	III. Global species diversity at about 7 million
D. David Tilman	IV. Rivet popper hypothesis

 Choose the correct answer from the options given below:
 (1) A - III, B - IV, C - II, D - I
 (2) A - II, B - III, C - I, D - IV
 (3) A - III, B - I, C - IV, D - II
 (4) A - I, B - III, C - II, D - IV
- Q.24** The regions with high level of species richness, high degree of endemism and a loss of 70% of the species and habitat are identified as: [Re-NEET 2024]
 (1) Natural Reserves
 (2) Sacred Groves
 (3) Biodiversity
 (4) Biogeographical Resions
- Q.25** Which one of the following is not included under *in-situ* conservation? [Re-NEET 2024]
 (1) Wild-life sanctuary
 (2) Botanical garden
 (3) Biosphere reserve
 (4) National park

- Q.26** Cryopreservation technique is used for:
[Re-NEET 2024]
- (1) Protection of environment
 - (2) Protection of Biodiversity hotspots
 - (3) Preservation of gametes in viable and fertile condition for a long period
 - (4) In-situ conservation

- Q.27** Match List-I with List-II:

List-I		List-II	
A.	Biodiversity hotspot	I.	Khasi and jantia hills in Meghalaya
B.	Sacred groves	II.	World Summit on Sustainable
C.	Johannesburg South Africa	III.	Parthenium
D.	Alien species invasion	IV.	Western Ghats

Choose the correct answer from the options given below :
[Re-NEET 2024]

- (1) A-IV, B-I, C-II, D-III
- (2) A-II, B-III, C-IV, D-I
- (3) A-I, B-IV, C-III, D-II
- (4) A-III, B-I, C-II, D-IV

- Q.28** Which one of the following is an example of ex-situ conservation?
[NEET-2025]

- (1) National park
- (2) Wildlife Sanctuary
- (3) Zoos and botanical gardens
- (4) Protected areas

- Q.29** Match List-I with List-II : [NEET-2025]

List-I	List-II
A. The Evil Quartet	I. Cryopreservation
B. Ex situ conservation	II. Alien species invasion
C. Lantana camara	III. Causes of biodiversity losses
D. Dodo	IV. Extinction

Choose the option with all correct matches :

- (1) A-III, B-II, C-I, D-IV
- (2) A-III, B-I, C-II, D-IV
- (3) A-III, B-IV, C-II, D-I
- (4) A-III, B-II, C-IV, D-I

ANSWER KEY

Sexual Reproduction in Flowering Plants

Q.1 (3)	Q.2 (1)	Q.3 (4)	Q.4 (2)	Q.5 (2)	Q.6 (3)	Q.7 (3)	Q.8 (2)	Q.9 (3)	Q.10 (2)
Q.11 (1)	Q.12 (2)	Q.13 (1)	Q.14 (2)	Q.15 (1)	Q.16 (3)	Q.17 (3)	Q.18 (4)	Q.19 (1)	Q.20 (4)
Q.21 (2)	Q.22 (4)	Q.23 (4)	Q.24 (3)	Q.25 (4)	Q.26 (2)	Q.27 (4)	Q.28 (3)	Q.29 (2)	Q.30 (4)
Q.31 (1)	Q.32 (1)	Q.33 (2)	Q.34 (1)	Q.35 (3)	Q.36 (2)	Q.37 (3)	Q.38 (1)	Q.39 (1)	Q.40 (3)
Q.41 (2)	Q.42 (4)								

Human Reproduction

Q.1 (3)	Q.2 (4)	Q.3 (2)	Q.4 (4)	Q.5 (3)	Q.6 (4)	Q.7 (4)	Q.8 (1)	Q.9 (1)	Q.10 (2)
Q.11 (2)	Q.12 (3)	Q.13 (3)	Q.14 (1)	Q.15 (4)	Q.16 (1)	Q.17 (2)	Q.18 (1)	Q.19 (4)	Q.20 (3)
Q.21 (3)	Q.22 (3)	Q.23 (1)	Q.24 (3)	Q.25 (1)	Q.26 (3)	Q.27 (2)	Q.28 (4)	Q.29 (4)	Q.30 (3)
Q.31 (2)	Q.32 (1)	Q.33 (2)	Q.34 (4)	Q.35 (2)	Q.36 (3)	Q.37 (3)	Q.38 (1)	Q.39 (1)	Q.40 (2)
Q.41 (1)	Q.42 (4)	Q.43 (1)	Q.44 (2)						

Reproductive Health

Q.1 (4)	Q.2 (1)	Q.3 (1)	Q.4 (2)	Q.5 (2)	Q.6 (4)	Q.7 (2)	Q.8 (3)	Q.9 (1)	Q.10 (4)
Q.11 (4)	Q.12 (1)	Q.13 (1)	Q.14 (2)	Q.15 (1)	Q.16 (2)	Q.17 (1)	Q.18 (3)	Q.19 (1)	Q.20 (1)
Q.21 (1)	Q.22 (4)	Q.23 (2)	Q.24 (1)						

Principles of Inheritance and Variation

Q.1 (4)	Q.2 (2)	Q.3 (2)	Q.4 (1)	Q.5 (3)	Q.6 (2)	Q.7 (3)	Q.8 (4)	Q.9 (1)	Q.10 (1)
Q.11 (3)	Q.12 (2)	Q.13 (2)	Q.14 (4)	Q.15 (1)	Q.16 (4)	Q.17 (3)	Q.18 (3)	Q.19 (4)	Q.20 (2)
Q.21 (2)	Q.22 (3)	Q.23 (4)	Q.24 (2)	Q.25 (2)	Q.26 (2)	Q.27 (2)	Q.28 (2)	Q.29 (3)	Q.30 (3)
Q.31 (1)	Q.32 (2)	Q.33 (2)	Q.34 (4)	Q.35 (4)	Q.36 (2)	Q.37 (2)	Q.38 (2)	Q.39 (1)	Q.40 (3)
Q.41 (4)	Q.42 (3)	Q.43 (3)	Q.44 (4)	Q.45 (2)	Q.46 (2)	Q.47 (2)	Q.48 (4)	Q.49 (4)	Q.50 (4)
Q.51 (4)	Q.52 (3)	Q.53 (1)	Q.54 (2)						

Molecular Basis of Inheritance

Q.1 (1)	Q.2 (4)	Q.3 (3)	Q.4 (1)	Q.5 (3)	Q.6 (3)	Q.7 (4)	Q.8 (2)	Q.9 (3)	Q.10 (1)
Q.11 (2)	Q.12 (1)	Q.13 (2)	Q.14 (3)	Q.15 (4)	Q.16 (3)	Q.17 (2)	Q.18 (2)	Q.19 (4)	Q.20 (1)
Q.21 (3)	Q.22 (2)	Q.23 (4)	Q.24 (3)	Q.25 (3)	Q.26 (2)	Q.27 (3)	Q.28 (4)	Q.29 (2)	Q.30 (2)
Q.31 (1)	Q.32 (1)	Q.33 (2)	Q.34 (3)	Q.35 (1)	Q.36 (3)	Q.37 (2)	Q.38 (4)	Q.39 (2)	Q.40 (4)
Q.41 (2)	Q.42 (1)	Q.43 (2)	Q.44 (3)	Q.45 (4)	Q.46 (1)	Q.47 (1)	Q.48 (1)	Q.49 (3)	Q.50 (1)

Q.51 (2) Q.52 (1) Q.53 (1) Q.54 (2) Q.55 (3) Q.56 (4) Q.57 (1) Q.58 (3) Q.59 (1) Q.60 (1,2)
 Q.61 (3) Q.62 (2) Q.63 (3) Q.64 (3) Q.65 (1)

Evolution

Q.1 (4) Q.2 (1) Q.3 (2) Q.4 (4) Q.5 (2) Q.6 (3) Q.7 (1) Q.8 (2) Q.9 (2) Q.10 (4)
 Q.11 (3) Q.12 (2) Q.13 (2) Q.14 (3) Q.15 (1) Q.16 (4) Q.17 (4) Q.18 (2) Q.19 (3) Q.20 (4)
 Q.21 (3) Q.22 (1) Q.23 (1) Q.24 (1) Q.25 (4) Q.26 (1) Q.27 (1) Q.28 (2) Q.29 (4) Q.30 (1)
 Q.31 (1) Q.32 (2) Q.33 (1)

Human Health and Disease

Q.1 (1) Q.2 (1) Q.3 (4) Q.4 (2) Q.5 (2) Q.6 (1) Q.7 (1) Q.8 (2) Q.9 (2) Q.10 (1)
 Q.11 (4) Q.12 (2) Q.13 (3) Q.14 (1) Q.15 (4) Q.16 (4) Q.17 (4) Q.18 (1) Q.19 (1) Q.20 (2)
 Q.21 (1) Q.22 (3) Q.23 (2) Q.24 (4) Q.25 (4) Q.26 (4) Q.27 (2) Q.28 (3) Q.29 (1) Q.30 (4)
 Q.31 (3) Q.32 (1) Q.33 (3) Q.34 (2) Q.35 (4) Q.36 (3) Q.37 (2) Q.38 (4)

Microbes in Human Welfare

Q.1 (1) Q.2 (2) Q.3 (2) Q.4 (1) Q.5 (2) Q.6 (3) Q.7 (2) Q.8 (2) Q.9 (3) Q.10 (1)
 Q.11 (4) Q.12 (4) Q.13 (4) Q.14 (1) Q.15 (3) Q.16 (2) Q.17 (4) Q.18 (2) Q.19 (3)

Biotechnology : Principles and Processes

Q.1 (4) Q.2 (3) Q.3 (3) Q.4 (2) Q.5 (3) Q.6 (3) Q.7 (2) Q.8 (3) Q.9 (4) Q.10 (4)
 Q.11 (3) Q.12 (1) Q.13 (4) Q.14 (1) Q.15 (1) Q.16 (3) Q.17 (2) Q.18 (4) Q.19 (4) Q.20 (2)
 Q.21 (1) Q.22 (3) Q.23 (2) Q.24 (1) Q.25 (1) Q.26 (4) Q.27 (4) Q.28 (2) Q.29 (3) Q.30 (4)
 Q.31 (1) Q.32 (1) Q.33 (2) Q.34 (3) Q.35 (2) Q.36 (2) Q.37 (1) Q.38 (3) Q.39 (4) Q.40 (3)
 Q.41 (4) Q.42 (3) Q.43 (4) Q.44 (4) Q.45 (1) Q.46 (1) Q.47 (1) Q.48 (4) Q.49 (1) Q.50 (2)
 Q.51 (3) Q.52 (4) Q.53 (1) Q.54 (1)

Biotechnology and Its Applications

Q.1 (2) Q.2 (1) Q.3 (4) Q.4 (4) Q.5 (1) Q.6 (2) Q.7 (1) Q.8 (2) Q.9 (2) Q.10 (4)
 Q.11 (3) Q.12 (1) Q.13 (1) Q.14 (4) Q.15 (4) Q.16 (4) Q.17 (2) Q.18 (1) Q.19 (4) Q.20 (1)
 Q.21 (1) Q.22 (2) Q.23 (4) Q.24 (1) Q.25 (1)

Organisms and Populations

Q.1 (3) **Q.2** (4) **Q.3** (3) **Q.4** (1) **Q.5** (4) **Q.6** (2) **Q.7** (3) **Q.8** (1) **Q.9** (2) **Q.10** (4)
Q.11 (4) **Q.12** (3) **Q.13** (4) **Q.14** (3) **Q.15** (4) **Q.16** (4) **Q.17** (4) **Q.18** (2) **Q.19** (4) **Q.20** (4)
Q.21 (2) **Q.22** (1) **Q.23** (2) **Q.24** (4) **Q.25** (4) **Q.26** (1) **Q.27** (4) **Q.28** (4) **Q.29** (2) **Q.30** (1)
Q.31 (2) **Q.32** (2) **Q.33** (1)

Ecosystem

Q.1 (3) **Q.2**(4) **Q.3** (4) **Q.4** (2) **Q.5** (4) **Q.6** (3) **Q.7** (4) **Q.8** (4) **Q.9** (1) **Q.10** (3)
Q.11 (1) **Q.12** (2) **Q.13** (1) **Q.14** (2) **Q.15** (2) **Q.16** (4) **Q.17** (2) **Q.18** (4) **Q.19** (4) **Q.20** (3)
Q.21 (3) **Q.22** (4) **Q.23** (3)

Biodiversity and Conservation

Q.1 (1) **Q.2** (4) **Q.3** (3) **Q.4** (4) **Q.5** (3) **Q.6** (4) **Q.7** (2) **Q.8** (4) **Q.9** (1) **Q.10** (2)
Q.11 (2) **Q.12** (3) **Q.13** (3) **Q.14** (4) **Q.15** (1) **Q.16** (2) **Q.17** (1) **Q.18** (4) **Q.19** (1) **Q.20** (1)
Q.21 (2) **Q.22** (3) **Q.23** (3) **Q.24** (3) **Q.25** (2) **Q.26** (3) **Q.27** (1) **Q.28** (3) **Q.29** (2)