

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

XI

PHYSICS
CHEMISTRY
BIOLOGY

CONTENTS

PHYSICS

Chapter	Page No.
01. Units and Measurement	1
02. Motion in Straight line	2
03. Motion in a Plane	4
04. Laws of Motion	5
05. Work, Energy and Power	7
06. Systems of Particles and Rotational Motion	8
07. Gravitation	11
08. Mechanical Properties of Solids	14
09. Mechanical Properties of Fluids	14
10. Thermal Properties of Matter	15
11. Thermodynamics	18
12. Kinetic Theory of Gases	19
13. Oscillations	20
14. Waves	21
ANSWER KEY	23

CHEMISTRY

Chapter	Page No.
01. Some Basic Concepts of Chemistry	25
02. Structure of Atom	26
03. Classification of Elements and Periodicity in Properties	28
04. Chemical Bonding and Molecular Structure	29
05. Thermodynamics	32
06. Equilibrium	33
07. Redox Reactions	35
08. The p-Block Elements	36
09. Organic Chemistry - Some Basic Principles and Techniques	37
10. Hydrocarbons	40
ANSWER KEY	43

BIOLOGY

Chapter	Page No.
01. The Living World.....	45
01. Biological Classification	45
01. Plant Kingdom	47
01. Animal Kingdom	50
01. Morphology of Flowering Plants	54
01. Anatomy of Flowering Plants	56
01. Structural Organisation in Animals	59
01. Cell : The Unit of Life	62
01. Biomolecules	65
01. Cell Cycle and Cell Division	69
01. Photosynthesis in Higher Plants	73
01. Respiration in Plants	74
01. Plant Growth and Development	76
01. Breathing and Exchange of Gases	78
01. Body Fluids and Circulation	79
01. Excretory Products and Their Elimination	81
01. Locomotion and Movement	83
01. Neural Control and Coordination	85
01. Chemical Coordination and Integration	87
ANSWER KEY	90

Units and Measurement

Units and Measurement

- Q.1** Planck's constant (h), speed of light in vacuum (c) and Newton's gravitational constant (G) are three fundamental constant. Which of the following combinations of these has the dimension of length?
[NEET Phase II-2016]
- (1) $\frac{\sqrt{hG}}{c^{3/2}}$ (2) $\frac{\sqrt{hG}}{c^{5/2}}$ (3) $\sqrt{\frac{hc}{G}}$ (4) $\sqrt{\frac{Ge}{h^{3/2}}}$
- Q.2** A physical quantity of the dimensions of length that can be formed out of c , G and $\frac{e^2}{4\pi\epsilon_0}$ is [c is velocity of light, G is the universal constant of gravitation and e is charge]
[NEET-2017]
- (1) $c^2 \left[G \frac{e^2}{4\pi\epsilon_0} \right]^{1/2}$ (2) $\frac{1}{c^2} \left[\frac{e^2}{G 4\pi\epsilon_0} \right]^{1/2}$
(3) $\frac{1}{c} G \frac{e^2}{4\pi\epsilon_0}$ (4) $\frac{1}{c^2} \left[G \frac{e^2}{4\pi\epsilon_0} \right]^{1/2}$
- Q.3** The unit of thermal conductivity is : [NEET-2019]
(1) J m K^{-1} (2) $\text{J m}^{-1} \text{K}^{-1}$ (3) W m K^{-1} (4) $\text{W m}^{-1} \text{K}^{-1}$
- Q.4** Dimensions of stress are : [NEET-2020]
(1) $[\text{ML}^2\text{T}^{-2}]$ (2) $[\text{ML}^0\text{T}^{-2}]$
(3) $[\text{ML}^{-1} \text{T}^{-2}]$ (4) $[\text{MLT}^{-2}]$
- Q.5** If E and G respectively denote energy and gravitational constant, then $\frac{E}{G}$ has the dimensions of
[NEET-2021]
- (1) $[\text{M}][\text{L}^{-1}][\text{T}^{-1}]$ (2) $[\text{M}][\text{L}^0][\text{T}^0]$
(3) $[\text{M}^2][\text{L}^{-2}][\text{T}^{-1}]$ (4) $[\text{M}^2][\text{L}^{-1}][\text{T}^0]$
- Q.6** If force [F] acceleration [A] and time [T] are chosen as the fundamental physical quantities. Find the dimensions of energy.
[NEET-2021]
- (1) $[F][A][T^2]$ (2) $[F][A][T^{-1}]$
(3) $[F][A^{-1}][T]$ (4) $[F][A][T]$
- Q.7** The area of a rectangular field (in m^2) of length 55.3 m and breadth 25 m after rounding off the value for correct significant digits is: [NEET-2022]
(1) 1382 (2) 1382.5
(3) 14×10^2 (4) 138×10^1
- Q.8** The dimensions $[\text{MLT}^{-2}\text{A}^{-2}]$ belong to the :
[NEET-2022]
- (1) Self inductance (2) Magnetic permeability
(3) Electric permittivity (4) Magnetic flux
- Q.9** Plane angle and solid angle have : [NEET-2022]
(1) Dimensions but no units
(2) No units and no dimensions
(3) Both units and dimensions
(4) Units but no dimensions
- Q.10** The quantities which have the same dimensions as those of solid angle are: [NEET-2024]
(1) angular speed and stress (2) strain and angle
(3) stress and angle (4) strain and arc
- Q.11** A force defined by $F = \alpha t^2 + \beta t$ acts on a particle at a given time t . The factor which is dimensionless, if α and β are constants, is: [NEET-2024]
(1) $\frac{\alpha\beta}{t}$ (2) $\frac{\beta t}{\alpha}$ (3) $\frac{\alpha t}{\beta}$ (4) $\alpha\beta t$
- Q.12** The potential energy of a particle moving along x -direction varies as $V = \frac{Ax^2}{\sqrt{x+B}}$. The dimensions of $\frac{A}{B}$ are: [Re-NEET 2024]
(1) $[\text{M}^{3/2} \text{L}^{1/2} \text{T}^{-3}]$ (2) $[\text{M}^{1/2} \text{L} \text{T}^{-3}]$
(3) $[\text{M}^2 \text{L}^{1/2} \text{T}^{-4}]$ (4) $[\text{ML}^2 \text{T}^{-4}]$
- Q.13** A balloon is made of a material of surface tension S and its inflation outlet (from where gas is filled in it) has small area A . It is filled with a gas of density ρ and takes a spherical shape of radius R . When the gas is allowed to flow freely out of it, its radius changes from R to 0 (zero) in time T . If the speed $v(r)$ of gas coming out of the balloon depends on r^a and $T \propto S^\alpha A^\beta \rho^\gamma R^\delta$ then [NEET-2025]
- (1) $a = \frac{1}{2}, \alpha = \frac{1}{2}, \beta = -1, \gamma = +1, \delta = \frac{3}{2}$
(2) $a = -\frac{1}{2}, \alpha = -\frac{1}{2}, \beta = -1, \gamma = -\frac{1}{2}, \delta = \frac{5}{2}$
(3) $a = -\frac{1}{2}, \alpha = -\frac{1}{2}, \beta = -1, \gamma = \frac{1}{2}, \delta = \frac{7}{2}$
(4) $a = \frac{1}{2}, \alpha = \frac{1}{2}, \beta = -\frac{1}{2}, \gamma = \frac{1}{2}, \delta = \frac{7}{2}$

Errors in Measurement

- Q.14** A student measured the diameter of a small steel ball using a screw gauge of least count 0.001 cm. The main scale reading is 5 mm and 25 divisions above the reference level. If screw gauge has a zero error of -0.004 cm, the correct diameter of the ball is [NEET 2018]
(1) 0.521 cm (2) 0.525 cm
(3) 0.053 cm (4) 0.529 cm

- Q.15** In an experiment, the percentage of error occurred in the measurement of physical quantities A, B, C and D are 1%, 2%, 3% and 4% respectively. Then the maximum percentage of error in the measurement X, where $X = \frac{A^2 B^{1/2}}{C^{1/3} D^3}$, will be : [NEET-2019]
 (1) $\left(\frac{3}{2}\right)\%$ (2) 16% (3) -10% (4) 10%
- Q.16** A screw gauge has least count of 0.01 mm and there are 50 divisions in its circular scale. The pitch of the screw gauge is : [NEET-2020]
 (1) 0.25 mm (2) 0.5 mm
 (3) 1.0 mm (4) 0.01 mm
- Q.17** Taking into account of the significant figures, what is the value of $9.99 \text{ m} - 0.0099 \text{ m}$? [NEET-2020]
 (1) 9.98 m (2) 9.980 m (3) 9.9 m (4) 9.9801 m
- Q.18** A screw gauge gives the following readings when used to measure the diameter of a wire
 Main scale reading : 0 mm
 Circular scale reading : 52 divisions
 Given that 1 mm on main scale correspond to 100 divisions on the circular scale. The diameter of the wire from the above data is : [NEET-2021]
 (1) 0.026 cm (2) 0.26 cm
 (3) 0.052 cm (4) 0.52 cm
- Q.19** A metal wire has mass $(0.4 \pm 0.002) \text{ g}$, radius $(0.3 \pm 0.001) \text{ mm}$ and length $(5 \pm 0.02) \text{ cm}$. The maximum possible percentage error in the measurement of density will nearly be : [NEET-2023]
 (1) 1.3% (2) 1.6% (3) 1.4% (4) 1.2%
- Q.20** The errors in the measurement which arise due to unpredictable fluctuations in temperature and voltage supply are : [NEET-2023]
 (1) Personal errors (2) Least count errors
 (3) Random errors (4) Instrumental errors
- Q.21** In a vernier callipers, $(N+1)$ divisions of vernier scale coincide with N divisions of main scale. If 1 MSD represents 0.1 mm, the vernier constant (in cm) is : [NEET-2024]
 (1) $10(N+1)$ (2) $\frac{1}{10N}$ (3) $\frac{1}{100(N+1)}$ (4) $100N$
- Q.22** In an electrical circuit, the voltage is measured as $V = (200 \pm 4) \text{ volt}$ and the current is measured as $I = (20 \pm 0.2) \text{ A}$. The value of the resistance is: [Re-NEET 2024]
 (1) $(10 \pm 4.2)\Omega$ (2) $(10 \pm 0.3)\Omega$
 (3) $(10 \pm 0.1)\Omega$ (4) $(10 \pm 0.8)\Omega$
- Q.23** The pitch of an error free screw gauge is 1 mm and there are 100 divisions on the circular scale. While measuring the diameter of a thick wire, the pitch scale reads 1 mm and 63rd division on the circular scale coincides with the reference line. The diameter of the wire is: [Re-NEET 2024]
 (1) 1.63 cm (2) 0.163 cm
 (3) 0.163 m (4) 1.63 m
- Q.24** A physical quantity P is related to four observations a, b, c and d as follows : $P = a^3 b^2 / c \sqrt{d}$
 The percentage errors of measurement in a, b, c and d are 1%, 3%, 2% and 4% respectively. The percentage error in the quantity P is [NEET-2025]
 (1) 10% (2) 2% (3) 13% (4) 15%
- Q.25** Consider the diameter of a spherical object being measured with the help of a Vernier callipers. Suppose its 10 Vernier Scale Divisions (V.S.D.) are equal to its 9 Main Scale Divisions (M.S.D.) The least division in the M.S. is 0.1 cm and the zero of V.S. is at $x = 0.1 \text{ cm}$ when the jaws of Vernier callipers are closed. If the main scale reading for the diameter is $M = 5 \text{ cm}$ and the number of coinciding vernier division is 8, the measured diameter after zero error correction, is [NEET-2025]
 (1) 5.18 cm (2) 5.08 cm (3) 4.98 cm (4) 5.00 cm

Motion in Straight line

- Q.1** A particle of unit mass undergoes one-dimensional motion such that its velocity varies according to $v(x) = \beta x^{-2n}$ where β and n are constants and x is the position of the particle. The acceleration of the particle as a function of x , is given by : [AIPMT NEET-2015]
 (1) $-2n\beta^2 x^{-4n-1}$ (2) $-2\beta^2 x^{-2n+1}$
 (3) $-2n\beta^2 e^{-4n+1}$ (4) $-2n\beta^2 x^{-2n-1}$
- Q.2** If the velocity of a particle is $v = At + Bt^2$, where A and B are constants, then the distance travelled by it between 1s and 2s is : [NEET Phase I-2016]
 (1) $\frac{3}{2}A + \frac{7}{3}B$ (2) $\frac{A}{2} + \frac{B}{3}$
 (3) $\frac{3}{2}A + 4B$ (4) $3A + 7B$
- Q.3** Two cars P and Q start from a point at the same time in a straight line and their positions are represented by $x_p(t) = (at + bt^2)$ and $x_q(t) = (ft - t^2)$. At what time do the cars have the same velocity? [NEET Phase II-2016]
 (1) $\frac{a-f}{1+b}$ (2) $\frac{a+f}{2(b+1)}$ (3) $\frac{a+f}{2(1+b)}$ (4) $\frac{f-a}{2(1+b)}$

- Q.4** Preeti reached the metro station and found that the escalator was not working. She walked up the stationary escalator in time t_1 . On other days, if she remains stationary on the moving escalator, then the escalator takes her up in time t_2 . The time taken by her to walk up on the moving escalator will be :

[NEET-2017]

(1) $\frac{t_1 t_2}{t_2 - t_1}$ (2) $\frac{t_1 t_2}{t_2 + t_1}$ (3) $t_1 - t_2$ (4) $\frac{t_1 + t_2}{2}$

- Q.5** The x and y coordinates of the particle at any time are $x = 5t - 2t^2$ and $y = 10t$ respectively, where x and y are in metres and t in seconds. The acceleration of the particle at $t = 2s$ is :

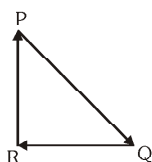
[NEET-2017]

(1) 5 ms^{-2} (2) -4 ms^{-2}
(3) -8 ms^{-2} (4) 0

- Q.6** A particle moving with velocity V is acted by three forces shown by the vector triangle PQR. The velocity of the particle will :

[NEET-2019]

- (1) increase
(2) decrease
(3) remain constant
(4) change according to the smallest force



- Q.7** A ball is thrown vertically downward with a velocity of 20 m/s from the top of a tower. It hits the ground after some time with a velocity of 80 m/s. The height of the tower is : ($g = 10 \text{ m/s}^2$)

[NEET-2020]

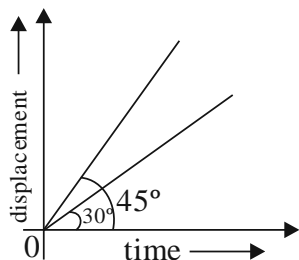
(1) 340 m (2) 320 m
(3) 300 m (4) 360 m

- Q.8** The ratio of the distances travelled by a freely falling body in the 1st, 2nd, 3rd and 4th second: [NEET-2022]

(1) 1 : 4 : 9 : 16 (2) 1 : 3 : 5 : 7
(3) 1 : 1 : 1 : 1 (4) 1 : 2 : 3 : 4

- Q.9** The displacement-time graphs of two moving particles make angle of 30° and 45° with the x-axis as shown in the figure. The ratio of their respective velocity is :

[NEET-2022]



(1) 1 : 1 (2) 1 : 2
(3) $1 : \sqrt{3}$ (4) $\sqrt{3} : 1$

- Q.10** A bullet from a gun is fired on a rectangular wooden block with velocity u. When bullet travels 24 cm through the block along its length horizontally,

velocity of bullet becomes $\frac{u}{3}$. Then it further

penetrates into the block in the same direction before coming to rest exactly at the other end of the block.

The total length of the block is : [NEET-2023]

(1) 24 cm (2) 28 cm
(3) 30 cm (4) 27 cm

- Q.11** A horizontal bridge is built across a river. A student standing on the bridge throws a small ball vertically upwards with a velocity 4 m s^{-1} . The ball strikes the water surface after 4 s. The height of bridge above water surface is (Take $g = 10 \text{ ms}^{-2}$)

[NEET-2023]

(1) 60 m (2) 64 m (3) 68 m (4) 56 m

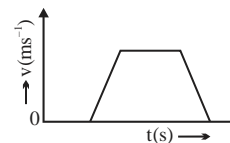
- Q.12** A vehicle travels half the distance with speed v and the remaining distance with speed 2v. Its average speed is :

[NEET-2023]

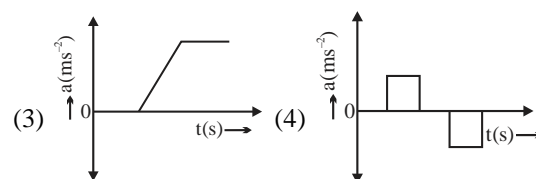
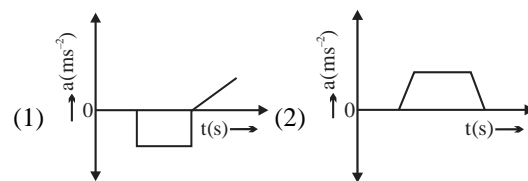
(1) $\frac{2v}{3}$ (2) $\frac{4v}{3}$ (3) $\frac{3v}{4}$ (4) $\frac{v}{3}$

- Q.13** The velocity (v) – time (t) plot of the motion of a body is shown below:

[NEET-2024]



- The acceleration (a) – time (t) graph that best suits this motion is :



- Q.14** A particle is moving along x-axis with its position (x) varying with time (t) as $x = \alpha t^4 + \beta t^2 + \gamma t + \delta$. The ratio of its initial velocity to its initial acceleration, respectively, is:

[Re-NEET 2024]

(1) $2\alpha : \delta$ (2) $\gamma : 2\delta$ (3) $4\alpha : \beta$ (4) $\gamma : 2\beta$

Q.15 In some appropriate units, time (t) and position (x) relation of a moving particle is given by $t = x^2 + x$. The acceleration of the particle is [NEET-2025]

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

Q.16 Two cities X and Y are connected by a regular bus service with a bus leaving in either direction every T min. A girl is driving scooty with a speed of 60 km/h in the direction X to Y notices that a bus goes past her every 30 minutes in the direction of her motion, and every 10 minutes in the opposite direction. Choose the correct option for the period T of the bus service and the speed (assumed constant) of the buses. [NEET-2025]

- (1) 9 min, 40 km/h (2) 25 min, 100 km/h
 (3) 10 min, 90 km/h (4) 15 min, 120 km/h

Motion in a Plane

VECTOR

Q.1 If vectors $\vec{A} = \cos \omega t \hat{i} + \sin \omega t \hat{j}$ and $\vec{B} = \cos \frac{\omega t}{2} \hat{i} + \sin \frac{\omega t}{2} \hat{j}$ are functions of time, then the value of t at which they are orthogonal to each other is [AIPMT-2015]

- (1) $t = \frac{\pi}{\omega}$ (2) $t = 0$
 (3) $t = \frac{\pi}{4\omega}$ (4) $t = \frac{\pi}{2\omega}$

Q.2 A particle moves so that its position vector is given by $\vec{r} = \cos \omega t \hat{x} + \sin \omega t \hat{y}$ Which of the following is true? [NEET-I 2016]

- (1) Velocity is perpendicular to \vec{r} and acceleration is directed towards the origin.
 (2) Velocity is perpendicular to \vec{r} and acceleration is directed away from the origin.
 (3) Velocity and acceleration both are perpendicular to \vec{r} .
 (4) Velocity and acceleration both are parallel to \vec{r} .

Q.3 If the magnitude of sum of two vectors is equal to the magnitude of difference of the two vectors, the angle between these vectors is [NEET-I 2016]

- (1) 45° (2) 180°
 (3) 0° (4) 90°

RELATIVE MOTION

Q.4 Preeti reached the metro station and found that the escalator was not working. She walked up the stationary escalator in time t_1 . On other days, if she remains stationary on the moving escalator, then the escalator takes her up in time t_2 . The time taken by her to walk up on the moving escalator will be : [NEET-2017]

- (1) $\frac{t_1 t_2}{t_2 - t_1}$ (2) $\frac{t_1 t_2}{t_2 + t_1}$
 (3) $t_1 - t_2$ (4) $\frac{t_1 + t_2}{2}$

Q.5 The speed of a swimmer in still water is 20 m/s. The speed of river water is 10 m/s and is flowing due east. If he is standing on the south bank and wishes to cross the river along the shortest path, the angle at which he should make his strokes w.r.t. north is given by : [NEET-2019]

- (1) 30° west (2) 0°
 (3) 60° west (4) 45° west

Q.6 A football player is moving southward and suddenly turns eastward with the same speed to avoid an opponent. The force that acts on the player while turning is : [NEET-2023]

- (1) along northward (2) along north-east
 (3) along south-west (4) along eastward

PROJECTILE

Q.7 A car starts from rest and accelerates at 5 m/s^2 . At $t = 4 \text{ s}$, a ball is dropped out of a window by a person sitting in the car. What is the velocity and acceleration of the ball at $t = 6 \text{ s}$? (Take $g = 10 \text{ m/s}^2$) [NEET 2021]

- (1) $20\sqrt{2} \text{ m/s}$, 10 m/s^2 (2) 20 m/s , 5 m/s^2
 (3) 20 m/s , 0 m/s^2 (4) $20\sqrt{2} \text{ m/s}$, 0

Q.8 A particle moving in a circle of radius R with a uniform speed takes a time T to complete one revolution. If this particle were projected with the same speed at an angle ' θ ' to the horizontal, the maximum height attained by it is $4R$. The angle of projection θ , is then given by [NEET 2021]

- (1) $\theta = \sin^{-1} \left(\frac{2gT^2}{\pi^2 R} \right)^{1/2}$ (2) $\theta = \cos^{-1} \left(\frac{gT^2}{\pi^2 R} \right)^{1/2}$
 (3) $\theta = \cos^{-1} \left(\frac{\pi^2 R}{gT^2} \right)^{1/2}$ (4) $\theta = \sin^{-1} \left(\frac{\pi^2 R}{gT^2} \right)^{1/2}$

Q.9 A ball is projected with a velocity, 10ms^{-1} , at an angle of 60° with the vertical direction. Its speed at the highest point of its trajectory will be: [NEET-2022]

- (1) $5\sqrt{3}\text{ms}^{-1}$ (2) 5ms^{-1} (3) 10ms^{-1} (4) Zero

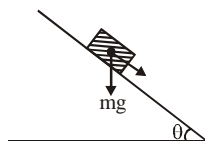
Q.10 A bullet is fired from a gun at the speed of 280ms^{-1} in the direction 30° above the horizontal. The maximum height attained by the bullet is

($g = 9.8\text{ms}^{-2}$, $\sin 30^\circ = 0.5$): [NEET-2023]

- (1) 2000 m (2) 1000 m
(3) 3000 m (4) 2800 m

Laws of Motion

Q.1 A plank with a box on it at one end is gradually raised about the other end. As the angle of inclination with the horizontal reaches 30° , the box starts to slip and slides 4.0 m down the plank in 4.0 s.



The coefficients of static and kinetic friction between the box and the plank will be, respectively:

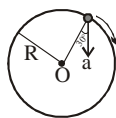
[AIPMT-2015]

- (1) 0.5 and 0.6 (2) 0.4 and 0.3
(3) 0.6 and 0.6 (4) 0.6 and 0.5

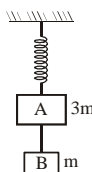
Q.2 In the given figure, $a = 15\text{ms}^{-2}$ represents the total acceleration of a particle moving in the clockwise direction in a circle of radius $R = 2.5\text{m}$ at a given instant of time. The speed of the particle is :

[NEET Phase II-2016]

- (1) 4.5ms^{-1}
(2) 5.0ms^{-1}
(3) 5.7ms^{-1}
(4) 6.2ms^{-1}



Q.3 Two blocks A and B of masses $3m$ and m respectively are connected by a massless and inextensible string. The whole system is suspended by a massless spring as shown in figure. The magnitudes of acceleration of A and B immediately after the string is cut, are respectively : [NEET 2017]



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

Q.4 Which one of the following statements is incorrect ?

[NEET-2018]

- (1) Frictional force opposes the relative motion.
(2) Limiting value of static friction is directly proportional to normal reaction.
(3) Rolling friction is smaller than sliding friction
(4) Coefficient of sliding friction has dimensions of length.

Q.5 A block of mass m is placed on a smooth inclined wedge ABC of inclination θ as shown in the figure.

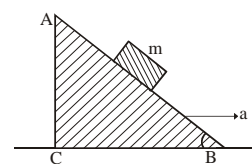
The wedge is given an acceleration 'a' towards the right. The relation between a and θ for the block to remain stationary on the wedge is [NEET-2018]

(1) $a = g \cos \theta$

(2) $a = \frac{g}{\sin \theta}$

(3) $a = \frac{g}{\cos \theta}$

(4) $a = g \tan \theta$



Q.6 When an object is shot from the bottom of a long smooth inclined plane kept at an angle 60° with horizontal, it can travel a distance x_1 along the plane. But when the inclination is decreased to 30° and the same object is shot with the same velocity, it can travel x_2 distance. Then $x_1 : x_2$ will be [NEET-2019]

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

Q.7 A particle starting from rest, moves in a circle of radius 'r'. It attains a velocity of $V_0\text{m/s}$ in the n^{th} round. Its angular acceleration will be [NEET-2019 (Odisha)]

(1) $\frac{V_0}{n} \text{rad/s}^2$ (2) $\frac{V_0}{2\pi nr^2} \text{rad/s}^2$

(3) $\frac{V_0^2}{4\pi nr^2}$ (4) $\frac{V_0^2}{4\pi nr} \text{rad/s}^2$

Q.8 Two particles A and B are moving in uniform circular motion in concentric circles of radius r_A and r_B with speed v_A and v_B respectively. Their time period of rotation is the same. The ratio of angular speed of A to that of B will be : [NEET-2019]

- (1) $r_A : r_B$ (2) $v_A : v_B$ (3) $r_B : r_A$ (4) $1 : 1$

Q.9 Two bodies of mass 4 kg and 6 kg are tied to the ends of a massless string. The string passes over a pulley which is frictionless (see figure). The acceleration of the system in terms of acceleration due to gravity (g) is: [NEET-2020]

- (1) $g/2$ (2) $g/5$ (3) $g/10$ (4) g

Q.10 A small block slides down on a smooth inclined plane, starting from rest at time $t = 0$. Let S_n the distance travelled by the block in the interval $t = n - 1$ to $t = n$.

Then, the ratio $\frac{S_n}{S_{n+1}}$ [NEET-2021]

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

Q.11 Calculate the maximum acceleration of a moving car so that a body lying on the floor of the car remains stationary. The coefficient of static friction between the body and the floor is 0.15 ($g = 10 \text{ m s}^{-2}$)

[NEET-2023]

- (1) 150 m s^{-2} (2) 1.5 m s^{-2}
(3) 50 m s^{-2} (4) 1.2 m s^{-2}

Q.12 A particle moving with uniform speed in a circular path maintains:

[NEET-2024]

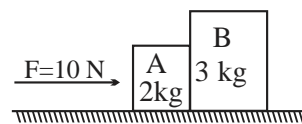
- (1) Varying velocity and varying acceleration
(2) Constant velocity
(3) Constant acceleration
(4) Constant velocity but varying acceleration

Q.13 A bob is whirled in a horizontal plane by means of a string with an initial speed of ω rpm. The tension in the string is T . If speed becomes 2ω while keeping the same radius, the tension in the string becomes:

[NEET-2024]

- (1) $\sqrt{2}T$ (2) T
(3) $4T$ (4) $T/4$

Q.14 A horizontal force 10 N is applied to a block A as shown in figure. The mass of blocks A and B are 2 kg and 3 kg respectively. The blocks slide over a frictionless surface. The force exerted by block A on block B is : [NEET-2024]



- (1) 10 N (2) Zero (3) 4 N (4) 6 N

Q.15 A bob is whirled in a horizontal circle by means of a string at an initial speed of 10 rpm. If the tension in the string is quadrupled while keeping the radius constant, the new speed is: [Re-NEET 2024]

- (1) 20 rpm (2) 40 rpm (3) 5 rpm (4) 10 rpm

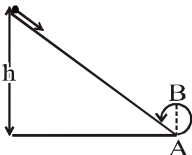
Q.16 A box of mass 5 kg is pulled by a cord, up along a frictionless plane inclined at 30° with the horizontal. The tension in the cord is 30 N. The acceleration of the box is (Take $g = 10 \text{ m s}^{-2}$) [Re-NEET 2024]

- (1) 2 m s^{-2} (2) Zero
(3) 0.1 ms^{-2} (4) 1 m s^{-2}

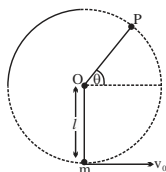
Q.17 There are two inclined surface of equal length (L) and same angle of inclination 45° with the horizontal. One of them is rough and the other is perfectly smooth. A given body takes 2 times as much time to slide down on rough surface than on the smooth surface. The coefficient of kinetic friction (μ_k) between the object and the rough surface is close to : [NEET-2025]

- (1) 0.25 (2) 0.40 (3) 0.5 (4) 0.75

Work, Energy and Power

- Q.1** The heart of a man pumps 5 litres of blood through the arteries per minute at a pressure of 150 mm of mercury. If the density of mercury be $13.6 \times 10^3 \text{ kg/m}^3$ and $g = 10 \text{ m/s}^2$ then the power of heart in watt is : [AIPMT-2015]
 (1) 3.0 (2) 1.50 (3) 1.70 (4) 2.35
- Q.2** What is the minimum velocity with which a body of mass m must enter a vertical loop of radius R so that it can complete the loop ? [NEET Phase I-2016]
 (1) $\sqrt{3gR}$ (2) $\sqrt{5gR}$ (3) \sqrt{gR} (4) $\sqrt{2gR}$
- Q.3** A particle of mass 10g moves along a circle of radius 6.4 cm with a constant tangential acceleration. What is the magnitude of this acceleration if the kinetic energy of the particle becomes equal to $8 \times 10^{-4} \text{ J}$ by the end of the second revolution after the beginning of the motion ? [NEET Phase I-2016]
 (1) 0.18 m/s^2 (2) 0.2 m/s^2 (3) 0.1 m/s^2 (4) 0.15 m/s^2
- Q.4** A body of mass 1 kg begins to move under the action of a time dependent force $\vec{F} = (2t\hat{i} + 3t^2\hat{j})\text{N}$, where \hat{i} and \hat{j} are unit vectors along x and y axis. What power will be developed by the force at the time t ? [NEET Phase I-2016]
 (1) $(2t^3 + 3t^4) \text{ W}$ (2) $2t^3 + 3t^5$ W
 (3) $(2t^2 + 3t^3) \text{ W}$ (4) $(2t^2 + 4t^4) \text{ W}$
- Q.5** A particle moves from a point $(-2\hat{i} + 5\hat{j})$ to $(4\hat{j} + 3\hat{k})$ when a force of $(4\hat{i} + 3\hat{j}) \text{ N}$ is applied. How much work has been done by the force ? [NEET Phase II-2016]
 (1) 8 J (2) 11 J (3) 5 J (4) 2 J
- Q.6** Consider a drop of rain water having mass 1g falling from a height of 1 km. It hits the ground with a speed of 50 ms^{-1} . Take 'g' constant with a value of 10 ms^{-2} . The work done by the (i) gravitational force and the (ii) resistive force of air is : [NEET-2017]
 (1) (i) 1.25 J, (ii) -8.25 J (2) (i) 100 J, (ii) 8.75 J
 (3) (i) 10 J, (ii) -8.75 J (4) (i) -10 J, (ii) -8.25 J
- Q.7** A body initially at rest and sliding along a frictionless track from a height h (as shown in the figure) just completes a vertical circle of diameter $AB=D$. The height h is equal to [NEET-2018]
- 
- (1) $\frac{7}{5}D$ (2) D (3) $\frac{3}{2}D$ (4) $\frac{5}{4}D$
- Q.8** A force $F = 20 + 10y$ acts on a particle in y -direction where F is in newton and y in meter. Work done by this force to move the particle from $y = 0$ to $y = 1 \text{ m}$ is: [NEET-2019]
 (1) 30 J (2) 5 J (3) 25 J (4) 20 J
- Q.9** A mass m is attached to a thin wire and whirled in a vertical circle. The wire is most likely to break when
 (1) the mass is at the highest point [NEET-2019]
 (2) the wire is horizontal
 (3) the mass is at the lowest point
 (4) inclined at an angle of 60° from vertical
- Q.10** Water falls from a height of 60 m at the rate of 15 kg/s to operate a turbine. The losses due to frictional force are 10% of the input energy. How much power is generated by the turbine ? [NEET-2021]
 (1) 8.1 kW (2) 12.3kW (3) 7.0 kW (4) 10.2 kW
- Q.11** An electric lift with a maximum load of 2000 kg (lift + passengers) is moving up with a constant speed of 1.5 ms^{-1} . The frictional force opposing the motion is 3000 N. The minimum power delivered by the motor to the lift in watts is: ($g = 10 \text{ ms}^{-2}$) [NEET-2022]
 (1) 20000 (2) 34500 (3) 23500 (4) 23000
- Q.12** The potential energy of a long spring when stretched by 2 cm is U . If the spring is stretched by 8 cm, potential energy stored in it will be : [NEET-2023]
 (1) $4U$ (2) $8U$ (3) $16U$ (4) $2U$
- Q.13** At any instant of time t , the displacement of any particle is given by $2t - 1$ (SI unit) under the influence of force of 5 N. The value of instantaneous power is (in SI unit): [NEET-2024]
 (1) 6 (2) 10 (3) 5 (4) 7
- Q.14** An object moving along horizontal x -direction with kinetic energy 10 J is displaced through $x = (3\hat{i}) \text{ m}$ by the force $\vec{F} = (-2\hat{i} + 3\hat{j}) \text{ N}$. The kinetic energy of the object at the end of the displacement x is [Re-NEET 2024]
 (1) 10J (2) 16J (3) 4 J (4) 6 J
- Q.15** The kinetic energies of two similar cars A and B are 100 J and 225 J respectively. On applying breaks, car A stops after 1000 m and car B stops after 1500 m. If F_A and F_B are the forces applied by the breaks on cars A and B, respectively, then the ratio F_A/F_B is : [NEET-2025]
 (1) $\frac{3}{2}$ (2) $\frac{2}{3}$ (3) $\frac{1}{3}$ (4) $\frac{1}{2}$

- Q.16** A bob of heavy mass m is suspended by a light string of length l . The bob is given a horizontal velocity v_0 as shown in figure. If the string gets slack at some point P making an angle θ from the horizontal, the ratio of the speed v of the bob at point P to its initial speed v_0 is :
[NEET-2025]

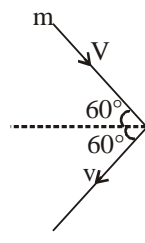


- (1) $(\sin \theta)^{\frac{1}{2}}$ (2) $\left(\frac{1}{2+3\sin \theta}\right)^{\frac{1}{2}}$
 (3) $\left(\frac{\cos \theta}{2+3\sin \theta}\right)^{\frac{1}{2}}$ (4) $\left(\frac{\sin \theta}{2+3\sin \theta}\right)^{\frac{1}{2}}$

Systems of Particles and Rotational Motion

CENTRE OF MASS

- Q.1** Two particles A and B, move with constant velocities \vec{v}_1 and \vec{v}_2 . At the initial moment their position vectors are \vec{r}_1 and \vec{r}_2 respectively. The condition for particles A and B for their collision is : [AIPMT-2015]
 (1) $\vec{r}_1 \times \vec{v}_1 = \vec{r}_2 \times \vec{v}_2$ (2) $\vec{r}_1 - \vec{r}_2 = \vec{v}_1 - \vec{v}_2$
 (3) $\frac{\vec{r}_1 - \vec{r}_2}{|\vec{r}_1 - \vec{r}_2|} = \frac{\vec{v}_2 - \vec{v}_1}{|\vec{v}_2 - \vec{v}_1|}$ (4) $\vec{r}_1 \cdot \vec{v}_1 = \vec{r}_2 \cdot \vec{v}_2$
- Q.2** A ball is thrown vertically downwards from a height of 20 m with an initial velocity v_0 . It collides with the ground, loses 50 percent of its energy in collision and rebounds to the same height. The initial velocity v_0 is (Take $g = 10 \text{ ms}^{-2}$) : [AIPMT-2015]
 (1) 28 ms^{-1} (2) 10 ms^{-1} (3) 14 ms^{-1} (4) 20 ms^{-1}
- Q.3** On a frictionless surface, a block of mass M moving at speed v collides elastically with another block of same mass M which is initially at rest. After collision the first block moves at an angle θ to its initial direction and has a speed $\frac{v}{3}$. The second block's speed after the collision is : [AIPMT-2015]
 (1) $\frac{3}{\sqrt{2}}v$ (2) $\frac{\sqrt{3}}{2}v$ (3) $\frac{2\sqrt{2}}{3}v$ (4) $\frac{3}{4}v$
- Q.4** A bullet of mass 10 g moving horizontally with a velocity of 400 ms^{-1} strikes a wood block of mass 2 kg which is suspended by light inextensible string of length 5 m. As a result, the centre of gravity of the block found to rise a vertical distance of 10 cm. The speed of the bullet after it emerges out horizontally from the block will be : [NEET Phase II-2016]
 (1) 100 ms^{-1} (2) 80 ms^{-1} (3) 120 ms^{-1} (4) 160 ms^{-1}
- Q.5** Two identical balls A and B having velocities of 0.5 ms^{-1} and -0.3 ms^{-1} respectively collide elastically in one dimension. The velocities of B and A after the collision respectively will be : [NEET Phase II-2016]
 (1) -0.5 ms^{-1} and 0.3 ms^{-1} (2) 0.5 ms^{-1} and -0.3 ms^{-1}
 (3) -0.3 ms^{-1} and 0.5 ms^{-1} (4) 0.3 ms^{-1} and 0.5 ms^{-1}
- Q.6** A rigid ball of mass m strikes a rigid wall at 60° and gets reflected without loss of speed as shown in the figure. The value of impulse imparted by the wall on the ball will be : [NEET Phase II-2016]



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

- Q.7** Which of the following statements are correct ?
 (i) centre of mass of a body always coincides with the centre of gravity of the body. [NEET-2017]
 (ii) centre of mass of a body is the point at which the total gravitational torque on the body is zero.
 (iii) A couple on a body produces both translational and rotational motion in a body.
 (iv) Mechanical advantage greater than one means that small effort can be used to lift a large load.
 (1) (i) and (ii) (2) (ii) and (iii)
 (3) (iii) and (iv) (4) (ii) and (iv)

- Q.8** Body A of mass $4m$ moving with speed u collides with another body B of mass $2m$, at rest. The collision is head on and elastic in nature. After the collision the fraction of energy lost by the colliding body A is : [NEET-2019]

- (1) $\frac{1}{9}$ (2) $\frac{8}{9}$ (3) $\frac{4}{9}$ (4) $\frac{5}{9}$

- Q.9** Two particles of mass 5 kg and 10 kg respectively are attached to the two ends of a rigid rod of length 1 m with negligible mass. The centre of mass of the system from the 5 kg particle is nearly at a distance of : [NEET-2020]

- (1) 50 cm (2) 67 cm (3) 80 cm (4) 33 cm

- Q.10** A ball of mass 0.15 kg is dropped from a height 10 m, strikes the ground and rebounds to the same height. The magnitude of impulse imparted to the ball is ($g = 10 \text{ m/s}^2$) nearly : [NEET-2021]
 (1) 4.2 kg m/s (2) 2.1 kg m/s
 (3) 1.4 kg m/s (4) 0 kg m/s

Q.11 A shell of mass m is at rest initially. It explodes into three fragments having mass in the ratio $2 : 2 : 1$. If the fragments having equal mass fly off along mutually perpendicular directions with speed v , the speed of the third (lighter) fragment is [NEET-2022]

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

Q.12 Two objects of mass 10 kg and 20 kg respectively are connected to the two ends of a rigid rod of length 10 m with negligible mass. The distance of the center of mass of the system from the 10 kg mass is : [NEET-2022]

- (1) $\frac{20}{3}\text{ m}$ (2) 10 m (3) 5 m (4) $\frac{10}{3}\text{ m}$

Q.13 Two bodies A and B of same mass undergo completely inelastic one dimensional collision. The body A moves with velocity v_1 while body B is at rest before collision. The velocity of the system after collision is v_2 . The ratio $v_1 : v_2$ is [NEET-2024]

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

Q.14 An object falls from a height of 10 m above the ground. After striking the ground it loses 50% of its kinetic energy. The height upto which the object can rebound from the ground is: [Re-NEET-2024]

- (1) 7.5 m (2) 10 m (3) 2.5 m (4) 5 m

Q.15 A ball of mass 0.5 kg is dropped from a height of 40 m . The ball hits the ground and rises to a height of 10 m . The impulse imparted to the ball during its collision with the ground is (Take $g = 9.8\text{ m/s}^2$)

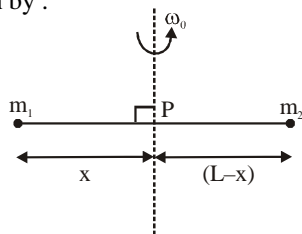
- (1) 21 NS (2) 7 NS (3) 0 (4) 84 NS

ROTATIONAL MOTION

Q.16 A force $\vec{F} = \alpha\hat{i} + 3\hat{j} + 6\hat{k}$ is acting at a point $\vec{r} = 2\hat{i} - 6\hat{j} - 12\hat{k}$. The value of α for which angular momentum about origin is conserved is : [AIPMT-2015]

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

Q.17 Point masses m_1 and m_2 are placed at the opposite ends of a rigid rod of length L , and negligible mass. The rod is to be set rotating about an axis perpendicular to it. The position of point P on this rod through which the axis should pass so that the work required to set the rod rotating with angular velocity ω_0 is minimum, is given by : [AIPMT-2015]



$$(1) x = \frac{m_2}{m_1} L \quad (2) x = \frac{m_2 L}{m_1 + m_2}$$

$$(3) x = \frac{m_1 L}{m_1 + m_2} \quad (4) x = \frac{m_1}{m_2} L$$

Q.18 An automobile moves on a road with a speed of 54 km h^{-1} . The radius of its wheels is 0.45 m and the moment of inertia of the wheel about its axis of rotation is 3 kg m^2 . If the vehicle is brought to rest in 15 s , the magnitude of average torque transmitted by its brakes to the wheel is : [AIPMT-2015]

- (1) $10.86\text{ kg m}^2\text{ s}^{-2}$ (2) $2.86\text{ kg m}^2\text{ s}^{-2}$
(3) $6.66\text{ kg m}^2\text{ s}^{-2}$ (4) $8.58\text{ kg m}^2\text{ s}^{-2}$

Q.19 A uniform circular disc of radius 50 cm at rest is free to turn about an axis which is perpendicular to its plane and passes through its centre. It is subjected to a torque which produces a constant angular acceleration of 2.0 rad s^{-2} . Its net acceleration in ms^{-2} at the end of 2.0 s is approximately : [NEET Phase I-2016]

- (1) 6.0 (2) 3.0 (3) 8.0 (4) 7.0

Q.20 Two rotating bodies A and B of masses m and $2m$ with moments of inertia I_A and I_B ($I_B > I_A$) have equal kinetic energy of rotation. If L_A and L_B be their angular momenta respectively, then : [NEET Phase II-2016]

- (1) $L_A = \frac{L_B}{2}$ (2) $L_A = 2L_B$
(3) $L_B > L_A$ (4) $L_A > L_B$

Q.21 A solid sphere of mass m and radius R is rotating about its diameter. A solid cylinder of the same mass and same radius is also rotating about its geometrical axis with an angular speed twice that of the sphere. The ratio of their kinetic energies of rotation ($E_{\text{sphere}} / E_{\text{cylinder}}$) will be: [NEET Phase II-2016]

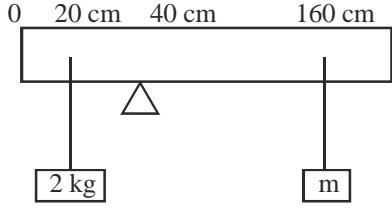
- (1) $2 : 3$ (2) $1 : 5$ (3) $1 : 4$ (4) $3 : 1$

Q.22 A light rod of length ℓ has two masses m_1 and m_2 attached to its two ends. The moment of inertia of the system about an axis perpendicular to the rod and passing through the centre of mass is : [NEET Phase II-2016]

- (1) $\frac{m_1 m_2}{m_1 + m_2} \ell^2$ (2) $\frac{m_1 + m_2}{m_1 m_2} \ell^2$
(3) $(m_1 + m_2) \ell^2$ (4) $\sqrt{m_1 m_2} \ell^2$

Q.23 From a disc of radius R and mass M , a circular hole of diameter R , whose rim passes through the centre is cut. What is the moment of inertia of the remaining part of the disc about a perpendicular axis, passing through the centre ? [NEET Phase I-2016]

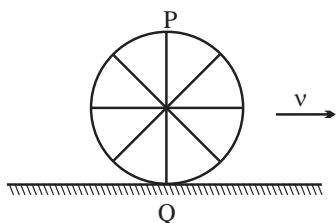
- (1) $\frac{11MR^2}{32}$ (2) $\frac{9MR^2}{32}$ (3) $\frac{15MR^2}{32}$ (4) $\frac{13MR^2}{32}$

- Q.24** A rope wound around a hollow cylinder of mass 3 kg and radius 40 cm. What is the angular acceleration of the cylinder if the rope is pulled with a force of 30N? [NEET-2017]
 (1) 0.25 rad s^{-2} (2) 25 rad s^{-2}
 (3) 5 rad s^{-2} (4) 25 m s^{-2}
- Q.25** Two discs of same moment of inertia rotating about their regular axis passing through centre and perpendicular to the plane of disc with angular velocities ω_1 and ω_2 . They are brought into contact face to face coinciding the axis of rotation. The expression for loss of energy during this process is : [NEET-2017]
 (1) $\frac{1}{4}I(\omega_1 - \omega_2)^2$ (2) $I(\omega_1 + \omega_2)^2$
 (3) $\frac{1}{8}I(\omega_1 - \omega_2)^2$ (4) $\frac{1}{2}I(\omega_1 + \omega_2)^2$
- Q.26** Three objects, A : (a solid sphere), B : (a thin circular disk) and C : (a circular ring), each have the same mass M and radius R. They all spin with the same angular speed ω about their own symmetry axes. The amounts of work (W) required to bring them to rest, would satisfy the relation [NEET-2018]
 (1) $W_B > W_A > W_C$ (2) $W_A > W_B > W_C$
 (3) $W_C > W_B > W_A$ (4) $W_A > W_C > W_B$
- Q.27** A moving block having mass m, collides with another stationary block having mass 4m. The lighter block comes to rest after collision. When the initial velocity of the lighter block is v, then the value of coefficient of restitution (e) will be [NEET-2018]
 (1) 0.8 (2) 0.25 (3) 0.5 (4) 0.4
- Q.28** The moment of the force, $\vec{F} = 4\hat{i} + 5\hat{j} - 6\hat{k}$ at (2,0,-3), about the point (2, -2, -2), is given by [NEET-2018]
 (1) $-7\hat{i} - 8\hat{j} - 4\hat{k}$ (2) $-4\hat{i} - \hat{j} - 8\hat{k}$
 (3) $-8\hat{i} - 4\hat{j} - 7\hat{k}$ (4) $-7\hat{i} - 4\hat{j} - 8\hat{k}$
- Q.29** A solid sphere is rotating freely about its symmetry axis in free space. The radius of the sphere is increased keeping its mass same. Which of the following physical quantities would remain constant for the sphere? [NEET-2018]
 (1) Rotational kinetic energy (2) Moment of inertia
 (3) Angular velocity (4) Angular momentum
- Q.30** A solid cylinder of mass 2 kg and radius 4 cm is rotating about its axis at the rate of 3 rpm. The torque required to stop after 2π revolutions is [NEET-2019]
 (1) $2 \times 10^{-6} \text{ N m}$ (2) $2 \times 10^{-3} \text{ N m}$
 (3) $12 \times 10^{-4} \text{ N m}$ (4) $2 \times 10^6 \text{ N m}$
- Q.31** Find the torque about the origin when a force of $3\hat{j}$ N acts on a particle whose position vector is $2\hat{k}$ m. [NEET-2020]
 (1) $6\hat{j}$ Nm (2) $-6\hat{i}$ Nm (3) $6\hat{k}$ Nm (4) $6\hat{i}$ Nm
- Q.32** From a circular ring of mass 'M' and radius 'R' an arc corresponding to a 90° sector is removed. the moment of inertia of the remaining part of the ring about an axis passing through the centre of the ring and perpendicular to the plane of the ring is 'K' times ' MR^2 '. Then the value of 'K' is: [NEET-2021]
 (1) 7/8 (2) 1/4 (3) 1/8 (4) 3/4
- Q.33** A uniform rod of length 200 cm and mass 500 g is balanced on a wedge placed at 40cm mark. A mass of 2 kg is suspended from the rod at 20cm and another unknown mass 'm' is suspended from the rod at 160 cm mark as shown in the figure. Find the value of 'm' such that the rod is in equilibrium. ($g = 10 \text{ m/s}^2$) [NEET-2021]
- 
- (1) $\frac{1}{3} \text{ kg}$ (2) $\frac{1}{6} \text{ kg}$ (3) $\frac{1}{12} \text{ kg}$ (4) $\frac{1}{2} \text{ kg}$
- Q.34** The ratio of the radius of gyration of a thin uniform disc about an axis passing through its centre and normal to its plane to the radius of gyration of the disc about its diameter is : [NEET-2022]
 (1) $\sqrt{2} : 1$ (2) 4 : 1 (3) $1 : \sqrt{2}$ (4) 2 : 1
- Q.35** The angular speed on a fly wheel moving with uniform angular acceleration changes from 1200 rpm to 3120 rpm in 16 seconds. The angular acceleration in rad/s^2 is : [NEET-2022]
 (1) 4π (2) 12π (3) 104π (4) 2π
- Q.36** The angular acceleration of a body, moving along the circumference of a circle, is : [NEET-2023]
 (1) along the radius towards the centre
 (2) along the tangent to its position
 (3) along the axis of rotation
 (4) along the radius, away from centre
- Q.37** The ratio of radius of gyration of a solid sphere of mass M and radius R about its own axis to the radius of gyration of the thin hollow sphere of same mass and radius about its axis is : [NEET-2023]
 (1) 5 : 3 (2) 2 : 5
 (3) 5 : 2 (4) 3 : 5

Q.38 The moment of inertia of a thin rod about an axis passing through its mid point and perpendicular to the rod is 2400 g cm^2 . The length of the 400 g rod is nearly: [NEET-2024]

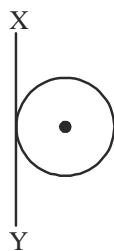
- (1) 72.0 cm (2) 8.5 cm
 (3) 17.5 cm (4) 20.7 cm

Q.39 A wheel of a bullock cart is rolling on a level road as shown in the figure below. If its linear speed is v in the direction shown, which one of the following options is correct (P and Q are any highest and lowest points on the wheel, respectively)? [NEET-2024]



- (1) Point P has zero speed
 (2) Point P moves slower than point Q
 (3) Point P moves faster than point Q
 (4) Both the points P and Q move with equal speed

Q.40 The radius of gyration of a solid sphere of mass 5 kg about XY is 5 m as shown in figure. The radius of the sphere $\frac{5x}{\sqrt{7}} \text{ m}$, then the value of x is: [Re-NEET-2024]



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

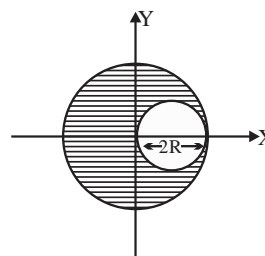
Q.41 Let ω_1 , ω_2 and ω_3 be the angular speed of the second hand, minute hand and hour hand of a smoothly running analog clock, respectively. If x_1 , x_2 and x_3 are their respective angular distances in 1 minute then the factor which remains constant (k) is [Re-NEET-2024]

- (1) $\frac{\omega_1}{x_1} = \frac{\omega_2}{x_2} = \frac{\omega_3}{x_3} = k$
 (2) $\omega_1 x_1 = \omega_2 x_2 = \omega_3 x_3 = k$
 (3) $\omega_1 x_1^2 = \omega_2 x_2^2 = \omega_3 x_3^2 = k$
 (4) $\omega_1^2 x_1 = \omega_2^2 x_2 = \omega_3^2 x_3 = k$

Q.42 A uniform rod of mass 20 kg and length 5 m leans against a smooth vertical wall making an angle of 60° with it. The other end rests on a rough horizontal floor. The friction force that the floor exerts on the rod is (Take $g = 10 \text{ m/s}^2$) [NEET-2025]

- (1) 100 N (2) $100\sqrt{3} \text{ N}$
 (3) 200 N (4) $200\sqrt{3} \text{ N}$

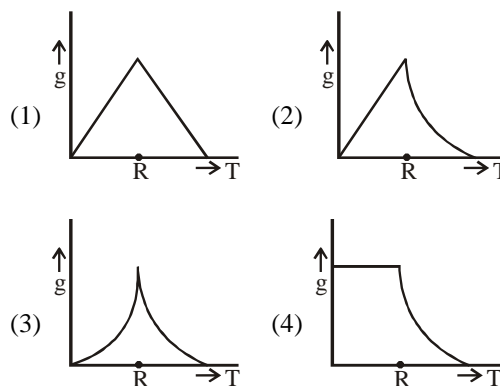
Q.43 A sphere of radius R is cut from a larger solid sphere of radius $2R$ as shown in the figure. The ratio of the moment of inertia of the smaller sphere to that of the rest part of the sphere about the Y-axis is: [NEET-2025]



- (1) $\frac{7}{8}$ (2) $\frac{7}{40}$
 (3) $\frac{7}{57}$ (4) $\frac{7}{64}$

Gravitation

Q.1 Starting from the centre of the earth having radius R , the variation of g (acceleration due to gravity) is shown by: [NEET Phase II-2016]



Q.2 A satellite of mass m is orbiting the earth (or radius R) at a height h from its surface. The total energy of the satellite in terms of g_0 the value of acceleration due to gravity at the earth's surface, is: [NEET Phase II-2016]

- (1) $\frac{mg_0 R^2}{2(R+h)}$ (2) $-\frac{mg_0 R^2}{2(R+h)}$
 (3) $\frac{2mg_0 R^2}{R+h}$ (4) $\frac{2mg_0 R^2}{R+h}$

Q.3 The acceleration due to gravity at a height 1 km above the earth is the same as at a depth d below the surface of earth. Then [NEET-2017]

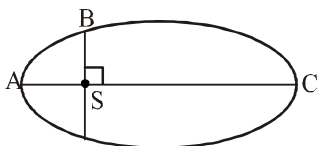
(1) $d = 1\text{km}$ (2) $d = \frac{3}{2}\text{km}$

(3) $d = 2\text{km}$ (4) $d = \frac{1}{2}\text{km}$

Q.4 Two astronauts are floating in gravitational free space after having lost contact with their spaceship. The two will [NEET-2017]

- (1) move towards each other.
 (2) move away from each other
 (3) will become stationary
 (4) keep floating at the same distance between them.

Q.5 The kinetic energies of a planet in an elliptical orbit about the Sun, at positions A, B and C are K_A , K_B and K_C , respectively. AC is the major axis and SB is perpendicular to AC at the position of the Sun S as shown in the figure. Then [NEET-2018]



- (1) $K_A < K_B < K_C$ (2) $K_A > K_B > K_C$
 (3) $K_A < K_B < K_C$ (4) $K_B > K_A > K_C$

Q.6 If the mass of the Sun were ten times smaller and the universal gravitational constant were ten times larger in magnitude, which of the following is not correct? [NEET-2018]

- (1) Time period of a simple pendulum on the Earth would decrease
 (2) Walking on the ground would become more difficult
 (3) Raindrops will fall faster
 (4) 'g' on the Earth will not change

Q.7 The work done to raise a mass m from the surface of the earth to a height h , which is equal to the radius of the earth, is : [NEET-2019]

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

Q.8 A body weighs 200 N on the surface of the earth. How much will it weigh half way down to the centre of the earth? [NEET-2019]

- (1) 150 N (2) 200 N
 (3) 250 N (4) 100 N

Q.9 A body weighs 72 N on the surface of the earth. What is the gravitational force on it, at a height equal to half the radius of the earth? [NEET-2020]

- (1) 32 N (2) 30 N
 (3) 24 N (4) 48 N

Q.10 A particle is released from height S from the surface of the Earth. At a certain height its kinetic energy is three times its potential energy. The height from the surface of earth and the speed of the particle at that instant are respectively : [NEET-2021]

(1) $\frac{S}{4}, \frac{\sqrt{3gS}}{2}$ (2) $\frac{S}{2}, \frac{\sqrt{3gS}}{2}$

(3) $\frac{S}{4}, \sqrt{\frac{3gS}{2}}$ (4) $\frac{S}{4}, \frac{3gS}{2}$

Q.11 The escape velocity from the Earth's surface is v . The escape velocity from the surface of another planet having a radius, four times that of Earth and same mass density is [NEET-2021]

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

Q.12 A particle of mass 'm' is projected with a velocity $v = kV_e$ ($k < 1$) from the surface of the earth. (V_e = escape velocity)

The maximum height above the surface reached by the particle is: [NEET-2021]

(1) $R\left(\frac{k}{1+k}\right)^2$ (2) $\frac{R^2k}{1+k}$ (3) $\frac{Rk^2}{1-k^2}$ (4) $R\left(\frac{k}{1-k}\right)^2$

Q.13 Match List-I with List-II: [NEET-2022]

List-I		List-II	
(a)	Gravitational constant (G)	(i)	$[L^2T^{-2}]$
(b)	Gravitational potential energy	(ii)	$[M^{-1}L^3T^{-2}]$
(c)	Gravitational potential	(iii)	$[LT^{-2}]$
(d)	Gravitational intensity	(iv)	$[ML^2T^{-2}]$

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

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

Q.14 A body of mass 60 g experiences a gravitational force of 3.0 N, when placed at a particular point.

The magnitude of the gravitational field intensity at that point is: [NEET-2022]

- (1) 50 N/kg (2) 20 N/kg
 (3) 180 N/kg (4) 0.05 N/kg

Q.15 A satellite is orbiting just above the surface of the earth with period T . If d is the density of the earth and G is the universal constant of gravitation, the quantity

$\frac{3\pi}{Gd}$ represents : [NEET-2023]

- (1) T^2 (2) T^3
 (3) \sqrt{T} (4) T

Q.16 Two bodies of mass m and $9m$ are placed at a distance R . The gravitational potential on the line joining the bodies where the gravitational field equals zero, will be (G = gravitational constant) : [NEET-2023]

- (1) $-\frac{12Gm}{R}$ (2) $-\frac{16Gm}{R}$
 (3) $-\frac{20Gm}{R}$ (4) $-\frac{8Gm}{R}$

Q.17 The mass of a planet is $\frac{1}{10}$ th that of the earth and its diameter is half that of the earth. The acceleration due to gravity on that planet is: [NEET-2024]

- (1) 3.92 m s^{-2} (2) 19.6 m s^{-2}
 (3) 9.8 m s^{-2} (4) 4.9 m s^{-2}

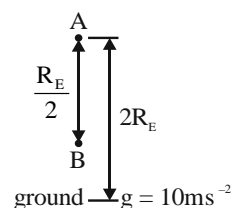
Q.18 The minimum energy required to launch a satellite of mass m from the surface of earth of mass M and radius R in a circular orbit at an altitude of $2R$ from the surface of the earth is: [NEET-2024]

- (1) $\frac{GmM}{3R}$ (2) $\frac{5GmM}{6R}$
 (3) $\frac{2GmM}{3R}$ (4) $\frac{GmM}{2R}$

Q.19 The escape velocity for earth is v . A planet having 9 times mass that of earth and radius, 16 times that of earth, has the escape velocity of: [Re-NEET 2024]

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

Q.20 An object of mass 100 kg falls from point A to B as shown in figure. The change in its weight, corrected to the nearest integer is (R_E is the radius of the earth): [Re-NEET 2024]



- (1) 49 N (2) 89 N (3) 5N (4) 10 N

Q.21 The radius of Martian orbit around the Sun is about 4 times the radius of the orbit of Mercury. The Martian year is 687 Earth days. Then which of the following is the length of 1 year on Mercury ? [NEET-2025]

- (1) 88 earth days (2) 225 earth days
 (3) 172 earth days (4) 124 earth days

Q.22 A body weighs 48 N on the surface of the earth. The gravitational force experienced by the body due to the earth at a height equal to one-third the radius of the earth from its surface is : [NEET-2025]

- (1) 16 N (2) 27 N
 (3) 32 N (4) 36 N

Q.23 The Sun rotates around its centre once in 27 days. What will be the period of revolution if the Sun were to expand to twice its present radius without any external influence? Assume the Sun to be a sphere of uniform density. [NEET-2025]

- (1) 100 days (2) 105 days
 (3) 115 days (4) 108 days

Mechanical Properties of Solids

- Q.1** The Young's modulus of steel is twice that of brass. Two wires of same length and of same area of cross section, one of steel and another of brass are suspended from the same roof. If we want the lower ends of the wires to be at the same level, then the weights added to the steel and brass must be in the ratio of [AIPMT - 2015]
(1) 4 : 1 (2) 1 : 1 (3) 1 : 2 (4) 2 : 1
- Q.2** Two wires are made of the same material and have the same volume. The first wire has cross-sectional area A and the second wire has cross-sectional area $3A$. If the length of the first wire is increased by Δl on applying a force F , how much force is needed to stretch the second wire by the same amount? [NEET-2018]
(1) $4F$ (2) $6F$ (3) $9F$ (4) F
- Q.3** When a block of mass M is suspended by a long wire of length L , the length of the wire become $(L + \ell)$. The elastic potential energy stored in the extended wire is [NEET-2019]
(1) $Mg\ell$ (2) MgL (3) $\frac{1}{2}Mg\ell$ (4) $\frac{1}{2}MgL$
- Q.4** A wire of length L , area of cross section A is hanging from a fixed support. The length of the wire changes to L_1 when mass M is suspended from its free end. The expression for Young's modulus is : [NEET-2020]
(1) $\frac{Mg(L_1 - L)}{AL}$ (2) $\frac{MgL}{AL_1}$ (3) $\frac{MgL}{A(L_1 - L)}$ (4) $\frac{MgL_1}{AL}$
- Q.5** Given below are two statements: One is labelled as Assertion (A) and the other is labelled as Reason (R).
Assertion (A): The stretching of a spring is determined by the shear modulus of the material of the spring. [NEET-2022]
Reason (R): A coil spring of copper has more tensile strength than a steel spring of same dimensions.
In the 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 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.6** If the initial tension on a stretched string is doubled, then the ratio of the initial and final speeds of a transverse wave along the string is : [NEET-2022]
(1) $\sqrt{2} : 1$ (2) $1 : \sqrt{2}$ (3) $1 : 2$ (4) $1 : 1$

- Q.7** Let a wire be suspended from the ceiling (rigid support) and stretched by a weight W attached at its free end. The longitudinal stress at any point of cross-sectional area A of the wire is : [NEET-2023]
(1) W/A (2) $W/2A$ (3) Zero (4) $2W/A$
- Q.8** The maximum elongation of a steel wire of 1 m length if the elastic limit of steel and its Young's modulus, respectively, are $8 \times 10^8 \text{ N m}^{-2}$ and $2 \times 10^{11} \text{ N m}^{-2}$, is: [NEET-2024]
(1) 8 mm (2) 4 mm (3) 0.4 mm (4) 40 mm

Mechanical Properties of Fluids

- Q.1** The cylindrical tube of a spray pump has radius R , one end of which has n fine holes, each of radius r . If the speed of the liquid in tube is V , the speed of the ejection of the liquid through the holes is [AIPMT- 2015]
(1) $\frac{VR^2}{n^2r^2}$ (2) $\frac{V^2R}{nr}$ (3) $\frac{VR^2}{n^2r^2}$ (4) $\frac{VR^2}{nr^2}$
- Q.2** Water rises to a height h in capillary tube. If the length of capillary tube above the surface of water is made less than h , then [AIPMT - 2015]
(1) water rises upto a point a little below the top and stays there.
(2) water does not rise at all.
(3) water rises upto the tip of capillary tube and then starts overflowing like a fountain.
(4) water rises upto the top of capillary tube and stays there without overflowing.
- Q.3** Two non-mixing liquids of densities ρ and $n\rho$ ($n > 1$) are put in a container. The height of each liquid is h . A solid cylinder of length L and density d is put in this container. The cylinder floats with its axis vertical and length pL ($p < 1$) in the denser liquid. The density d is equal to [NEET Phase-I - 2016]
(1) $\{2 + (n - 1)\}\rho$ (2) $\{1 + (n - 1)p\}\rho$
(3) $\{1 + (n + 1)p\}\rho$ (4) $\{2 + (n + 1)p\}\rho$
- Q.4** A rectangular film of liquid is extended from $(4 \text{ cm} \times 2 \text{ cm})$ to $(5 \text{ cm} \times 4 \text{ cm})$. If the work done is $3 \times 10^{-4} \text{ J}$, the value of the surface tension of the liquid is : [NEET-II 2016]
(1) 0.250 Nm^{-1} (2) 0.125 Nm^{-1}
(3) 0.2 Nm^{-1} (4) 8.0 Nm^{-1}
- Q.5** Three liquids of densities ρ_1 , ρ_2 and ρ_3 (with $\rho_1 > \rho_2 > \rho_3$), having the same value of surface tension T , rise to the same height in three identical capillaries. The angles of contact θ_1 , θ_2 and θ_3 obey. [NEET-II 2016]

- (1) $\frac{\pi}{2} > \theta_1 > \theta_2 > \theta_3 \geq 0$ (2) $0 \leq \theta_1 < \theta_2 < \theta_3 < \frac{\pi}{2}$
 (3) $\frac{\pi}{2} < \theta_1 > \theta_2 > \theta_3 < \pi$ (4) $\pi < \theta_1 > \theta_2 > \theta_3 < \frac{\pi}{2}$

Q.6 A small hole of area of cross-section 2 mm^2 is present near the bottom of a fully filled open tank of height 2 m . Taking $g = 10 \text{ m/s}^2$, the rate of flow of water through the open hole would be nearly : [NEET-2019]

- (1) $12.6 \times 10^{-6} \text{ m}^3/\text{s}$ (2) $8.9 \times 10^{-6} \text{ m}^3/\text{s}$
 (3) $2.23 \times 10^{-6} \text{ m}^3/\text{s}$ (4) $6.4 \times 10^{-6} \text{ m}^3/\text{s}$

Q.7 A soap bubble, having radius of 1 mm , is blown from a detergent solution having a surface tension of $2.5 \times 10^{-2} \text{ N/m}$. The pressure inside the bubble equals at a point Z_0 below the free surface of water in a container. Taking $g = 10 \text{ m/s}^2$ density of water = 10^3 kg/m^3 , the value of Z_0 is [NEET-2019]

- (1) 100 cm (2) 10 cm (3) 1 cm (4) 0.5 cm

Q.8 A capillary tube of radius r is immersed in water and water rises in it to a height h . The mass of the water in the capillary is 5 g . Another capillary tube of radius $2r$ is immersed in water. The mass of water that will rise in this tube is : [NEET-2020]

- (1) 5.0 g (2) 10.0 g (3) 20.0 g (4) 2.5 g

Q.9 The velocity of a small ball of mass M and density d , when dropped in a container filled with glycerine becomes constant after some time. If the density of glycerine is $d/2$, then the viscous force acting on the ball will be: [NEET-2021]

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

Q.10 If a soap bubble expands, the pressure inside the bubble [NEET-2022]

- (1) increases
 (2) remains the same
 (3) is equal to the atmospheric pressure
 (4) decreases

Q.11 The venturi-meter works on : [NEET-2023]

- (1) Bernoulli's principle
 (2) The principle of parallel axes
 (3) The principle of perpendicular axes
 (4) Huygen's principle

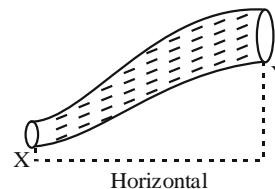
Q.12 The amount of energy required to form a soap bubble of radius 2 cm from a soap solution is nearly: (surface tension of soap solution = 0.03 Nm^{-1}) [NEET-2023]

- (1) $5.06 \times 10^{-4} \text{ J}$ (2) $3.01 \times 10^{-4} \text{ J}$
 (3) $50.1 \times 10^{-4} \text{ J}$ (4) $30.16 \times 10^{-4} \text{ J}$

Q.13 A thin flat circular disc of radius 4.5 cm is placed gently over the surface of water. If surface tension of water is 0.07 N m^{-1} , then the excess force required to take it away from the surface is [NEET-2024]

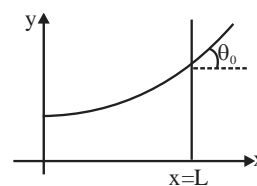
- (1) 99 N (2) 19.8 mN (3) 198 N (4) 1.98 mN

Q.14 An ideal fluid is flowing in a non-uniform cross-sectional tube XY (as shown in the figure) from end X to end Y. If K_1 and K_2 are the kinetic energy per unit volume of the fluid at X and Y respectively, then the correct option is : [Re-NEET 2024]



- (1) $K_1 = K_2$ (2) $2K_1 = K_2$
 (3) $K_1 > K_2$ (4) $K_1 < K_2$

Q.15 Consider a water tank shown in the figure. It has one wall at $x = L$ and can be taken to be very wide in the z direction. When filled with a liquid of surface tension S and density ρ , the liquid surface makes angle θ_0 ($\theta_0 \ll 1$) with the x -axis at $x = L$. If $y(x)$ is the height of the surface then the equation for $y(x)$ is : [NEET-2025]



(take $\theta(x) = \sin \theta(x) = \tan \theta(x) = \frac{dy}{dx}$, g is the acceleration due to gravity)

- (1) $\frac{d^2y}{dx^2} = \frac{\rho g}{S} x$ (2) $\frac{d^2y}{dx^2} = \frac{\rho g}{S} y$
 (3) $\frac{d^2y}{dx^2} = \sqrt{\frac{\rho g}{S}}$ (4) $\frac{dy}{dx} = \sqrt{\frac{\rho g}{S} x}$

Thermal Properties of Matter

Q.1 The value of coefficient volume expansion of glycerin is $5 \times 10^{-4} \text{ K}^{-1}$. The fractional change in the density of glycerin for a rise of 40°C in its temperature, is [AIPMT - 2015]

- (1) 0.025 (2) 0.010
 (3) 0.015 (4) 0.020

Q.2 A piece of ice falls from a height h so that it melts completely. Only one-quarter of the heat produced is absorbed by the ice and all energy of ice gets converted into heat during its fall. The value of h is [Latent heat of ice is $3.4 \times 10^5 \text{ J/kg}$ and $g = 10 \text{ N/kg}$]

[NEET Phase I - 2016]

- (1) 136 km (2) 68 km
 (3) 34 km (4) 544 km

Q.3 A black body is at a temperature of 5760 K. The energy of radiation emitted by the body at wavelength 250 nm is U_1 , at wavelength 500 nm is U_2 and that at 1000 nm is U_3 , Wien's constant, $b = 2.88 \times 10^6$ nmK. Which of the following is correct? [NEET Phase I - 2016]
 (1) $U_1 > U_2$ (2) $U_2 > U_1$ (3) $U_1 = 0$ (4) $U_3 = 0$

Q.4 A refrigerator works between 4°C and 30°C . It is required to remove 600 calories of heat every second in order to keep the temperature of the refrigerated space constant. The power required is [NEET Phase I - 2016]
 (1) 236.5 W (2) 236.5 W (3) 2.365 W (4) 23.65 W

Q.5 The molecules of a given mass of a gas have r.m.s. velocity of 200 m s^{-1} at 27°C and $1.0 \times 10^5 \text{ N m}^{-2}$ pressure. When the temperature and pressure of the gas are respectively, 127°C and $0.05 \times 10^5 \text{ N m}^{-2}$, the r.m.s. velocity of its molecules in m s^{-1} is [NEET Phase I - 2016]

- (1) $\frac{100\sqrt{2}}{3}$ (2) $\frac{100}{3}$ (3) $100\sqrt{2}$ (4) $\frac{400}{\sqrt{3}}$

Q.6 A gas is compressed isothermally to half its initial volume. The same gas is compressed separately through an adiabatic process until its volume is again reduced to half. Then [NEET Phase I - 2016]
 (1) Compressing the gas isothermally or adiabatically will require the same amount of work.
 (2) Which of the case (whether compression through isothermal or through adiabatic process) requires more work will depend upon the atomicity of the gas.
 (3) Compressing the gas isothermally will require more work to be done.
 (4) Compressing the gas through adiabatic process will require more work to be done.

Q.7 Two identical bodies are made of a material for which the heat capacity increases with temperature. One of these is at 100°C , while the other one is at 0°C . If the two bodies are brought into contact, then, assuming no heat loss, the final common temperature is [NEET Phase II - 2016]
 (1) 50°C
 (2) more than 50°C
 (3) less than 50°C but greater than 0°C
 (4) 0°C

Q.8 A body cools from a temperature $3T$ to $2T$ in 10 min. The room temperature is T . Assume that Newton's law of cooling is applicable. The temperature of the body at the end of next 10 min. will be: [NEET Phase II-2016]
 (1) $\frac{7}{4}T$ (2) $\frac{3}{2}T$ (3) $\frac{4}{3}T$ (4) T

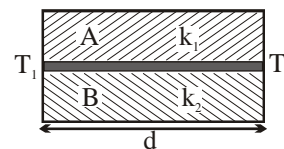
Q.9 One mole of an ideal monatomic gas undergoes a process described by the equation $PV^3 = \text{constant}$. The heat capacity of the gas during this process is : [NEET Phase II-2016]
 (1) $\frac{3}{2}R$ (2) $\frac{5}{2}R$ (3) $2R$ (4) R

Q.10 The temperature inside a refrigerator is $t_2^\circ\text{C}$ and room temperature is $t_1^\circ\text{C}$. The amount of heat delivered to the room for each joule of electrical energy consumed ideally will be : [NEET Phase II-2016]
 (1) $\frac{t_1}{t_1 - t_2}$ (2) $\frac{t_1 + 273}{t_1 - t_2}$

- (3) $\frac{t_2 + 273}{t_1 - t_2}$ (4) $\frac{t_1 + t_2}{t_1 + 273}$

Q.11 A given sample of an ideal gas occupies a volume V at a pressure P and absolute temperature T . The mass of each molecule of the gas is m . Which of the following gives the density of the gas? [NEET Phase II-2016]
 (1) $P/(KT)$ (2) $Pm/(KT)$
 (3) $P/(KTV)$ (4) mKT

Q.12 Two rods A and B of different materials are welded together as shown in figure. Their thermal conductivities are K_1 and K_2 . The thermal conductivity of the composite rod will be : [NEET-2017]

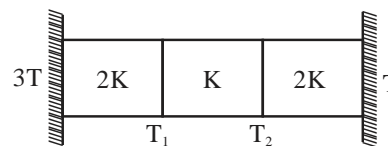


- (1) $\frac{3(K_1 + K_2)}{2}$ (2) $K_1 + K_2$
 (3) $2(K_1 + K_2)$ (4) $\frac{K_1 + K_2}{2}$

Q.13 A spherical black body with a radius of 12 cm radiates 450 watt power at 500 K. If the radius were halved and the temperature doubled, the power radiated in watt would be : [NEET-2017]
 (1) 450 (2) 1000
 (3) 1800 (4) 225

Q.14 A Carnot engine having an efficiency of $\frac{1}{10}$ as heat engine, is used as a refrigerator. If the work done on the system is 10 J, the amount of energy absorbed from the reservoir at lower temperature is : [NEET-2017]
 (1) 90 J (2) 99 J
 (3) 100 J (4) 1 J

- Q.15** A gas mixture consists of 2 moles of O_2 and 4 moles of Ar at temperature T. Neglecting all vibrational modes, the total internal energy of the system is : [NEET-2017]
 (1) 15 RT (2) 9 RT
 (3) 11 RT (4) 4 RT
- Q.16** At what temperature will the rms speed of wx gen molecule become just sufficient for escaping from the Earth's atmosphere? (Given : Mass of oxygen molecule (m) = 2.76×10^{-26} kg; Boltzmann's constant $k_B = 1.38 \times 10^{-23}$ JK $^{-1}$) [NEET-2018]
 (1) 5.016×10^4 K
 (2) 8.360×10^4 K
 (3) 2.508×10^4 K
 (4) 1.254×10^4 K
- Q.17** The power radiated by a black body is P and it radiates maximum energy at wavelength, λ_0 . If the temperature of the black body is now changed so that it radiates maximum energy at wavelength $\frac{3}{4}\lambda_0$, the power radiated by it becomes nP. The value of n is [NEET-2018]
 (1) $\frac{256}{81}$ (2) $\frac{4}{3}$ (3) $\frac{3}{4}$ (4) $\frac{81}{256}$
- Q.18** In which of the following processes, heat is neither absorbed nor released by a system ? [NEET-2019]
 (1) isothermal (2) adiabatic
 (3) isobaric (4) isochoric
- Q.19** A copper rod of 88 cm and an aluminum rod of unknown length have their increase in length independent of increase in temperature. The length of aluminum rod is: ($\alpha_{Cu} = 1.7 \times 10^{-5}$ K $^{-1}$ and $\alpha_{Al} = 2.2 \times 10^{-5}$ K $^{-1}$) [NEET-2019]
 (1) 6.8 cm (2) 113.9 cm
 (3) 88 cm (4) 68 cm
- Q.20** The quantities of heat required to raise the temperature of two solid copper spheres of radii r_1 and r_2 ($r_1 = 1.5 r_2$) through 1 K are in the ratio : [NEET-2020]
 (1) $\frac{9}{4}$ (2) $\frac{3}{2}$ (3) $\frac{5}{3}$ (4) $\frac{27}{8}$
- Q.21** A cup of coffee cools from 90°C to 80°C in t minutes, when the room temperature is 20°C. The time taken by a similar cup of coffee to cool from 80°C to 60°C at a room temperature same at 20°C is [NEET-2021]
 (1) $\frac{13}{5}t$ (2) $\frac{10}{13}t$ (3) $\frac{5}{13}t$ (4) $\frac{13}{10}t$
- Q.22** A metallic bar of Young's modulus, 0.5×10^{11} N m $^{-2}$ and coefficient of linear thermal expansion 10^{-5} °C $^{-1}$, length 1 m and area of cross-section 10^{-3} m 2 is heated from 0°C to 100°C without expansion or bending. The compressive force developed in it is : [NEET-2024]
 (1) 2×10^3 N (2) 5×10^3 N
 (3) 50×10^3 N (4) 100×10^3 N
- Q.23** Given below are two statements: One is labelled as **Assertion A** and the other is labelled as **Reason R**. **Assertion (A)**: Houses made of concrete roofs overlaid with foam keep the room hotter during summer. **Reason (R)** : The layer of foam insulation prohibits heat transfer, as it contains air pockets. In the light of the above statements, choose the correct answer from the options given below. [Re-NEET 2024]
 (1) **A** is true but **R** is false.
 (2) **A** is false but **R** is true.
 (3) Both **A** and **R** are true and **R** is the correct explanation of **A**.
 (4) Both **A** and **R** true but **R** is NOT the correct explanation of **A**.
- Q.24** Three identical heat conducting rods are connected in series as shown in the figure. The rods on the sides have thermal conductivity 2K while that in the middle has thermal conductivity K. The left end of the combination is maintained at temperature 3T and the right end at T. The rods are thermally insulated from outside. In steady state, temperature at the left junction is T_1 and that at the right junction is T_2 . The ratio T_1/T_2 is [NEET-2025]



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

Thermodynamics

Q.1 Two vessels separately contain two ideal gases A and B at the same temperature, the pressure of A being twice that of B. Under such conditions, the density of A is found to be 1.5 times the density of B. The ratio of molecular weight of A and B is [NEET - 2015]

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

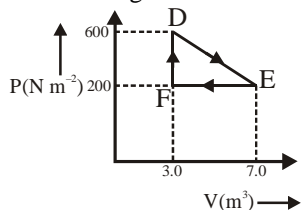
Q.2 The coefficient of performance of a refrigerator is 5. If the temperature inside freezer is -20°C , the temperature of the surroundings to which it rejects heat is [NEET - 2015]

- (1) 11°C (2) 21°C
(3) 31°C (4) 41°C

Q.3 An ideal gas is compressed to half its initial volume by means of several processes. Which of the process results in the maximum work done on the gas? [NEET - 2015]

- (1) Isochoric (2) Isothermal
(3) Adiabatic (4) Isobaric

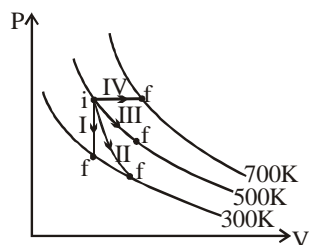
Q.4 A thermodynamic process is carried out from an original state D to an intermediate state E by the linear process shown in figure. [NEET - 2015]



The total work done by the gas from D to E to F is

- (1) 100 J (2) 800 J
(3) 300 J (4) 250 J

Q.5 Thermodynamics processes are indicated in the following diagram. [NEET 2017]



Match the following

Column I

P. Process I

Q. Process II

R. Process III

S. Process IV

Column -2

A. Adiabatic

B. Isobaric

C. Isochoric

D. Isothermal

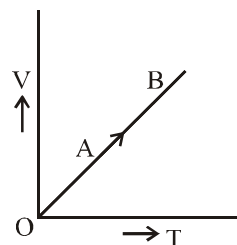
(1) $P \rightarrow C, Q \rightarrow A, R \rightarrow D, S \rightarrow B$

(2) $P \rightarrow C, Q \rightarrow D, R \rightarrow B, S \rightarrow A$

(3) $P \rightarrow D, Q \rightarrow B, R \rightarrow A, S \rightarrow C$

(4) $P \rightarrow A, Q \rightarrow C, R \rightarrow D, S \rightarrow B$

Q.6 The volume (V) of a monatomic gas varies with its temperature (T), as shown in the graph. The ratio of work done by the gas, to the heat absorbed by it, when it undergoes a change from state A to state B, is [NEET-2018]



- (1) $\frac{1}{3}$ (2) $\frac{2}{3}$ (3) $\frac{2}{5}$ (4) $\frac{2}{7}$

Q.7 The efficiency of an ideal heat engine working between the freezing point and boiling point of water, is [NEET-2018]

- (1) 6.25% (2) 20%
(3) 26.8% (4) 12.5%

Q.8 A sample of 0.1 g of water at 100°C and normal pressure ($1.013 \times 10^5 \text{ Nm}^{-2}$) requires 54 cal of heat energy to convert to steam at 100°C . If the volume of the steam produced is 167.1 cc, the change in internal energy of the sample, is [NEET-2018]

- (1) 42.2 J (2) 208.7 J
(3) 104.3 J (4) 84.5 J

Q.9 Two cylinders A and B of equal capacity are connected to each other via a stop cock. A contains an ideal gas at standard temperature and pressure. B is completely evacuated. The entire system is thermally insulated. The stop cock is suddenly opened. The process is : [NEET-2020]

- (1) adiabatic (2) isochoric
(3) isobaric (4) isothermal

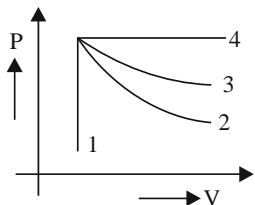
Q.10 A cylinder contains hydrogen gas at pressure of 249 kPa and temperature 27°C .

Its density is : ($R = 8.3 \text{ J mol}^{-1} \text{ K}^{-1}$)

- (1) 0.2 kg/m^3 (2) 0.1 kg/m^3
(3) 0.02 kg/m^3 (4) 0.5 kg/m^3

[NEET-2020]

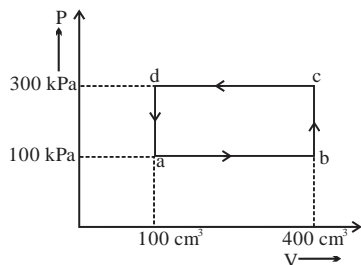
- Q.11** An ideal gas undergoes four different processes from the same initial state as shown in the figure below. Those processes are adiabatic, isothermal, isobaric and isochoric, The curve which represents the adiabatic process among 1,2,3 and 4 is : [NEET-2022]



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

- Q.12** A Carnot engine has an efficiency of 50% when its source is at a temperature 327°C . The temperature of the sink is :- [NEET-2023]
(1) 15°C (2) 100°C (3) 200°C (4) 27°C

- Q.13** A thermodynamic system is taken through the cycle abcd. The work done by the gas along the path bc is: [NEET-2024]



- (1) -60 J (2) Zero (3) 30 J (4) -90 J

- Q.14** The equilibrium state of a thermodynamic system is described by

A. Pressure B. Total heat
C. Temperature D. Volume E. Work done

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

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

- Q.15** Two gases A and B are filled at the same pressure in separate cylinders with movable pistons of radius r_A and r_B , respectively. On supplying an equal amount of heat to both the systems reversibly under constant pressure, the pistons of gas A and B are displaced by 16 cm and 9 cm, respectively. If the change in their

internal energy is the same, then the ratio $\frac{r_A}{r_B}$ is equal to [NEET-2025]

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

Kinetic Theory of Gases

- Q.1** Increase in temperature of a gas filled in a container would lead to : [NEET-2019]

- (1) increase in its mass
(2) increase in its kinetic energy
(3) decrease in its pressure
(4) decrease in intermolecular distance

- Q.2** The average thermal energy for a mono-atomic gas is:

(k_B is Boltzmann constant and T , absolute temperature) [NEET-2020]

(1) $\frac{3}{2}k_B T$ (2) $\frac{5}{2}k_B T$

(3) $\frac{7}{2}k_B T$ (4) $\frac{1}{2}k_B T$

- Q.3** The mean free path for a gas, with molecular diameter d and number density n can be expressed as : [NEET-2020]

(1) $\frac{1}{\sqrt{2}n\pi d^2}$ (2) $\frac{1}{\sqrt{2}n^2\pi d^2}$

(3) $\frac{1}{\sqrt{2}n^2\pi^2 d^2}$ (4) $\frac{1}{\sqrt{2}n\pi d}$

- Q.4** Match Column-I and Column-II and choose the correct match from the given choices.

[NEET-2021]

Column-I	Column-II
(A) Root mean square	(P) $\frac{1}{3}n\bar{v}^2$
(B) Pressure exerted by ideal gas	(Q) $\sqrt{\frac{3RT}{M}}$
(C) Average kinetic energy of a molecule	(R) $\frac{5}{2}RT$
(D) Total internal energy of 1 mole of a diatomic gas	(S) $\frac{3}{2}k_B T$

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

- Q.5** The temperature of a gas is -50°C . To what temperature the gas should be heated so that the rms speed is increased by 3 times ? [NEET-2023]

- (1) 3295°C (2) 3097 K
(3) 223 K (4) 669°C

Q.6 According to the law of equipartition of energy, the number of vibrational modes of a polyatomic gas of constant $\gamma \frac{C_p}{C_v}$ is (C_p where C_v are the specific heat capacities of the gas at constant pressure and constant volume, C respectively): **[Re-NEET 2024]**

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

Q.7 An oxygen cylinder of volume 30 litre has 18.20 moles of oxygen. After some oxygen is withdrawn from the cylinder, its gauge pressure drops to 11 atmospheric pressure at temperature 27°C. The mass of the oxygen withdrawn from the cylinder is nearly equal to : [Given, $R = \frac{100}{12} \text{ J mol}^{-1} \text{ K}^{-1}$, and molecular mass of $\text{O}_2 = 32$, 1 atm pressure = $1.01 \times 10^5 \text{ N/m}^2$] **[NEET-2025]**

- (1) 0.125 kg (2) 0.144 kg
 (3) 0.116 kg (4) 0.156 kg

Q.8 A container has two chambers of volumes $V_1 = 2$ litres and $V_2 = 3$ litres separated by a partition made of a thermal insulator. The chambers contains $n_1 = 5$ and $n_2 = 4$ moles of ideal gas at pressures $p_1 = 1$ atm and $p_2 = 2$ atm, respectively. When the partition is removed, the mixture attains an equilibrium pressure of : **[NEET-2025]**

- (1) 1.3 atm (2) 1.6 atm
 (3) 1.4 atm (4) 1.8 atm

Oscillations

Q.1 A body of mass m is attached to the lower end of a spring whose upper end is fixed. The spring has negligible mass. When the mass m is slightly pulled down and released, it oscillates with a time period of 3s. When the mass m is increased by 1 kg, the time period of oscillations becomes 5s. The value of m in kg is : **[NEET Phase II-2016]**

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

Q.2 A spring of force constant k is cut into lengths of ratio 1 : 2 : 3. They are connected in series and the new force constant is k' . Then they are connected in parallel and force constant is k'' . Then $k' : k''$ is **[NEET-2017]**

- (1) 1 : 9 (2) 1 : 11
 (3) 1 : 14 (4) 1 : 6

Q.3 A particle executes linear simple harmonic motion with an amplitude of 3 cm. When the particle is at 2 cm from the mean position, the magnitude of its velocity is equal to that of its acceleration. Then its time period in seconds is : **[NEET-2017]**

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

Q.4 A pendulum is hung from the roof of a sufficiently high building and is moving freely to and fro like a simple harmonic oscillator. The acceleration of the bob of the pendulum is 20 m/s^2 at a distance of 5 m from the mean position. The time period of oscillation is **[NEET-2018]**

- (1) 2 s (2) π s (3) 2π s (4) 1 s

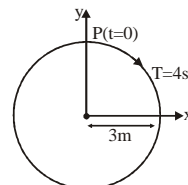
Q.5 The displacement of a particle executing simple harmonic motion is given by $y = A_0 + A \sin \omega t + B \cos \omega t$. Then the amplitude of its oscillation is given by : **[NEET-2019]**

- (1) $A_0 + \sqrt{A^2 + B^2}$ (2) $\sqrt{A^2 + B^2}$
 (3) $\sqrt{A_0^2 + (A+B)^2}$ (4) $A + B$

Q.6 Average velocity of a particle executing SHM in one complete vibration is : **[NEET-2019]**

- (1) $\frac{A\omega}{2}$ (2) $A\omega$ (3) $\frac{A\omega^2}{2}$ (4) Zero

Q.7 The radius of circle, the period of revolution, initial position and sense of revolution are indicated in the :



y-projection of the radius vector of rotating particle P is : **[NEET-2019]**

- (1) $y(t) = -3 \cos 2\pi t$, where y in m
 (2) $y(t) = 4 \sin\left(\frac{\pi t}{2}\right)$, where y in m
 (3) $y(t) = 3 \cos\left(\frac{3\pi t}{2}\right)$, where y in m
 (4) $y(t) = 3 \cos\left(\frac{\pi t}{2}\right)$, where y in m

Q.8 The phase difference between displacement and acceleration of a particle in a simple harmonic motion is : **[NEET-2020]**

- (1) $\frac{3\pi}{2}$ rad (2) $\frac{\pi}{2}$ rad (3) zero (4) π rad

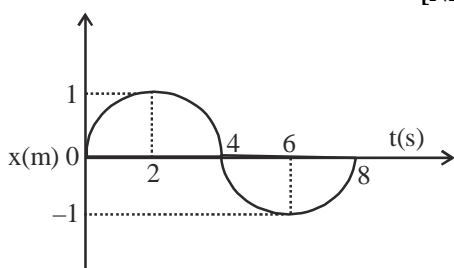
Q.9 A body is executing simple harmonic motion with frequency 'n', the frequency of its potential energy is :
[NEET-2021]

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

Q.10 A spring is stretched by 5 cm by a force 10 N. The time period of the oscillations when a mass of 2 kg is suspended by it is :
[NEET-2021]

- (1) 6.25 s (2) 3.14 s
(3) 0.628 s (4) 0.0628 s

Q.11 The x - t graph of a particle performing simple harmonic motion is shown in the figure. The acceleration of the particle at t = 2 s is :
[NEET-2023]



- (1) $-\frac{\pi^2}{8} \text{ms}^{-2}$ (2) $\frac{\pi^2}{16} \text{ms}^{-2}$
(3) $-\frac{\pi^2}{16} \text{ms}^{-2}$ (4) $\frac{\pi^2}{8} \text{ms}^{-2}$

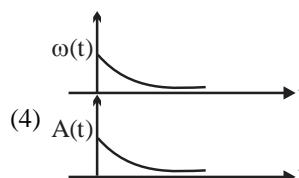
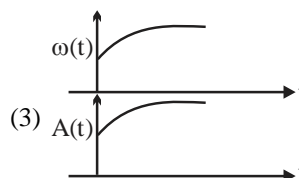
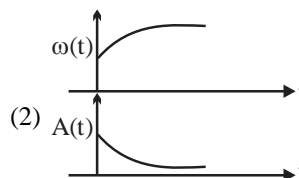
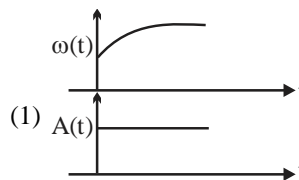
Q.12 If $x = 5 \sin\left(\pi t + \frac{\pi}{3}\right) \text{m}$ represents the motion of a particle executing simple harmonic motion, the amplitude and time period of motion, respectively, are
[NEET-2024]

- (1) 5 m, 1 s (2) 5 cm, 2 s
(3) 5 m, 2 s (4) 5 cm, 1 s

Q.13 If the mass of the bob in a simple pendulum is increased to thrice its original mass and its length is made half its original length, then the new time period of oscillation is $\frac{x}{2}$ times its original time period. Then the value of x is:
[NEET-2024]

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

Q.14 In an oscillating spring mass system, a spring is connected to a box filled with sand. As the box oscillates, sand leaks slowly out of the box vertically so that the average frequency $\omega(t)$ and average amplitude $A(t)$ of the system change with time t. Which one of the following options schematically depicts these changes correctly?
[NEET-2025]



Q.15 Two identical point masses P and Q, suspended from two separate massless springs of spring constants k_1 and k_2 , respectively, oscillate vertically. If their maximum speeds are the same, the ratio (A_Q/A_P) of the amplitude A_Q of mass Q to the amplitude A_P of mass P is :
[NEET-2025]

- (1) $\frac{k_2}{k_1}$ (2) $\frac{k_1}{k_2}$ (3) $\sqrt{\frac{k_2}{k_1}}$ (4) $\sqrt{\frac{k_1}{k_2}}$

Waves

STRING WAVE

Q.1 L and mass m_1 hangs vertically from a rigid support. A block of mass m_2 is attached to the free end of the rope. A transverse pulse of wavelength λ_1 is produced at the lower end of the rope. The wavelength of the pulse when it reaches the top of the rope is λ_2 . The ratio λ_2/λ_1 is
[NEET Phase I - 2016]

(1) $\sqrt{\frac{m_2}{m_1}}$ (2) $\sqrt{\frac{m_1 + m_2}{m_1}}$

(3) $\sqrt{\frac{m_1}{m_2}}$ (4) $\sqrt{\frac{m_1 + m_2}{m_2}}$

SOUND WAVE

- Q.2** An air column, closed at one end and open at the other, resonates with a tuning fork when the smallest length of the column is 50 cm. The next larger length of the column resonating with the same tuning fork is
[NEET Phase I- 2016]
(1) 150 cm (2) 200 cm
(3) 66.7 cm (4) 100 cm
- Q.3** The second overtone of an open organ pipe has the same frequency as the first overtone of closed pipe L metre long. The length of the open pipe will be :
[NEET Phase-II 2016]
(1) L (2) 2L (3) $\frac{L}{2}$ (4) 4L
- Q.4** Three sound waves of equal amplitudes have frequencies $(n - 1)$, n , $(n + 1)$. They superimpose to give beats. The number of beats produced per second will be :
[NEET Phase II 2016]
(1) 1 (2) 4 (3) 3 (4) 2
- Q.5** The two nearest harmonics of a tube closed at one end and open at other end are 220 Hz and 260 Hz. What is the fundamental frequency of the system ?
[NEET- 2017]
(1) 20 Hz (2) 30 Hz (3) 40 Hz (4) 10 Hz
- Q.6** The fundamental frequency in an open organ pipe is equal to the third harmonic of a closed organ pipe. If the length of the closed organ pipe is 20 cm, the length of the open organ pipe is
[NEET-2018]
(1) 12.5 cm (2) 8 cm
(3) 13.2 cm (4) 16 cm
- Q.7** A tuning fork is used to produce resonance in a glass tube. The length of the air column in this tube can be adjusted by a variable piston. At room temperature of 27°C two successive resonances are produced at 20cm and 73 cm of column length. If the frequency of the tuning fork is 320Hz, the velocity of sound in air at 27°C is
[NEET-2018]
(1) 350m/s (2) 339 m/s
(3) 330 m/s (4) 300 m/s
- Q.8** Two pendulums of length 121 cm and 100 cm start vibrating in phase. At some instant, the two are at their mean position in the same phase. The minimum number of vibrations of the shorter pendulum after which the two are again in phase at the mean position is
[NEET-2022]
(1) 9 (2) 10
(3) 8 (4) 11
- Q.9** The ratio of frequencies of fundamental harmonic produced by an open pipe to that of closed pipe having the same length is :
[NEET-2023]
(1) 2 : 1 (2) 1 : 3
(3) 3 : 1 (4) 1 : 2
- Q.10** A pipe open at both ends has a fundamental frequency f in air. The pipe is now dipped vertically in a water drum to half of its length. The fundamental frequency of the air column is now equal to :
[NEET-2025]
(1) $\frac{f}{2}$ (2) f
(3) $\frac{3f}{2}$ (4) $2f$

ANSWER KEY

Units and Measurement

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

Motion in Straight line

Q.1 (1)	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 (4)
Q.11 (2)	Q.12 (2)	Q.13 (4)	Q.14 (4)	Q.15 (2)	Q.16 (4)				

Motion in a Plane

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

Laws of Motion

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

Work, Energy and Power

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

Systems of Particles and Rotational Motion

Q.1 (3)	Q.2 (4)	Q.3 (3)	Q.4 (3)	Q.5 (2)	Q.6 (1)	Q.7 (Bonus)	Q.8 (2)	Q.9 (2)	Q.10 (1)
Q.11 (2)	Q.12 (1)	Q.13 (3)	Q.14 (4)	Q.15 (1)	Q.16 (3)	Q.17 (2)	Q.18 (3)	Q.19 (3)	Q.20 (3)
Q.21 (2)	Q.22 (1)	Q.23 (4)	Q.24 (2)	Q.25 (1)	Q.26 (3)	Q.27 (2)	Q.28 (4)	Q.29 (4)	Q.30 (1)
Q.31 (2)	Q.32 (4)	Q.33 (3)	Q.34 (1)	Q.35 (1)	Q.36 (3)	Q.37 (Bonus)	Q.38 (2)	Q.39 (3)	Q.40 (4)
Q.41 (1)	Q.42 (2)	Q.43 (3)							

Gravitation

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

Mechanical Properties of Solids

Q.1 (4)	Q.2 (3)	Q.3 (3)	Q.4 (3)	Q.5 (2)	Q.6 (2)	Q.7 (1)	Q.8 (2)
---------	---------	---------	---------	---------	---------	---------	---------

Mechanical Properties of Fluids

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

Thermal Properties of Matter

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

Thermodynamics

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

Kinetic Theory of Gases

Q.1 (2) **Q.2** (1) **Q.3** (1) **Q.4** (2) **Q.5** (1) **Q.6** (3) **Q.7** (3) **Q.8** (2)

Oscillations

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

Waves

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

Some Basic Concepts of Chemistry

- Q.1** If Avogadro number N_A , is changed from $6.022 \times 10^{23} \text{ mol}^{-1}$ to $6.022 \times 10^{20} \text{ mol}^{-1}$, this would change [AIPMT-2015]
- (1) the mass of one mole of carbon
 - (2) the ratio of chemical species to each other in a balanced equation
 - (3) the ratio of elements to each other in a compound
 - (4) the definition of mass in units of grams.
- Q.2** The number of water molecules is maximum in [AIPMT-2015]
- (1) 1.8 gram of water
 - (2) 18 gram of water
 - (3) 18 moles of water
 - (4) 18 molecules of water
- Q.3** What is the mass of the precipitate formed when 50 mL of 16.9% solution of AgNO_3 is mixed with 50 mL of 5.8 % NaCl solution ? [AIPMT-2015]
- (1) 3.5 g
 - (2) 7 g
 - (3) 14 g
 - (4) 28 g
- Q.4** Suppose the elements X and Y combine to form two compounds XY_2 and X_3Y_2 . When 0.1 mole of XY_2 weighs 10g and 0.05 moles of X_3Y_2 weighs 9g, the atomic weights of X and Y are [NEET Phase II-2016]
- (1) 40, 30
 - (2) 60, 40
 - (3) 20, 30
 - (4) 30, 20
- Q.5** A mixture of 2.3 g formic acid and 4.5 g oxalic acid is treated with conc. H_2SO_4 . The evolved gaseous mixture is passed through KOH pellets. Weight (in g) of the remaining product at STP will be [NEET - 2018]
- (1) 2.8
 - (2) 3.0
 - (3) 1.4
 - (4) 4.4
- Q.6** In which case is number of molecules of water maximum? [NEET - 2018]
- (1) 0.00224 L of water vapours at 1 atm and 273 K.
 - (2) 0.18 g of water
 - (3) 18 mL of water
 - (4) 10^{-3} mol of water
- Q.7** The number of moles of hydrogen molecules required to produce 20 moles of ammonia through Haber's process is :- [NEET-2019]
- (1) 10
 - (2) 20
 - (3) 30
 - (4) 40
- Q.8** Which one of the following has maximum number of atoms ? [NEET-2020]
- (1) 1 g of Mg(s) [Atomic mass of $\text{Mg} = 24$]
 - (2) 1 g of $\text{O}_2(\text{g})$ [Atomic mass of $\text{O} = 16$]
 - (3) 1 g of Li(s) [Atomic mass of $\text{Li} = 7$]
 - (4) 1 g of Ag(s) [Atomic mass of $\text{Ag} = 108$]
- Q.9** What mass of 95% pure CaCO_3 will be required to neutralise 50 mL of 0.5 M HCl solution according to the following reaction ? [NEET-2022]
- $$\text{CaCO}_{3(\text{s})} + 2\text{HCl}_{(\text{aq})} \rightarrow \text{CaCl}_{2(\text{aq})} + \text{CO}_{2(\text{g})} + \text{H}_2\text{O}(\ell)$$
- [Calculate upto second place of decimal point]
- (1) 1.32 g
 - (2) 3.65 g
 - (3) 9.50 g
 - (4) 1.25 g
- Q.10** The **right** options for the mass of CO_2 produced by heating 20 g of 20 % pure limestone is (Atomic mass of $\text{Ca} = 40$) [NEET-2023]
- $$[\text{CaCO}_3 \xrightarrow{1200\text{K}} \text{CaO} + \text{CO}_2]$$
- (1) 1.76 g
 - (2) 2.64 g
 - (3) 1.32 g
 - (4) 1.12 g
- Q.11** A compound X contains 32% of A, 20% of B and remaining percentage of C. Then, the empirical formula of X is : (Given atomic masses of $\text{A} = 64$; $\text{B} = 40$; $\text{C} = 32$ u) [NEET-2024]
- (1) ABC_4
 - (2) A_2BC_2
 - (3) ABC_3
 - (4) AB_2C_2
- Q.12** The highest number of helium atoms is in [NEET-2024]
- (1) 2.271098 L of helium at STP
 - (2) 4 mol of helium
 - (3) 4 u of helium
 - (4) 4 g of helium
- Q.13** 1 gram of sodium hydroxide was treated with 25 mL of 0. M HCl solution, the mass of sodium hydroxide left unreacted is equal to [NEET-2024]
- (1) 200 mg
 - (2) 750 mg
 - (3) 250 mg
 - (4) Zero
- Q.14** 1.0 g of H_2 has same number of molecules as in : [Re-NEET-2024]
- (1) 14 g of N_2
 - (2) 18 g of H_2O
 - (3) 16 g of CO
 - (4) 28 g of N_2
- Q.15** On complete combustion, 0.3 g of an organic compound gave 0.2 g of CO_2 and 0.1 g of H_2O . The percentage composition of carbon and hydrogen in the compound, respectively is : [Re-NEET-2024]
- (1) 4.07 % and 15.02 %
 - (2) 18.18 % and 3.70 %
 - (3) 15.02% and 4.07%
 - (4) 3.70 and 18.18%
- Q.16** Among the following choose the ones with equal number of atoms. [NEET-2025]
- A. 212 g of $\text{Na}_2\text{CO}_3(\text{s})$ [molar mass = 106 g]
 - B. 248 g of $\text{Na}_2\text{O}(\text{s})$ (molar mass = 62 g)
 - C. 240 g of $\text{NaOH}(\text{s})$ [molar mass = 40 g]
 - D. 12 g of $\text{H}_2(\text{g})$ [molar mass = 2 g]
 - E. 220 g of $\text{CO}_2(\text{g})$ [molar mass = 44 g]
- Choose the correct answer from the options given below:
- (1) A, B and C only
 - (2) A, B and D only
 - (3) B, C and D only
 - (4) B, D and E only

Structure of Atom

Q.1 Which is the correct order of increasing energy of the listed orbitals in the atom of titanium?

[Atomic No. $Z = 22$] [AIPMT 2015]

- (1) $4s\ 3s\ 3p\ 3d$ (2) $3s\ 3p\ 3d\ 4s$
 (3) $3s\ 3p\ 4s\ 3d$ (4) $3s\ 4s\ 3p\ 3d$

Q.2 According to law of photochemical equivalence the energy absorbed (in ergs /mole) is given as

($h = 6.62 \times 10^{-27}$ ergs, $c = 3 \times 10^{10}$ cm s^{-1} , $N_A = 6.02 \times 10^{23}$) [NEET-2016]

- (1) $\frac{1.196 \times 10^8}{\lambda}$ (2) $\frac{2.859 \times 10^5}{\lambda}$
 (3) $\frac{2.859 \times 10^{16}}{\lambda}$ (4) $\frac{1.196 \times 10^{16}}{\lambda}$

Q.3 How many electron can fit in the orbital for which $n = 3$ and $\ell = 1$ [NEET Phase II -2016]

- (1) 2 (2) 6 (3) 10 (4) 14

Q.4 Which of the following pairs of d-orbitals will have electron density along the axes? [NEET Phase II -2016]

- (1) d_{z^2}, d_{xz} (2) d_{xz}, d_{yz} (3) $d_{z^2}, d_{x^2-y^2}$ (4) $d_{xy}, d_{x^2-y^2}$

Q.5 The electronic configuration of Eu (Atomic No. 63), Gd (Atomic No. 64) and Tb (Atomic No. 65) are

[NEET Phase II -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) $[\text{Xe}] 4f^7 5d^1 6s^2$, $[\text{Xe}] 4f^7 5d^1 6s^2$ 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 Two electrons occupying the same orbital are distinguished by : [NEET Phase II -2016]

- (1) azimuthal quantum number
 (2) spin quantum number
 (3) principal quantum number
 (4) magnetic quantum number

Q.7 Which one is the wrong statement? [NEET 2017]

- (1) The uncertainty principle is $\Delta E \times \Delta t \geq \frac{h}{2\pi}$
 (2) Half filled and fully filled orbitals have greater stability due to greater exchange energy, greater symmetry and more balanced arrangement.
 (3) The energy of 2s-orbital is less than the energy of 2p-orbital in case of hydrogen like atoms.
 (4) de-Broglie's wavelength is given by $\lambda = \frac{h}{mv}$, where $m =$ mass of the particle, $v =$ group velocity of the particle.

Q.8 Which one is a wrong statement? [NEET-2018]

(1) The electronic configuration of N atom is



- (2) An orbital is designated by three quantum numbers while an electron in an atom is designated by four quantum numbers
 (3) Total orbital angular momentum of electron in 's' orbital is equal to zero
 (4) The value of m for d_{z^2} is zero

Q.9 4d, 5p, 5f and 6p orbitals are arranged in the order of decreasing energy. The correct option is : [NEET-2019]

- (1) $5f > 6p > 5p > 4d$
 (2) $6p > 5f > 5p > 4d$
 (3) $6p > 5f > 4d > 5p$
 (4) $5f > 6p > 4d > 5p$

Q.10 Which of the following series of transitions in the spectrum of hydrogen atom falls in visible region ? [NEET-2019]

- (1) Lyman series
 (2) Balmer series
 (3) Paschen series
 (4) Brackett series

Q.11 A particular station of All India Radio, New Delhi, broadcasts on a frequency of 1,368 kHz (Kilohertz). The wavelength of the electromagnetic radiation emitted by the transmitter is :

[Speed of light, $c = 3.0 \times 10^8$ ms^{-1}] [NEET-2021]

- (1) 219.2 m (2) 2192 m
 (3) 21.92 cm (4) 219.3 m

Q.12 Identify the incorrect statement from the following [NEET-2022]

- (1) all the five 4d orbitals have shapes similar to the respective 3d orbitals
 (2) in an atom, all the five 3d orbitals are equal in energy in free state
 (3) the shapes of dxy, dyz and dzx orbitals are similar to each other, and $d_{x^2-y^2}$ and d_{z^2} are similar to each other
 (4) all the five 5d orbitals are different in size when compared to the respective 4d orbitals

Q.13 The relation between n_m ($n_m =$ the number of permissible values of magnetic quantum number (m)) for a given value of azimuthal quantum number (ℓ) is [NEET-2023]

- (1) $\ell = 2n_m + 1$ (2) $n_m = 2\ell^2 + 1$
 (3) $n_m = \ell + 2$ (4) $\ell = \frac{n_m - 1}{2}$

Q.14 Select the **correct** Statements from the following :

[NEET-2023]

- A. Atoms of all elements are composed of two fundamental particles.
 B. The mass of the electron is 9.10939×10^{-31} kg.
 C. All the isotopes of a given elements show same chemical properties.
 D. Protons and electrons are collectively known as nucleons.
 E. Dalton's atomic theory, regarded the atom as an ultimate particle of matter.

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

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

Q.15 The energy of an electron in the ground state ($n = 1$) for He^+ ion is $-x$ J, then that for an electron in $n = 2$ state for Be^{3+} ion in J is

[NEET-2024]

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

Q.16 Match List I with List II [NEET-2024]

List I (Quantum Number)	List II (Information provided)
A. m_l	I. Shape of orbital
B. m_s	II. Size of orbital
C. l	III. Orientation of orbital
D. n	IV. Orientation of spin of electron

Choose the correct answer from the options given below :

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

Q.17 The quantum numbers of four electrons are given below:

I. $n = 4; l = 2; m_l = -2; s = -\frac{1}{2}$

II. $n = 3; l = 2; m_l = 1; s = +\frac{1}{2}$

III. $n = 4; l = 1; m_l = 0; s = +\frac{1}{2}$

IV. $n = 3; l = 1; m_l = -1; s = +\frac{1}{2}$

The correct decreasing order of energy of these electrons is:

[Re-NEET 2024]

- (1) IV > II > III > I (2) I > III > II > IV
 (3) III > I > II > IV (4) I > II > III > IV

Q.18 Given below are two statements:

Statement I: The Balmer spectral line for H atom

with lowest energy is located at $\frac{5}{36}R_H \text{cm}^{-1}$.

(R_H = Rydberg constant)

Statement II: When the temperature of blackbody increases, the maxima of the curve (intensity of wavelength) shifts to shorter wavelength.

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.19 The ratio of the wavelengths of the light absorbed by a Hydrogen atom when it undergoes $n = 2 \rightarrow n = 3$ and $n = 4 \rightarrow n = 6$ transitions, respectively, is

[NEET-2025]

- (1) $\frac{1}{36}$ (2) $\frac{1}{16}$
 (3) $\frac{1}{9}$ (4) $\frac{1}{4}$

Q.20 Energy and radius of first Bohr orbit of He^+ and Li^{2+} are [Given $R_H = 2.18 \times 10^{-18}$ J, $a_0 = 52.9$ pm]

[NEET-2025]

- (1) $E_n(\text{Li}^{2+}) = -19.62 \times 10^{-18}$ J;
 $r_n(\text{Li}^{2+}) = 17.6$ pm
 $E_n(\text{He}^+) = -8.72 \times 10^{-18}$ J;
 $r_n(\text{He}^+) = 26.4$ pm
- (2) $E_n(\text{Li}^{2+}) = -8.72 \times 10^{-18}$ J;
 $r_n(\text{Li}^{2+}) = 26.4$ pm
 $E_n(\text{He}^+) = -19.62 \times 10^{-18}$ J;
 $r_n(\text{He}^+) = 17.6$ pm
- (3) $E_n(\text{Li}^{2+}) = -19.62 \times 10^{-16}$ J;
 $r_n(\text{Li}^{2+}) = 17.6$ pm
 $E_n(\text{He}^+) = -8.72 \times 10^{-16}$ J;
 $r_n(\text{He}^+) = 26.4$ pm
- (4) $E_n(\text{Li}^{2+}) = -8.72 \times 10^{-16}$ J;
 $r_n(\text{Li}^{2+}) = 17.6$ pm
 $E_n(\text{He}^+) = -19.62 \times 10^{-16}$ J;
 $r_n(\text{He}^+) = 17.6$ pm

Q.21 Dalton's Atomic theory could not explain which of the following ? [NEET-2025]

- (1) Law of conservation of mass
 (2) Law of constant proportion
 (3) Law of multiple proportion
 (4) Law of gaseous volume

Classification of Elements and Periodicity in Properties

Q.1 In which of the following options the order of arrangement does not agree with the variation of property indicated against it? [NEET I-2016]
 (1) $I < Br < Cl < F$ (increasing electron gain enthalpy)
 (2) $Li < Na < K < Rb$ (increasing metallic radius)
 (3) $Al^{3+} < Mg^{2+} < Na^+ < F^-$ (increasing ionic size)
 (4) $B < C < N < O$ (increasing first ionisation enthalpy)

Q.2 The element $Z = 114$ has been discovered recently. It will belong to which of the following family/group and electronic configuration? [NEET-2017]
 (1) Carbon family, $[Rn] 5f^{14} 6d^{10} 7s^2 7p^2$
 (2) Oxygen family, $[Rn] 5f^{14} 6d^{10} 7s^2 7p^4$
 (3) Nitrogen family, $[Rn] 5f^{14} 6d^{10} 7s^2 7p^6$
 (4) Halogen family, $[Rn] 5f^{14} 6d^{10} 7s^2 7p^5$

Q.3 Which of the following oxides is most acidic in nature? [NEET-2018]
 (1) BaO (2) BeO (3) MgO (4) CaO

Q.4 Identify the incorrect match. [NEET-2020]

Name	IUPAC Official Name
(a) Unnilunium	(i) Mendeleevium
(b) Unniltrium	(ii) Lawrencium
(c) Unnilhexium	(iii) Seaborgium
(d) Unununnium	(iv) Darmstadtium
(1) (b), (ii)	(2) (c), (iii)
(3) (d), (iv)	(4) (a), (i)

Q.5 Match the following : [NEET-2020]

Oxide	Nature
(a) CO	(i) Basic
(b) BaO	(ii) Neutral
(c) Al_2O_3	(iii) Acidic
(d) Cl_2O_7	(iv) Amphoteric

Which of the following is correct option?

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

Q.6 Zr ($Z = 40$) and Hf ($Z = 72$) have similar atomic and ionic radii because of : [NEET-2021]
 (1) diagonal relationship
 (2) lanthanoid contraction
 (3) having similar chemical properties
 (4) belonging to same group

Q.7 The IUPAC name of an element with atomic number 119 is [NEET-2022]
 (1) unnilennium (2) unununnium
 (3) ununoctium (4) ununennium

Q.8 Arrange the following elements in increasing order of first ionization enthalpy: [NEET-2024]
 Li, Be, B, C, N

Choose the correct answer from the options given below:

- (1) $Li < Be < N < B < C$
 (2) $Li < Be < B < C < N$
 (3) $Li < B < Be < C < N$
 (4) $Li < Be < C < B < N$

Q.9 Arrange the following elements in increasing order of electronegativity: [NEET-2024]
 N, O, F, C, Si

Choose the correct answer from the options given below:

- (1) $F < O < N < C < Si$ (2) $Si < C < N < O < F$
 (3) $Si < C < O < N < F$ (4) $O < F < N < C < Si$

Q.10 The correct decreasing order of atomic radii (pm) of Li, Be, B and C is: [Re-NEET 2024]

- (1) $Be > Li > B > C$ (2) $Li > Be > B > C$
 (3) $C > B > Be > Li$ (4) $Li > C > Be > B$

Q.11 Following data is for a reaction between reactants A and B:

Rate $\text{mol L}^{-1}\text{S}^{-1}$	[A]	[B]
2×10^{-3}	0.1 M	0.1 M
4×10^{-3}	0.2 M	0.1 M
1.6×10^{-2}	0.2 M	0.2 M

The order of the reaction with respect to A and B, respectively, are: [Re-NEET 2024]

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

Q.12 Match List-I with List-II :

List-I (Block/group in periodic table)		List-II (Element)	
A.	Lanthanoid	I.	Ce
B.	d-block element	II.	As
C.	p-block element	III.	Cs
D.	s-block element	IV.	Mn

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

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

Q.13 Which of the following statements are true ?

- A. Unlike Ga that has a very high melting point, Cs has a very low melting point [NEET-2025]
 B. On Pauling scale, the electronegativity values of N and Cl are not the same
 C. Ar, K^+ , Cl^- , Ca^{2+} and S^{2-} are all isoelectronic species
 D. the correct order of the first ionization enthalpies of Na, Mg, Al, and Si is $Si > Al > Mg > Na$.

E. the atomic radius of Cs is greater than that of Li and Rb.

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

Q.14 Which among the following electronic configurations belong to main group elements? [NEET-2025]

- A. [Ne]3s¹ B. [Ar]3d³4s²
C. [Kr]4d¹⁰5s²5p⁵ D. [Ar]3d¹⁰4s¹
E. [Rn]5f⁹6d²7s²

Choose the correct answer from the option given below:

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

Chemical Bonding and Molecular Structure

Q.1 In which of the following pairs, both the species are not isostructural? [AIPMT-2015]

- (1) Diamond, Silicon carbide
(2) NH₃, PH₃
(3) XeF₄, XeO₄
(4) SiCl₄, PCl₄⁺

Q.2 Decreasing order of stability of O₂, O₂⁻, O₂⁺ and O₂²⁻ is [AIPMT-2015]

- (1) O₂²⁻ > O₂⁻ > O₂ > O₂⁺ (2) O₂ > O₂⁺ > O₂²⁻ > O₂⁻
(3) O₂⁻ > O₂²⁻ > O₂⁺ > O₂ (4) O₂⁺ > O₂ > O₂⁻ > O₂²⁻

Q.3 Predict the correct order among the following: [NEET I-2016]

- (1) bond pair - bond pair > lone pair - bond pair > lone pair - lone pair
(2) lone pair - bond pair > bond pair - bond pair > lone pair - lone pair
(3) lone pair - lone pair > lone pair - bond pair > bond pair - bond pair
(4) lone pair - lone pair > bond pair - bond pair > lone pair - bond pair

Q.4 Consider the molecules CH₄, NH₃ and H₂O. Which of the given statements is false? [AIPMT-2016]

- (1) The H-O-H bond angle in H₂O is smaller than the H-N-H bond angle in NH₃.
(2) The H-C-H bond angle in CH₄ is larger than the H-N-H bond angle in NH₃.
(3) The H-C-H bond angle in CH₄, the H-N-H bond angle in NH₃, and the H-O-H bond angle in H₂O are all greater than 90°.
(4) The H-O-H bond angle in H₂O is larger than the H-C-H bond angle in CH₄.

Q.5 Which one of the following compounds shows the presence of intermolecular hydrogen bond? [NEET II-2016]

- (1) H₂O₂ (2) HCN
(3) Cellulose (4) Concentrated acetic acid

Q.6 The hybridization of atomic orbitals of nitrogen in NO₂⁺, NO₃⁻ and NH₄⁺ respectively are:

[NEET II-2016]

- (1) sp, sp³ and sp² (2) sp², sp³ and sp
(3) sp, sp² and sp³ (4) sp², sp and sp

Q.7 Which of the following pairs of ions is isoelectronic and isostructural? [NEET II-2016]

- (1) CO₃²⁻, NO₃⁻ (2) ClO₃⁻, CO₃²⁻
(3) SO₃²⁻, NO₃⁻ (4) ClO₃, SO₃²⁻

Q.8 The correct geometry and hybridization for XeF₄ are [NEET II-2016]

- (1) octahedral, sp³d²
(2) trigonal bipyramidal sp³d
(3) planer triangle, sp³d³
(4) square planar, sp³d²

Q.9 Among the following, which one is a wrong statement? [NEET II-2016]

- (1) PH₅ and BiCl₅ do not exist.
(2) pπ-dπ bonds are present in SO₂.
(3) SeF₄ and CH₄ have same shape.
(4) I₃⁺ has bent geometry.

Q.10 Which of the following pairs of compounds is isoelectronic and isostructural? [NEET-2017]

- (1) TeI₂, XeF₂ (2) IBr₂⁻, XeF₂
(3) IF₃, XeF₂ (4) BeCl₂, XeF₂

Q.11 The species, having bond angles of 120° is: [NEET-2017]

- (1) ClF₃ (2) NCl₃ (3) BCl₃ (4) PH₃

Q.12 Which one of the following pairs of species have the same bond order? [NEET-2017]

- (1) O₂, NO⁺ (2) CN⁻, CO
(3) N₂, O₂⁻ (4) CO, NO

Q.13 In the structure of ClF₃, the number of lone pair of electrons on central atom 'Cl' is [NEET-2018]

- (1) Four (2) Two (3) One (4) Three

Q.14 Among CaH₂, BeH₂, BaH₂, the order of ionic character is [NEET-2018]

- (1) BeH₂ < BaH₂ < CaH₂ (2) CaH₂ < BeH₂ < BaH₂
(3) BeH₂ < CaH₂ < BaH₂ (4) BaH₂ < BeH₂ < CaH₂

Q.15 Consider the following species: [NEET-2018]
CN⁺, CN⁻, NO and CN

Which one of these will have the highest bond order?

- (1) CN⁺ (2) CN⁻ (3) NO (4) CN

Q.16 Magnesium reacts with an element (X) to form an ionic compound. If the ground state electronic configuration of (X) is 1s²2s²2p³, the simplest formula for this compound is [NEET-2018]

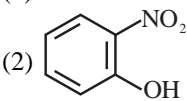
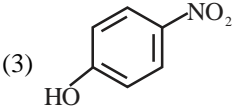
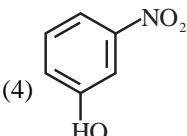
- (1) Mg₂X (2) MgX₂ (3) Mg₂X₃ (4) Mg₃X₂

- Q.17** Which of the following diatomic molecular species has only π bonds according to Molecular Orbital Theory ? [NEET-2019]
 (1) O_2 (2) N_2 (3) C_2 (4) Be_2
- Q.18** Which of the following set of molecules will have zero dipole moment? [NEET-2020]
 (1) Boron trifluoride, hydrogen fluoride, carbon dioxide, 1,3-dichlorobenzene
 (2) Nitrogen trifluoride, beryllium difluoride, water, 1,3-dichlorobenzene
 (3) Boron trifluoride, beryllium difluoride, carbon dioxide, 1,4-dichlorobenzene
 (4) Ammonia, beryllium difluoride, water, 1,4-dichlorobenzene
- Q.19** Identify a molecule which does not exist. [NEET-2020]
 (1) Li_2 (2) C_2 (3) O_2 (4) He_2
- Q.20** Which of the following molecules is non-polar in nature? [NEET-2021]
 (1) CH_2O (2) $SbCl_3$ (3) NO_2 (4) $POCl_3$
- Q.21** BF_3 is planar and electron deficient compound Hybridization and number of electrons around the central atom, respectively are : [NEET-2021]
 (1) sp^3 and 6 (2) sp^2 and 6
 (3) sp^2 and 8 (4) sp^3 and 4
- Q.22** Match List-I and List-II [NEET-2021]

List-I	List-II
(a) PCl_5	(i) Square pyramidal
(b) SF_6	(ii) Trigonal planar
(c) BrF_5	(iii) Octahedral
(d) BF_3	(iv) Trigonal bipyramidal

 Choose the correct answer from the options given below:-
 (1) (a) - (ii), (b) - (iii), (c) - (iv), (d) - (i)
 (2) (a) - (iii), (b) - (i), (c) - (iv), (d) - (ii)
 (3) (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)
 (4) (a) - (iv), (b) - (iii), (c) - (i), (d) - (ii)
- Q.23** Which amongst following is incorrect statement ? [NEET-2022]
 (1) C_2 molecule has four electrons in its two degenerate π molecular orbitals
 (2) H_2^+ ion has one electron
 (3) O_2^+ ion is diamagnetic
 (4) the bond orders of O_2^+ , O_2 , O_2^- and O_2^{2-} are 2.5, 2, 1.5 and 1, respectively.
- Q.24** Amongst the following which one will have maximum 'lone pair-lone pair' electron repulsions ? [NEET-2022]
 (1) IF_5 (2) SF_4
 (3) XeF_2 (4) ClF_3
- Q.25** The element expected to form largest ion to achieve the nearest noble gas configuration is [NEET-2023]
 (1) F (2) N
 (3) Na (4) O
- Q.26** The number of σ bond π bonds and lone pair of electrons in pyridine, respectively are [NEET-2023]
 (1) 12, 3, 0 (2) 11, 3, 1
 (3) 12, 2, 1 (4) 11, 2, 0
- Q.27** The correct order of energies of molecular orbitals of N_2 molecule, is [NEET-2023]
 (1) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < \sigma 2p_z < (\pi 2p_x = \pi 2p_y) < (\pi^* 2p_x = \pi^* 2p_y) < \sigma^* 2p_z$
 (2) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < \sigma 2p_z < \sigma^* 2p_z < (\pi 2p_x = \pi 2p_y) < (\pi^* 2p_x = \pi^* 2p_y)$
 (3) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < (\pi 2p_x = \pi 2p_y) < (\pi^* 2p_x = \pi^* 2p_y) < \sigma 2p_z < \sigma^* 2p_z$
 (4) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < (\pi^* 2p_x = \pi^* 2p_y) < \sigma 2p_z < (\pi 2p_x = \pi 2p_y) < \sigma^* 2p_z$
- Q.28** Match List I with List II. [NEET-2024]

List I	List II
(Compound)	(Shape/geometry)
(A) NH_3	I. Trigonal Pyramidal
(B) BrF_5	II. Square Planar
(C) XeF_4	III. Octahedral
(D) SF_6	IV. Square Pyramidal

 Choose the correct answer from the options given below:
 (1) A - II, B - III, C - IV, D - I
 (2) A - I, B - IV, C - II, D - III
 (3) A - II, B - IV, C - III, D - I
 (4) A - III, B - IV, C - I, D - II
- Q.29** Intramolecular hydrogen bonding is present in [NEET-2024]
 (1) HF
 (2) 
 (3) 
 (4) 

- Q.30** Match List I with List II. [NEET-2024]
- | List I
(Molecule) | List II
(Number and types of
bond/s between two
carbon atoms) |
|-------------------------------|--|
| A. ethane | I. one σ -bond and
two π -bonds |
| B. ethene | II. two π -bonds |
| C. carbon molecule, $C_{(3)}$ | III. one σ -bond |
| D. ethyne | IV. one σ -bond and
one π -bond |
- Choose the correct answer from the options given below:
- (1) A - III, B - IV, C - I, D - II
 (2) A - I, B - IV, C - II, D - III
 (3) A - IV, B - III, C - II, D - I
 (4) A - III, B - IV, C - II, D - I
- Q.31** Identify the correct answer. [NEET-2024]
- (1) Three canonical forms can be drawn for CO_3^{2-} ion
 (2) Three resonance structures can be drawn for ozone
 (3) BF_3 has non-zero dipole moment
 (4) Dipole moment of NF_3 is greater than that of NH_3
- Q.32** Which of the following molecules has "NON ZERO" dipole moment value? [Re-NEET-2024]
- (1) CCl_4 (2) HI (3) CO_2 (4) BF_3
- Q.33** Identify the **incorrect** statement about PCl_5 . [Re-NEET-2024]
- (1) PCl_5 possesses two different Cl - P - Cl bond angles
 (2) All five P - Cl bonds are identical in length
 (3) PCl_5 exhibits sp^3 hybridisation
 (4) PCl_5 consists of five P - Cl (sigma) bonds
- Q.34** Match List-I with List-II: [Re-NEET-2024]
- | List-I
Molecules | List-II
Bond enthalpy (kJ mol⁻¹) |
|-----------------------------|--|
| A. HCl | I. 435.8 |
| B. N_2 | II. 498 |
| C. H_2 | III. 946.0 |
| D. O_2 | IV. 431.0 |
- Choose the correct answer from the options given below:
- (1) A-III, B-IV, C-I, D-II
 (2) A-IV, B-I, C-III, D-II
 (3) A-IV, B-III, C-II, D-I
 (4) A-IV, B-III, C-I, D-II
- Q.35** Consider the following compounds : [NEET-2025]
 $\underline{K}O_2$, $H_2\underline{O}_2$ and $H_2\underline{S}O_4$.
 The oxidation states of the underlined elements in them are, respectively,
- (1) +1, -1, and +6 (2) +2, -2, and +6
 (3) +1, -2, and +4 (4) +4, -4, and +6
- Q.36** Given below are two statements : [NEET-2025]
Statement I : A hypothetical diatomic molecule with bond order zero is quite stable.
Statement II : As bond order increases, the bond length increase.
 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 true
 (2) Both Statement I and Statement II are false
 (3) Statement I is true but Statement II are false
 (4) Statement I is false but Statement II are true
- Q.37** Out of the following complex compounds, which of the compound will be having the minimum conductance in solution? [NEET-2025]
- (1) $[Co(NH_3)_3Cl_3]$ (2) $[Co(NH_3)_4Cl_2]$
 (3) $[Co(NH_3)_6]Cl_3$ (4) $[Co(NH_3)_5Cl]Cl$
- Q.38** Match List - I with List - II [NEET-2025]
- | List-I | List-II |
|---------------|---------------------------------------|
| A. XeO_3 | I. sp^3d , linear |
| B. XeF_2 | II. sp^3 , pyramidal |
| C. $XeOF_4$ | III. sp^3d^3 ; distorted octahedral |
| D. XeF_6 | IV. sp^3d^2 ; square pyramidal |
- Choose the correct answer from the options given below:
- (1) A-II, B-I, C-IV, D-III
 (2) A-II, B-I, C-III, D-IV
 (3) A-IV, B-II, C-III, D-I
 (4) A-IV, B-II, C-I, D-III
- Q.39** Identify the correct orders against the property mentioned [NEET-2025]
- (A) $H_2O > NH_3 > CHCl_3$ - dipole moment
 (B) $XeF_4 > XeO_3 > XeF_2$ - number of lone pairs on central atom
 (C) $O-H > C-H > N-O$ - bond length
 (D) $N_2 > O_2 > H_2$ - bond enthalpy
- Choose the correct answer from the options given below
- (1) A, D only (2) B, D only
 (3) A, C only (4) B, C only

Thermodynamics

Q.1 The heat of combustion of carbon to CO_2 is -393.5 kJ/mol. The heat released upon formation of 35.2 g of CO_2 from carbon and oxygen gas is [AIPMT 2015]
(1) $+315$ kJ (2) -630 kJ (3) -261 kJ (4) -315 kJ

Q.2 The correct thermodynamics conditions for the spontaneous reaction at all temperatures is :

[NEET Phase I-2016]

- (1) $\Delta H < 0$ and $\Delta S > 0$ (2) $\Delta H < 0$ and $\Delta S < 0$
(3) $\Delta H < 0$ and $\Delta S = 0$ (4) $\Delta H > 0$ and $\Delta S < 0$

Q.3 Consider the following liquid - vapour equilibrium :

Liquid \rightleftharpoons Vapour [NEET Phase I-2016]

- (1) $\frac{d \ln P}{dT^2} = \frac{-\Delta H_v}{T^2}$ (2) $\frac{d \ln P}{dT} = \frac{\Delta H_v}{RT^2}$
(3) $\frac{d \ln G}{dT^2} = \frac{\Delta H_v}{RT^2}$ (4) $\frac{d \ln P}{dT} = \frac{-\Delta H_v}{RT}$

Q.4 For a sample perfect gas when its pressure is changed isothermally from p_i to p_f the entropy change is given by :

[NEET Phase II-2016]

- (1) $\Delta S = nR \ln \left(\frac{p_f}{p_i} \right)$ (2) $\Delta S = nR \ln \left(\frac{p_i}{p_f} \right)$
(3) $\Delta S = nRT \ln \left(\frac{p_f}{p_i} \right)$ (4) $\Delta S = RT \ln \left(\frac{p_i}{p_f} \right)$

Q.5 For a given reaction, $\Delta H = 35.5$ kJ mol⁻¹ and $\Delta S = 83.6$ JK⁻¹ mol⁻¹. The reaction is spontaneous at (Assume that ΔH and ΔS do not vary with temperature).

[NEET-I 2017]

- (1) $T > 425$ K (2) all temperatures
(3) $T > 298$ K (4) $T < 425$ K

Q.6 A gas is allowed to expand in a well insulated container against a constant external pressure of 2.5 atm from an initial volume of 2.50 L to a final volume of 4.50 L. The change in internal energy ΔU of the gas in joules will be :

[NEET 2017]

- (1) -500 J (2) -505 J (3) $+505$ J (4) 1136.25 J

Q.7 The bond dissociation energies of X_2 , Y_2 and XY are in the ratio of $1 : 0.5 : 1$. ΔH for the formation of XY is -200 kJ mol⁻¹. The bond dissociation energy of X will be

[NEET - 2018]

- (1) 800 kJ mol⁻¹ (2) 100 kJ mol⁻¹
(3) 200 kJ mol⁻¹ (4) 400 kJ mol⁻¹

Q.8 Under isothermal condition, a gas at 300 K expands from 0.1 L to 0.25 L against a constant external pressure of 2 bar. The work done by the gas is : [Given that 1 L bar = 100 J]

[NEET-2019]

- (1) -30 J (2) 5 kJ (3) 25 J (4) 30 J

Q.9 In which can change in entropy is negative ?

[NEET-2019]

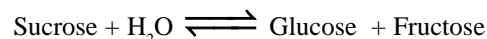
- (1) Evaporation of water
(2) Expansion of a gas at constant temperature
(3) Sublimation of solid to gas
(4) $2\text{H}(\text{g}) \rightarrow \text{H}_2(\text{g})$

Q.10 For the reaction, $2\text{Cl}(\text{g}) \rightarrow \text{Cl}_2(\text{g})$, the correct option is :

[NEET-2020]

- (1) $\Delta_r H > 0$ and $\Delta_r S < 0$ (2) $\Delta_r H < 0$ and $\Delta_r S > 0$
(3) $\Delta_r H < 0$ and $\Delta_r S < 0$ (4) $\Delta_r H > 0$ and $\Delta_r S > 0$

Q.11 Hydrolysis of sucrose is given by the following reaction.



If the equilibrium constant (K_c) is 2×10^{13} at 300 K, the value of $\Delta_r G^\ominus$ at the same temperature will be :

[NEET-2020]

- (1) $8.314 \text{ J mol}^{-1} \text{ K}^{-1} \times 300 \text{ K} \times \ln(2 \times 10^{13})$
(2) $8.314 \text{ J mol}^{-1} \text{ K}^{-1} \times 300 \text{ K} \times \ln(3 \times 10^{13})$
(3) $-8.314 \text{ J mol}^{-1} \text{ K}^{-1} \times 300 \text{ K} \times \ln(4 \times 10^{13})$
(4) $-8.314 \text{ J mol}^{-1} \text{ K}^{-1} \times 300 \text{ K} \times \ln(2 \times 10^{13})$

Q.12 For irreversible expansion of an ideal gas under isothermal condition, the correct option is :

[NEET-2021]

- (1) $\Delta U \neq 0, \Delta S_{\text{total}} \neq 0$ (2) $\Delta U = 0, \Delta S_{\text{total}} \neq 0$
(3) $\Delta U \neq 0, \Delta S_{\text{total}} = 0$ (4) $\Delta U = 0, \Delta S_{\text{total}} = 0$

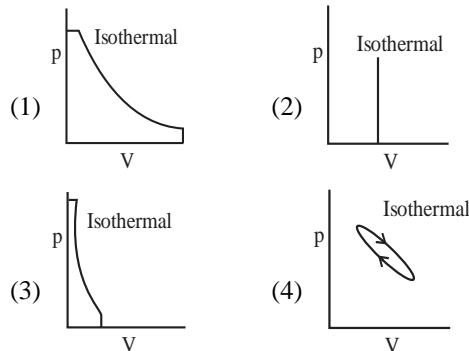
Q.13 Which one among the following is the correct option for right relationship between C_p and C_v for one mole of ideal gas?

[NEET-2021]

- (1) $C_p - C_v = R$ (2) $C_p = RC_v$
(3) $C_v = RC_p$ (4) $C_p + C_v = R$

Q.14 Which of the following p-V curve represents maximum work done ?

[NEET-2022]



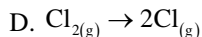
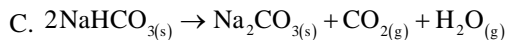
Q.15 Which amongst the following options is the correct relation between change in enthalpy and change in internal energy

[NEET-2023]

- (1) $\Delta H = \Delta U + \Delta n_g RT$ (2) $\Delta H - \Delta U = -\Delta n RT$
(3) $\Delta H + \Delta U = \Delta n R$ (4) $\Delta H = \Delta U - \Delta n_g RT$

Q.16 In which of the following processes entropy increases?

- A. A liquid evaporates to vapour. [NEET-2024]
 B. Temperature of a crystalline solid lowered from 130 K to 0 K.



Choose the correct answer from the options given below:

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

Q.17 Match List I with List II. [NEET-2024]

List-I

(Process)

A. Isothermal process

B. Isochoric process

C. Isobaric process

D. Adiabatic process

List-II

(Conditions)

I. No heat exchange

II. Carried out at constant temperature

III. Carried out at constant volume

IV. Carried out at constant pressure

Choose the correct answer from the options given below:

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

Q.18 The work done during reversible isothermal expansion of one mole of hydrogen gas at 25°C from pressure of 20 atmosphere to 10 atmosphere is [NEET-2024] (Given $R = 2.0 \text{ cal K}^{-1} \text{ mol}^{-1}$)

- (1) 100 calories
 (2) 0 calorie
 (3) -413.14 calories
 (4) 413.14 calories

Q.19 Choose the correct statement for the work done in the expansion and heat absorbed or released when 5 litres of an ideal gas at 10 atmospheric pressure isothermally expands into vacuum until volume is 15 litres: [Re-NEET 2024]

- (1) Both the heat and work done will be greater than zero
 (2) Heat absorbed will be less than zero and work done will be positive
 (3) Work done will be zero and heat will also be zero
 (4) Work done will be greater than zero and heat will remain zero

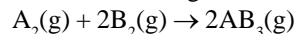
Q.20 For an endothermic reaction:

- (A) q_p is negative. (B) $\Delta_r H$ is positive.
 (C) $\Delta_r H$ is negative. (D) q_p is positive.

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

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

Q.21 For the following reaction at 300 K



the enthalpy change is +15 kJ, then the internal energy change is: [Re-NEET 2024]

- (1) 19988.4 J (2) 200 J
 (3) 1999 J (4) 1.9988 kJ

Q.22 The standard heat of formation, in kcal/mol of Ba^{2+} is

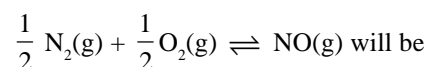
[Given : standard heat of formation of SO_4^{2-} ion (aq) = -216 kcal/mol, Standard heat of crystallisation of $\text{BaSO}_4(\text{s}) = -4.5 \text{ kcal/mol}$, standard heat of formation of $\text{BaSO}_4(\text{s}) = -349 \text{ kcal/mol}$] [NEET-2025]

- (1) -128.5 (2) -133.0
 (3) +133.0 (4) +220.5

Equilibrium

CHEMICAL EQUILIBRIUM

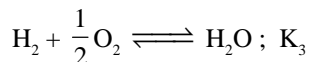
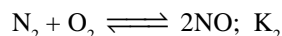
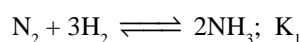
Q.1 If the equilibrium constant for $\text{N}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{NO}(\text{g})$ is K, the equilibrium constant for



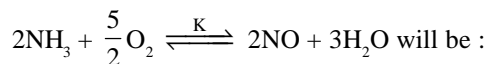
[AIPMT 2015]

- (1) $\frac{1}{2}K$ (2) K (3) K^2 (4) $K^{1/2}$

Q.2 The equilibrium constants of the following are :



The equilibrium constant (K) of the reaction :

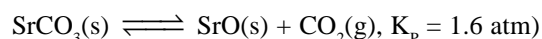


[NEET 2017]

- (1) $K_2 K_3^3 / K_1$ (2) $K_2 K_3 / K_1$
 (3) $K_2^3 K_3 / K_1$ (4) $K_1 K_3^3 / K_2$

Q.3 A 20 litre container at 400 K contains $\text{CO}_2(\text{g})$ at pressure 0.4 atm and an excess of SrO (neglect the volume of solid SrO). The volume of the container is now decreased by moving the movable piston fitted in the container. The maximum volume of the container, when pressure CO_2 attains its maximum value, will be : [NEET 2017]

Given that :



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

- Q.4** Which one of the following conditions will favour maximum formation of the product in the reaction,
 $A_2(g) + B_2(g) \rightleftharpoons X_2(g)$ $\Delta_r H = -X \text{ kJ}$?
[NEET - 2018]
 (1) High temperature and high pressure
 (2) Low temperature and low pressure
 (3) Low temperature and high pressure
 (4) High temperature and low pressure
- Q.5** Choose the correct option for the total pressure (in atm.) in a mixture of 4 g O_2 and 2 g H_2 confined in a total volume of one liter at 0°C is **[NEET-2021]**
[Given : $R = 0.082 \text{ L atm mol}^{-1} \text{ K}^{-1}$, $T = 273 \text{ k}$]
 (1) 2.602 (2) 25.18
 (3) 26.02 (4) 2.518
- Q.6** $3O_2(g) \rightleftharpoons 2O_3(g)$
 for the above reaction at 298 K, K_c is found to be 3.0×10^{-59} . If the concentration of O_2 at equilibrium is 0.040 M then concentration of O_3 in M is
[NEET-2022]
 (1) 1.9×10^{-63} (2) 2.7×10^{31}
 (3) 1.2×10^{21} (4) 4.38×10^{-32}
- Q.7** The equilibrium concentrations of the species in the reaction $A + B \rightleftharpoons C + D$ are 2, 3, 10 and 6 mol L^{-1} , respectively at 300 K. ΔG° for the reaction is ($R = 2 \text{ cal/mol K}$) **[NEET-2023]**
 (1) -137.26 cal (2) -1381.80 cal
 (3) -13.73 cal (4) 1372.60 cal
- Q.8** For the reaction $2A \rightleftharpoons B + C$, $K_c = 4 \times 10^{-3}$
 At a given time, the composition of reaction mixture is:
[NEET-2024]
 $[A] = [B] = [C] = 2 \times 10^{-3} \text{ M}$
 Then, which of the following is correct?
 (1) Reaction has gone to completion in forward direction.
 (2) Reaction is at equilibrium.
 (3) Reaction has a tendency to go in forward direction.
 (4) Reaction has a tendency to go in backward direction.
- Q.9** In which of the following equilibria, K_p and K_c are NOT equal? **[NEET-2024]**
 (1) $2\text{BrCl}_{(g)} \rightleftharpoons \text{Br}_{2(g)} + \text{Cl}_{2(g)}$
 (2) $\text{PCl}_{5(g)} \rightleftharpoons \text{PCl}_{3(g)} + \text{Cl}_{2(g)}$
 (3) $\text{H}_{2(g)} + \text{I}_{2(g)} \rightleftharpoons 2\text{HI}_{(g)}$
 (4) $\text{CO}_{(g)} + \text{H}_2\text{O}_{(g)} \rightleftharpoons \text{CO}_{2(g)} + \text{H}_{2(g)}$
- Q.10** Consider the following reaction in a sealed vessel at equilibrium with concentrations of
 $N_2 = 3.0 \times 10^{-3} \text{ M}$, $O_2 = 4.2 \times 10^{-3} \text{ M}$
 and $\text{NO} = 2.8 \times 10^{-3} \text{ M}$
 $2\text{NO}_{(g)} \rightleftharpoons \text{N}_{2(g)} + \text{O}_{2(g)}$
 If 0.1 mol L^{-1} of $\text{NO}_{(g)}$ is taken in a closed vessel, what will be degree of dissociation (α) of $\text{NO}_{(g)}$ at equilibrium? **[NEET-2024]**
 (1) 0.717 (2) 0.00889
 (3) 0.0889 (4) 0.8889
- Q.11** At a given temperature and pressure, the equilibrium constant values for the equilibria are given below:
 $3A_2 + B_2 \rightleftharpoons 2A_3B$, K_1 **[Re-NEET 2024]**
 $A_3B \rightleftharpoons \frac{3}{2}A_2 + \frac{1}{2}B_2$, K_2
 The relation between K_1 and K_2 is:
 (1) $K_1^2 = 2K_2$ (2) $K_2 = \frac{K_1}{2}$
 (3) $K_1 = \frac{1}{\sqrt{K_2}}$ (4) $K_2 = \frac{1}{\sqrt{K_1}}$
- Q.12** For the reaction $A(g) \rightleftharpoons 2B(g)$, the backward reaction rate constant is higher than the forward reaction rate constant by a factor of 2500, at 1000 K. **[Given : $R = 0.0831 \text{ L atm mol}^{-1} \text{ K}^{-1}$]** **[NEET-2025]**
 K_p for the reaction at 1000 K is
 (1) 83.1 (2) 2.077×10^5
 (3) 0.033 (4) 0.021
- Q.13** Higher yield of NO in **[NEET-2025]**
 $N_2(g) + O_2(g) \rightleftharpoons 2\text{NO}(g)$ can be obtained at
 $[\Delta H \text{ of the reaction} = +180.7 \text{ kJ mol}^{-1}]$
 A. higher temperature
 B. lower temperature
 C. higher concentration of N_2
 D. higher concentration of O_2
 Choose the correct answer from the options given below
 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} ?
 (1) A, D only (2) B, C only
 (3) B, C, D only (4) A, C, D only

IONIC EQUILIBRIUM

- Q.14** Following solutions were prepared by mixing different volumes of NaOH and HCl of different concentrations: **[NEET - 2018]**

- (a) $60 \text{ mL } \frac{M}{10} \text{ HCl} + 40 \text{ mL } \frac{M}{10} \text{ NaOH}$
 (b) $55 \text{ mL } \frac{M}{10} \text{ HCl} + 45 \text{ mL } \frac{M}{10} \text{ NaOH}$
 (c) $75 \text{ mL } \frac{M}{5} \text{ HCl} + 25 \text{ mL } \frac{M}{5} \text{ NaOH}$
 (d) $100 \text{ mL } \frac{M}{10} \text{ HCl} + 100 \text{ mL } \frac{M}{10} \text{ NaOH}$

pH of which one of them will be equal to 1?

- (1) d (2) a (3) b (4) c

Q.15 The solubility of BaSO_4 in water is $2.42 \times 10^{-3} \text{ gL}^{-2}$ at 298 K. The value of its solubility product (K_{sp}) will be (Given molar mass of $\text{BaSO}_4 = 233 \text{ g mol}^{-1}$)
[NEET - 2018]

- (1) $1.08 \times 10^{-14} \text{ mol}^2\text{L}^{-2}$
 (2) $1.08 \times 10^{-13} \text{ mol}^2\text{L}^{-2}$
 (3) $1.08 \times 10^{-10} \text{ mol}^2\text{L}^{-2}$
 (4) $1.08 \times 10^{-8} \text{ mol}^2\text{L}^{-2}$

Q.16 pH of a saturated solution of Ca(OH)_2 is 9. The solubility product (K_{sp}) of Ca(OH)_2 is :-
[NEET-2019]

- (1) 0.5×10^{-15} (2) 0.25×10^{-10}
 (3) 0.125×10^{-15} (4) 0.5×10^{-10}

Q.17 Conjugate base for Bronsted acids H_2O and HF are :
[NEET-2019]

- (1) OH^- and H_2F^+ respectively
 (2) H_3O^+ and F^- , respectively
 (3) OH^- and F^- , respectively
 (4) H_3O^+ and H_2F^+ respectively

Q.18 Which will make basic buffer ? **[NEET-2019]**

- (1) 50 mL of 0.1 M NaOH + 25 mL of 0.1 M CH_3COOH
 (2) 100 mL of 0.1 M CH_3COOH + 100 mL of 0.1 M NaOH
 (3) 100 mL of 0.1 M HCl + 200 mL of 0.1 NH_4
 (4) 100 mL of 0.1 M HCl + 100 mL of 0.1 M NaOH

Q.19 Find out the solubility of Ni(OH)_2 in 0.1 M NaOH. Given that the ionic product of Ni(OH)_2 is 2×10^{-15}
[NEET-2020]

- (1) $2 \times 10^{-8} \text{ M}$ (2) $1 \times 10^{-13} \text{ M}$
 (3) $1 \times 10^8 \text{ M}$ (4) $2 \times 10^{-13} \text{ M}$

Q.20 The pK_b of dimethylamine and pK_a of acetic acid are 3.27 and 4.77 respectively at T (K). The correct option for the pH of dimethylammonium acetate solution is :
[NEET-2021]

- (1) 5.50 (2) 7.75
 (3) 6.25 (4) 8.50

Q.21 The pH of the solution containing 50 mL each of 0.10 M sodium acetate and 0.01 M acetic acid is
 [Given pK_a of $\text{CH}_3\text{COOH} = 4.57$] **[NEET-2022]**
 (1) 3.57 (2) 4.57
 (3) 2.57 (4) 5.57

Q.22 Among the given options which of the following molecules / ion acts as a Lewis acid ? **[NEET-2023]**
 (1) H_2O (2) BF_3 (3) OH^- (4) NH_3

Q.23 The ratio of solubility of AgCl in 0.1 M KCl solution to the solubility of AgCl in water is:
 (Given: Solubility product of AgCl = 10^{-10})

- [Re-NEET 2024]**
 (1) 10^{-4} (2) 10^{-6} (3) 10^{-9} (4) 10^{-5}

Q.24 Phosphoric acid ionizes in three steps with their ionization constant values **[NEET-2025]**

K_{a_1} , K_{a_2} and K_{a_3} , respectively,

While K is the overall ionization constant.

Which of the following statements are true ?

A. $\log K = \log K_{a_1} + \log K_{a_2} + \log K_{a_3}$

B. H_3PO_4 is a stronger acid than H_2PO_4^- and HPO_4^{2-}

C. $K_{a_1} > K_{a_2} > K_{a_3}$

D. $K_{a_1} = \frac{K_{a_3} + K_{a_2}}{2}$

Choose the correct answer from the options given below :

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

Redox Reactions

Q.1 How concentrated sulphuric acid is a moderately strong oxidizing agent. Which of the following reactions does not show oxidizing behaviour?
[NEET-II 2016]

- (1) $\text{Cu} + 2\text{H}_2\text{SO}_4 \rightarrow \text{CuSO}_4 + \text{SO}_2 + 2\text{H}_2\text{O}$
 (2) $\text{S} + 2\text{H}_2\text{SO}_4 \rightarrow 3\text{SO}_2 + 2\text{H}_2\text{O}$
 (3) $\text{C} + 2\text{H}_2\text{SO}_4 \rightarrow \text{CO}_2 + 2\text{SO}_2 + 2\text{H}_2\text{O}$
 (4) $\text{CaF}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + 2\text{HF}$

Q.2 The correct order of N-compounds in its decreasing order of oxidation states is **[NEET - 2018]**

- (1) HNO_3 , NH_4Cl , NO , N_2
 (2) HNO_3 , NO , NH_4Cl , N_2
 (3) HNO_3 , NO , N_2 , NH_4Cl
 (4) NH_4Cl , N_2 , NO , HNO_3

Q.3 For the redox reaction **[NEET - 2018]**



The correct coefficients of the reactants for the balanced equation are

	MnO_4^-	$\text{C}_2\text{O}_4^{2-}$	H^+
(1)	2	16	5
(2)	2	5	16
(3)	16	5	2
(4)	5	16	2

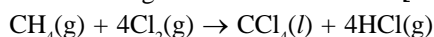
Q.4 Which of the following reactions are disproportionation reaction ? [NEET-2019]

- (a) $2\text{Cu}^+ \rightarrow \text{Cu}^{2+} + \text{Cu}^0$
 (b) $3\text{MnO}_4^{2-} + 4\text{H}^+ \rightarrow 2\text{MnO}_4^- + \text{MnO}_2 + 2\text{H}_2\text{O}$
 (c) $2\text{KMnO}_4 \xrightarrow{\Delta} \text{K}_2\text{MnO}_4 + \text{MnO}_2 + \text{O}_2$
 (d) $2\text{MnO}_4^- + 3\text{Mn}^{2+} + 2\text{H}_2\text{O} \rightarrow 5\text{MnO}_2 + 4\text{H}^+$

Select the correct option from the following :-

- (1) (a) and (b) only (2) (a), (b) and (c)
 (3) (a), (c) and (d) (4) (a) and (d) only

Q.5 What is the change in oxidation number of carbon in the following reaction? [NEET-2020]

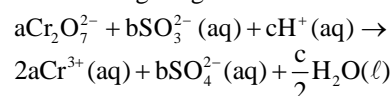


- (1) 0 to +4 (2) -4 to +4
 (3) 0 to -4 (4) +4 to +4

Q.6 In the neutral or faintly alkaline medium, KMnO_4 oxidises iodide into iodate. The change in oxidation state of manganese in this reaction is form [NEET-2022]

- (1) +6 to +4 (2) +7 to +3
 (3) +6 to +5 (4) +7 to +4

Q.7 On balancing the given redox reaction. [NEET-2023]



The coefficients a, b and c are found to be respectively-

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

Q.8 Which reaction is NOT a redox reaction? [NEET - 2024]

- (1) $\text{BaCl}_2 + \text{Na}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$
 (2) $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$
 (3) $2\text{KClO}_3 + \text{I}_2 \rightarrow 2\text{KIO}_3 + \text{Cl}_2$
 (4) $\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$

Q.9 The oxidation states not shown by Mn in given reaction is:



- (A) +6 (B) +2 (C) +4 (D) +7 (E) +3

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

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

The p-Block Elements

Q.1 Boric acid is an acid because its molecule :

[NEET - II 2016]

- (1) contains replaceable H^+ ion.
 (2) gives up a proton.
 (3) accepts OH^- from water releasing proton.
 (4) combines with proton form water molecule.

Q.2 It is because of inability of ns^2 electrons of the valence shell to participate in bonding that :

[NEET 2017]

- (1) Sn^{2+} is oxidising while Pb^{4+} is reducing.
 (2) Sn^{2+} and Pb^{2+} are both oxidising and reducing.
 (3) Sn^{4+} is reducing while Pb^{4+} is oxidising.
 (4) Sn^{2+} is reducing while Pb^{4+} is oxidising.

Q.3 The correct order of atomic radii in group 13 elements is [NEET - 2018]

- (1) $\text{B} < \text{Ga} < \text{Al} < \text{Tl} < \text{In}$
 (2) $\text{B} < \text{Al} < \text{Ga} < \text{In} < \text{Tl}$
 (3) $\text{B} < \text{Al} < \text{In} < \text{Ga} < \text{Tl}$
 (4) $\text{B} < \text{Ga} < \text{Al} < \text{In} < \text{Tl}$

Q.4 Which of the following is incorrect statement ?

- (1) PbF_4 is covalent in nature [NEET-2019]
 (2) SiCl_4 is easily hydrolysed
 (3) GeX_4 ($\text{X} = \text{F}, \text{Cl}, \text{Br}, \text{I}$) is more stable than GeX_2
 (4) SnF_4 is ionic in nature

Q.5 Choose the correct statement : [NEET-2022]

- (1) Diamond is covalent and graphite is ionic.
 (2) Diamond is sp^3 hybridised and graphite is sp^2 hybridized.
 (3) both diamond and graphite are used as dry lubricants
 (4) diamond and graphite have two dimensional network

Q.6 Match List -I with List - II [NEET-2023]

List-I	List-II
A. Coke	I. Carbon atoms are sp^3 hybridised
B. Diamond	II. Used as a dry lubricant
C. Fullerene	III. Used as a reducing agent
D. Graphite	IV. Cage like molecules

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

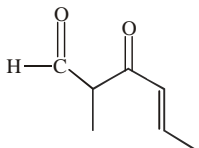
- (1) A-IV, B-I, C-II, D-III
 (2) A-III, B-I, C-IV, D-II
 (3) A-III, B-IV, C-I, D-II
 (4) A-II, B-IV, C-I, D-III

Organic Chemistry - Some Basic Principles and Techniques

IUPAC

Q.1 The IUPAC name of the compound

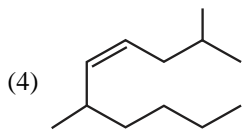
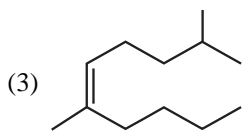
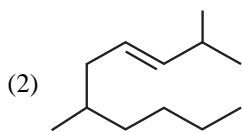
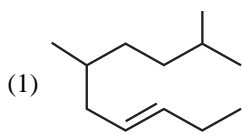
[NEET 2017]



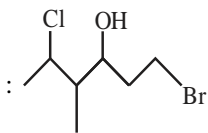
- (1) 5-formylhex-2-en-3-one
- (2) 5-methyl-4-oxohex-2-en-5-al
- (3) 3-keto-2-methylhex-5-enal
- (4) 3-keto-2-methylhex-4-enal

Q.2 The correct structure of 2,6-Dimethyl-dec-4-ene

[NEET-2021]



Q.3 The correct IUPAC name of the following compound is



[NEET-2022]

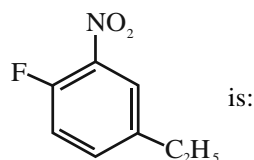
- (1) 6-bromo-2-chloro-4-methylhexan-4-ol
- (2) 1-bromo-4-methyl-5-chlorohexan-3-ol
- (3) 6-bromo-4-methyl-2-chlorohexan-4-ol
- (4) 1-bromo-5-chloro-4-methylhexan-3-ol

Q.4 A compound with a molecular formula of C_6H_{14} has two tertiary carbons. Its IUPAC name is :

- (1) 2,2-dimethylbutane
- (2) n-hexane
- (3) 2-methylpentane
- (4) 2,3-dimethylbutane

Q.5 The correct IUPAC name of the compound

[Re-NEET 2024]



is:

- (1) 4-ethyl-1-fluoro-2-nitrobenzene
- (2) 4-ethyl-1-fluoro-6-nitrobenzene
- (3) 3-ethyl-6-fluoro-1-nitrobenzene
- (4) 1-ethyl-4-fluoro-3-nitrobenzene

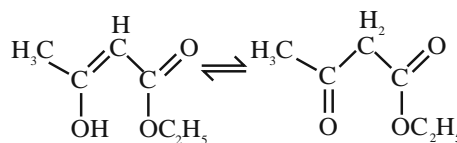
ISOMERISM

Q.6 Two possible stereo structures of $CH_3CHOHCOOH$, which are optically active, are called.

[AIPMT-2015]

- (1) atropisomers
- (2) enantiomers
- (3) mesomers
- (4) diastereomers

Q.7 The enolic form of ethyl acetoacetate as shown below has

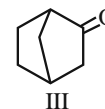
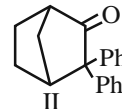
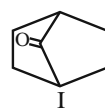


[NEET-2015, Cancelled]

- (1) 9 sigma bonds and 2 pi-bonds
- (2) 9 sigma bonds and 1 pi-bond
- (3) 18 sigma bonds and 2 pi-bonds
- (4) 16 sigma bonds and 1 pi-bond.

Q.8 Which among the given molecules can exhibit tautomerism ?

[NEET -II-2016]



- (1) III only
- (2) Both I and II
- (3) Both I and II
- (4) Both II and III

Q.9 The compound which shows metamerism is :

[NEET-2021]

- (1) C_3H_8O
- (2) C_3H_6O
- (3) $C_4H_{10}O$
- (4) C_5H_{12}

Q.10 Given below are two statements:
Statement I : The boiling point of three isomeric pentanes follows the order
 n-pentane > isopentane > neopentane

Statement II : When branching increases, the molecule attains a shape of sphere. This results in smaller surface area for contact, due to which the intermolecular forces between the spherical molecules are weak, thereby lowering the boiling point.

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

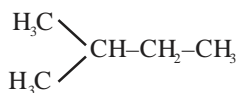
Q.11 Which one of the following compounds can exist as cis-trans isomers ? [NEET-2025]

- (1) Pent-1-ene
 (2) 2-Methylhex-2-ene
 (3) 1, 1-Dimethylcyclopropane
 (4) 1, 2-Dimethylcyclohexane

Q.12 Total number of possible isomers (both structural as well as stereoisomers) of cyclic ethers of molecular formula C_4H_8O is : [NEET-2025]

- (1) 6 (2) 8 (3) 10 (4) 11

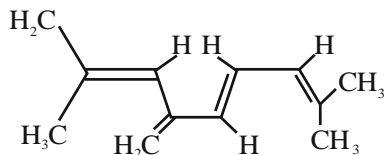
Q.13 How many products (including stereoisomers) are expected from monochlorination of the following compound ? [NEET-2025]



- (1) 2 (2) 3 (3) 5 (4) 6

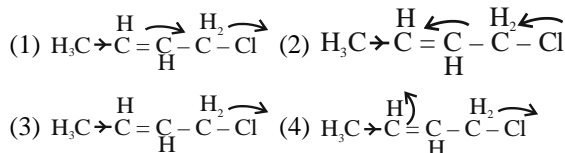
GOC

Q.14 The total number of π -bond electrons in the following structure is [2015, Cancelled]

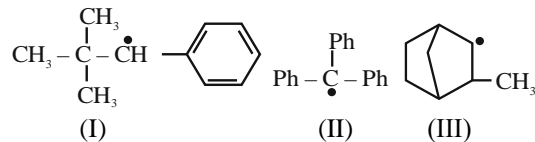


- (1) 12 (2) 16
 (3) 4 (4) 8

Q.15 Which of the following is the most correct electron displacement for a nucleophilic reaction to take place ? [NEET-2015, Cancelled]



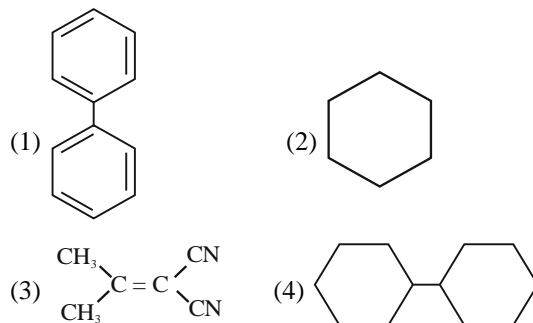
Q.16 Consider the following compounds :



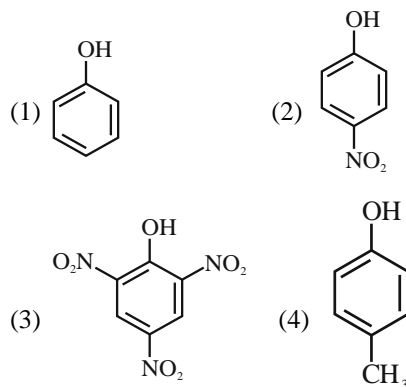
Hyperconjugation occurs in [2015, Cancelled]

- (1) III only (2) I and III (3) I only (4) II only.

Q.17 In which of the following molecules, all atoms are coplanar ? [NEET -II 2016]



Q.18 Which one is the most acidic compound ? [NEET-2017]



Q.19 Which of the following is correct with respect to -I effect of the substituents ? (R = alkyl)

[NEET 2018, 1998]

- (1) $-\text{NH}_2 < -\text{OR} < -\text{F}$ (2) $-\text{NH}_2 < -\text{OR} < -\text{F}$
 (3) $-\text{NH}_2 > -\text{OR} > -\text{F}$ (4) $-\text{NH}_2 > -\text{OR} > -\text{F}$

Q.20 The number of sigma (σ) and pi (π) bonds in pent-2-en-4-yne is [NEET 2019]

- (1) 13 σ bonds and no π bond
 (2) 10 σ bonds and 3 π bonds
 (3) 8 σ bonds and 5 π bonds
 (4) 11 σ bonds and 2 π bonds

Q.21 The most stable carbocation, among the following is [NEET-2019]

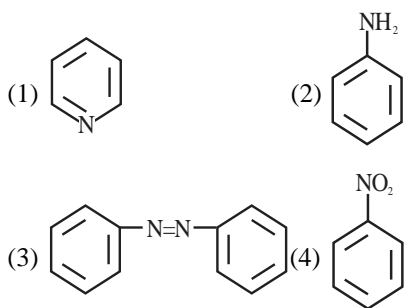
- (1) $(\text{CH}_3)_3\text{C} - \overset{+}{\text{C}}\text{H} - \text{CH}_3$
 (2) $\text{CH}_3 - \text{CH}_2 - \overset{+}{\text{C}}\text{H} - \text{CH}_2 - \text{CH}_3$



Q.22 A tertiary butyl carbocation is more stable than a secondary butyl carbocation because of which of the following ? [NEET 2020]

- (1) -I effect of -CH₃ groups
- (2) +R effect of -CH₃ groups
- (3) -R effect of -CH₃ groups
- (4) Hyperconjugation

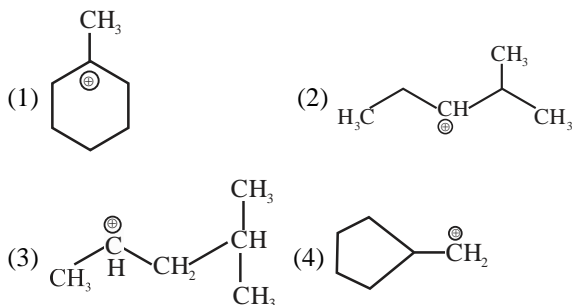
Q.23 The Kjeldahl's method for the estimation of nitrogen can be used to estimate the amount of nitrogen in which one of the following compounds ? [NEET-2022]



Q.24 In Lassaigne's extract of an organic compound, both nitrogen and sulphur are present, which gives blood red colour with Fe³⁺ due to the formation of - [NEET-2023]

- (1) NaSCN
- (2) [Fe(CN)₅NOS]⁴⁻
- (3) [Fe(SCN)]²⁺
- (4) Fe₄[Fe(CN)₆]₃ · xH₂O

Q.25 The most stable carbocation among the following is: [NEET 2024]



Q.26 On heating, some solid substances change from solid to vapour state without passing through liquid state. The technique used for the purification of such solid substances based on the above principle is known as [NEET 2024]

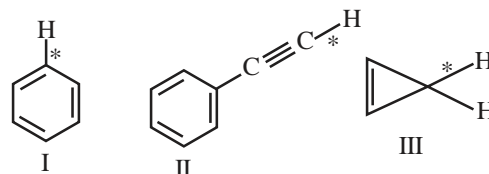
- (1) Chromatography
- (2) Crystallization
- (3) Sublimation
- (4) Distillation

Q.27 Methyl group attached to a positively charged carbon atom stabilizes the carbocation due to:

[Re-NEET 2024]

- (1) -I inductive effect
- (2) electromeric effect
- (3) hyperconjugation
- (4) mesomeric effect

Q.28 Among the given compound I-III, the correct order of bond dissociation energy of C-H bond marked with * is [NEET-2025]



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

Q.29 The correct order of decreasing basic strength of the given amines is : [NEET-2025]

- (1) N-methylaniline > benzenamine > ethanamine > N-ethylethanamine
- (2) N-ethylethanamine > ethanamine > benzenamine > N-methylaniline
- (3) N-ethylethanamine > ethanamine > N-methylaniline > benzenamine
- (4) benzenamine > ethanamine > N-methylaniline > N-ethylethanamine

Q.30 The correct order of decreasing acidity of the following aliphatic acids is [NEET-2025]

- (1) (CH₃)₃CCOOH > (CH₃)₂CHCOOH > CH₃COOH > HCOOH
- (2) CH₃COOH > (CH₃)₂CHCOOH > (CH₃)₃CCOOH > HCOOH
- (3) HCOOH > CH₃COOH > (CH₃)₂CHCOOH > (CH₃)₃CCOOH
- (4) HCOOH > (CH₃)₃CCOOH > (CH₃)₂CHCOOH > CH₃COOH

Q.31 Match List-I with List-II [NEET-2025]

List-I

(Mixture)

A. CHCl₃ + C₆H₅NH₂

B. Crude oil in petroleum industry

C. Glycerol from spent-lye

D. Aniline-water

List-II

(Method of Separation)

I. Distillation under reduced pressure

II. Steam distillation

III. Fractional distillation

IV. Simple distillation

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

Q.32 Match list I and list II [NEET-2025]

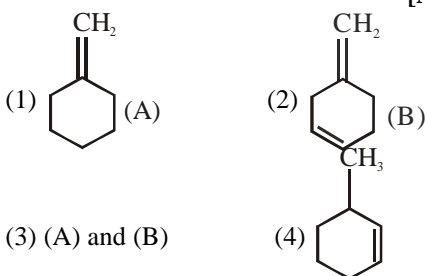
	List-I		List-II (Group Number in Cation Analysis)
A.	Co ²⁺	I.	Group-I
B.	Mg ²⁺	II.	Group-III
C.	Pb ²⁺	III.	Group-IV
D.	Al ³⁺	IV.	Group-VI

Choose the correct answer from the option given below :

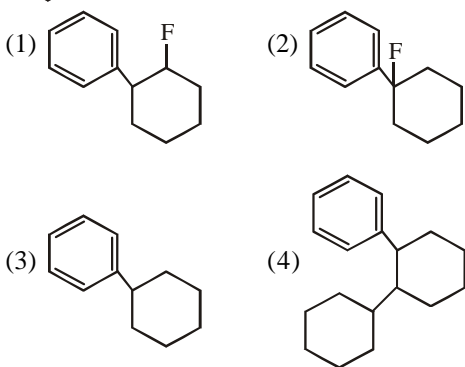
- (1) A-III, B-IV, C-II, D-I
- (2) A-III, B-IV, C-I, D-II
- (3) A-III, B-II, C-IV, D-I
- (4) A-III, B-II, C-I, D-IV

Hydrocarbons

Q.1 In the reaction with HCl, an alkene reacts in accordance with the Markovnikov's rule to give a product 1-chloro-1-methylcyclohexane. [AIPMT-2015]



Q.2 In the given reaction [NEET -2016]



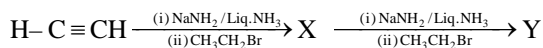
Q.3 Consider the nitration of benzene using mixed conc. H₂SO₄ and HNO₃. If a large amount of KHSO₄ is added to the mixture, the rate of nitration will be :

- (1) unchanged
- (2) double
- (3) faster
- (4) slower

Q.4 The pair of electrons in the given carbanion, CH₃C≡C⁻ is present in which of the following orbitals? [NEET -2016]

- (1) sp²
- (2) sp
- (3) 2p
- (4) sp³

Q.5 In the reaction : [NEET -2016]



X and Y are :

- (1) X = 2-butyne, Y = 2-hexyne
- (2) X = 1-butyne, Y = 2-hexyne
- (3) X = 1-butyne, Y = 3-hexyne
- (4) X = 2-butyne, Y = 3-hexyne

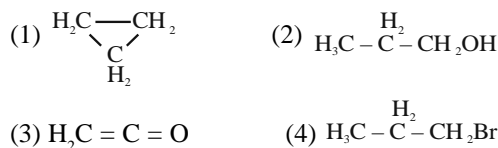
Q.6 The compound that will react most readily with gaseous bromine has the formula : [NEET -2016]

- (1) C₃H₆
- (2) C₂H₂
- (3) C₄H₁₀
- (4) C₂H₄

Q.7 The correct statement regarding the comparison of staggered and eclipsed conformations of ethane, is [NEET-2016]

- (1) the eclipsed conformation of ethane is more stable than staggered conformation even though the eclipsed conformation has torsional strain.
- (2) the staggered conformation of ethane is more stable than eclipsed conformation, because staggered conformation has not torsional strain.
- (3) the staggered conformation of ethane is less stable than eclipsed conformation, because staggered conformation has torsional strain.
- (4) the eclipsed conformation of ethane is more stable than staggered conformation, because eclipsed conformation has no torsional strain.

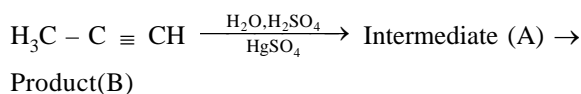
Q.8 Which of the following compounds shall not produce propene by reaction with HBr followed by elimination or direct only elimination reaction ? [NEET-2016]



Q.9 Which one is the correct order of acidity? [NEET 2017]

- (1) CH≡CH > CH₃-C≡CH > CH₂=CH₂ > CH₃-CH₂-CH₃
- (2) CH≡CH > CH₂=CH₂ > CH₃-C≡CH > CH₃-CH₂-CH₃
- (3) CH₃-CH₃ > CH₂=CH₂ > CH₃-C≡CH > CH≡CH
- (4) CH₂=CH₂ > CH₃-CH=CH₂ > CH₃-C≡CH > CH≡CH

- Q.10** Predict the correct intermediate and product in the following reaction : [NEET 2017]



- (1) A : $\text{H}_3\text{C}-\underset{\text{OH}}{\text{C}}=\text{CH}_2$; B : $\text{H}_3\text{C}-\underset{\text{SO}_4}{\text{C}}=\text{CH}_2$
- (2) A : $\text{H}_3\text{C}-\underset{\text{O}}{\text{C}}=\text{CH}_2$; B : $\text{H}_3\text{C}-\text{C}=\text{CH}$
- (3) A : $\text{H}_3\text{C}-\underset{\text{OH}}{\text{C}}=\text{CH}_2$; B : $\text{H}_3\text{C}-\underset{\text{O}}{\text{C}}=\text{CH}_2$
- (4) A : $\text{H}_3\text{C}-\underset{\text{SO}_4}{\text{C}}=\text{CH}_2$; B : $\text{H}_3\text{C}-\underset{\text{O}}{\text{C}}=\text{CH}_2$

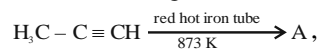
- Q.11** With respect to the conformers of ethane, which of the following statements is true? [NEET 2017]

- (1) Bond angle changes but bond length remains same.
 (2) Both bond angle and bond length change.
 (3) Both bond angle and bond length remains same.
 (4) Bond angle remains same but bond length changes

- Q.12** Hydrocarbon (A) reacts with bromine by substitution to form an alkyl bromide which by Wurtz reaction is converted to gaseous hydrocarbon containing less than four carbon atoms. (A) is [NEET - 2018]

- (1) CH_3-CH_3
 (2) $\text{CH}_2=\text{CH}_2$
 (3) $\text{CH}\equiv\text{CH}$
 (4) CH_4

- Q.13** In the following reaction [NEET-2019]



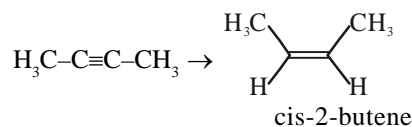
the number of sigma (s) bonds present in the product A, is

- (1) 21 (2) 9
 (3) 24 (4) 18

- Q.14** An alkene "A" on reaction with O_3 and $\text{Zn}-\text{H}_2\text{O}$ gives propanone and ethanal in equimolar ratio. Addition of HCl to alkene "A" gives "B" as the major product. The structure of product "B" is : [NEET-2019]

- (1) $\text{Cl}-\text{CH}_2-\text{CH}_2-\underset{\text{CH}_3}{\overset{\text{CH}_3}{\text{C}}}-\text{H}$ (2) $\text{H}_3\text{C}-\text{CH}_2-\underset{\text{CH}_3}{\overset{\text{CH}_2\text{Cl}}{\text{C}}}-\text{H}$
- (3) $\text{H}_3\text{C}-\text{CH}_2-\underset{\text{Cl}}{\overset{\text{CH}_3}{\text{C}}}-\text{CH}_3$ (4) $\text{H}_3\text{C}-\underset{\text{Cl}}{\text{CH}}-\underset{\text{CH}_3}{\overset{\text{CH}_3}{\text{C}}}-\text{CH}_3$

- Q.15** The most suitable reagent for the following conversion is : [NEET-2019]

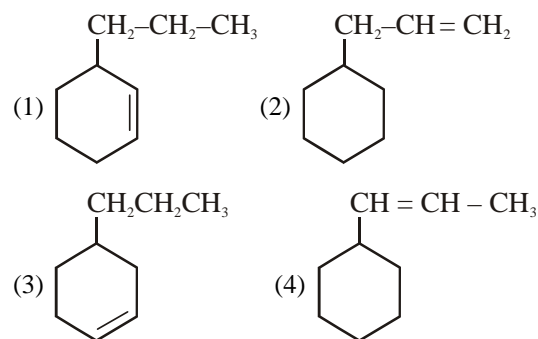


- (1) $\text{Na}/\text{liquid NH}_3$ (2) $\text{H}_2, \text{Pd/C}, \text{quinoline}$
 (3) Zn/HCl (4) $\text{Hg}^{2+}/\text{H}^+, \text{H}_2\text{O}$

- Q.16** The alkane that gives only one monochloro product on chlorination with Cl_2 in presence of diffused sunlight is [NEET-2019]

- (1) 2,2-dimethylbutane (2) neopentane
 (3) n-pentane (4) isopentane.

- Q.17** An alkene on ozonolysis gives methanal as one of the product. Its structure is [NEET-2020]



- Q.18** Which of the following alkane cannot be made in good yield by Wurtz reaction? [NEET-2020]

- (1) n-Hexane (2) 2,3-Dimethylbutane
 (3) n-Heptane (4) n-Butane

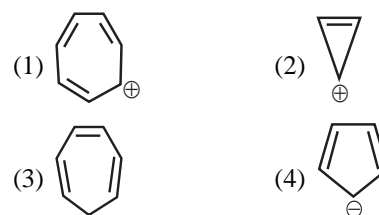
- Q.19** The major product formed in dehydrohalogenation reaction of 2-Bromopentane is Pent-2-ene. This product formation is based on? [NEET-2021]

- (1) Hund's Rule (2) Hofmann Rule
 (3) Huckel's Rule (4) Saytzeff's Rule

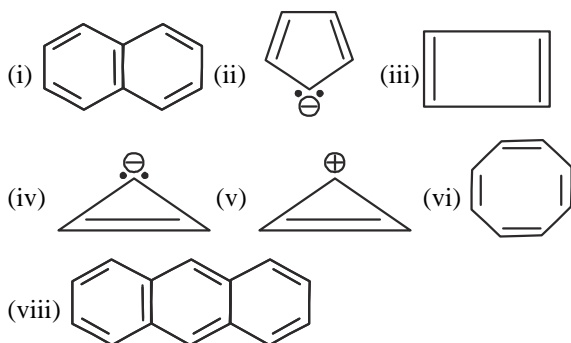
- Q.20** Compound X on reaction with O_3 followed by $\text{Zn}/\text{H}_2\text{O}$ gives formaldehyde and 2-methyl propanal as products. The compound X is : [NEET-2022]

- (1) 2-Methylbut-1-ene
 (2) 2-Methylbut-2-ene
 (3) Pent-2-ene
 (4) 3-Methylbut-1-ene

- Q.21** Which compound amongst the following is not an aromatic compound? [NEET-2022]



Q.22 Consider the following compounds / Species : [NEET-2023]



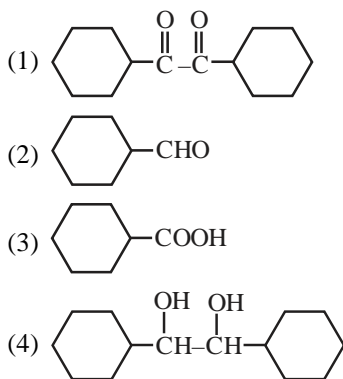
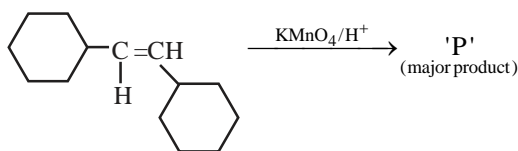
The number of compounds/ species which obey Huckel's rule is _____

- (1) 6 (2) 2 (3) 5 (4) 4

Q.23 Weight (g) of two moles of the organic compound, which is obtained by heating sodium ethanoate with sodium hydroxide in presence of calcium oxide is : [NEET-2023]

- (1) 32 (2) 30 (3) 18 (4) 16

Q.24 For the given reaction : [NEET-2024]



Q.25 Given below are two statements:

Statement I: Propene on treatment with diborane gives an addition product with the formula $((\text{CH}_3)_2-\text{CH})_2\text{B}$. [Re-NEET 2024]

Statement II: Oxidation of $((\text{CH}_3)_2-\text{CH})_2\text{B}$ with hydrogen peroxide in presence of NaOH gives propane-2-ol.

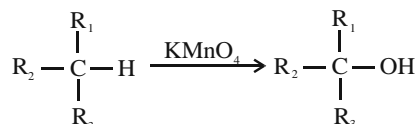
In the light of the above statements, choose the most appropriate answer from the options given below:

- (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.26 Baeyer's reagent is: [Re-NEET 2024]

- (1) Acidic potassium permanganate solution
 (2) Acidic potassium dichromate solution
 (3) Cold, dilute, aqueous solution of potassium permanganate
 (4) Hot, concentrated solution of potassium permanganate

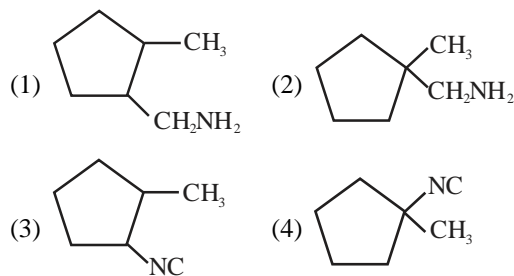
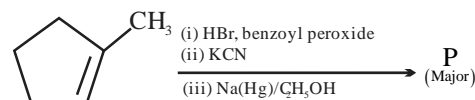
Q.27 The alkane that can be oxidized to the corresponding alcohol by KMnO_4 as per the equation



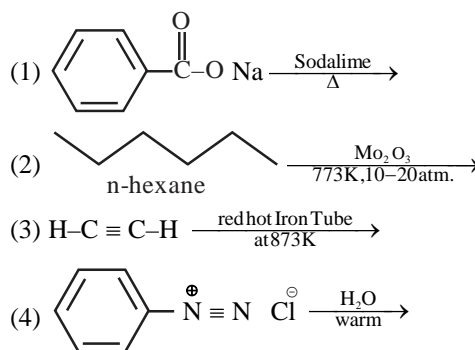
is when: [Re-NEET 2024]

- (1) $\text{R}_1 = \text{H}; \text{R}_2 = \text{H}; \text{R}_3 = \text{H}$
 (2) $\text{R}_1 = \text{CH}_3; \text{R}_2 = \text{CH}_3; \text{R}_3 = \text{CH}_3$
 (3) $\text{R}_1 = \text{CH}_3; \text{R}_2 = \text{H}; \text{R}_3 = \text{H}$
 (4) $\text{R}_1 = \text{CH}_3; \text{R}_2 = \text{CH}_3; \text{R}_3 = \text{H}$

Q.28 Predict the major product 'P' in the following sequence of reactions - [NEET-2025]



Q.29 Which one of the following reactions does NOT give benzene as the product? [NEET-2025]



ANSWER KEY

Some Basic Concepts of Chemistry

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

Structure of Atom

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

Classification of Elements and Periodicity in Properties

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

Chemical Bonding and Molecular Structure

Q.1 (3)	Q.2 (4)	Q.3 (3)	Q.4 (4)	Q.5 (3)	Q.6 (3)	Q.7 (1, 4)	Q.8 (4)	Q.9 (3)	Q.10 (2)
Q.11 (3)	Q.12 (2)	Q.13 (2)	Q.14 (3)	Q.15 (2)	Q.16 (4)	Q.17 (3)	Q.18 (3)	Q.19 (4)	Q.20 (2)
Q.21 (2)	Q.22 (4)	Q.23 (3)	Q.24 (3)	Q.25 (2)	Q.26 (2)	Q.27 (4)	Q.28 (2)	Q.29 (2)	Q.30 (4)
Q.31 (1)	Q.32 (2)	Q.33 (2)	Q.34 (4)	Q.35 (1)	Q.36 (2)	Q.37 (1, 2)	Q.38 (1)	Q.39 (1)	

Thermodynamics

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

Equilibrium

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

Redox Reactions

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

The p-Block Elements

Q.1 (3)	Q.2 (4)	Q.3 (4)	Q.4 (1)	Q.5 (2)	Q.6 (2)
---------	---------	---------	---------	---------	---------

Organic Chemistry - Some Basic Principles and Techniques

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

Hydrocarbons

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

The Living World

Q.1 Nomenclature is governed by certain universal rules. Which one of the following is contrary to the rules of nomenclature ? **[NEET Phase-I 2016]**
 (1) The names are written in Latin and are italicised.
 (2) When written by hand the names are to be underlined
 (3) Biological names can be written in any language
 (4) The first word in a biological name represents the genus name and the second is a specific epithet.

Q.2 The label of a herbarium sheet does not carry information on: **[NEET II-2016]**
[Not in new syllabus of NEET]
 (1) date collection
 (2) name of collector
 (3) local names
 (4) height of the plant

Q.3 Match column I with column II for housefly classification and select the correct option using the codes given below. **[NEET II-2016]**

Column I	Column II
(A) Family	(i) Diptera
(B) Order	(ii) Arthropoda
(C) Class	(iii) Muscidae
(D) Phylum	(iv) Insecta
(1) (A)-(iii), (B) -(i), C-(iv), D-(ii)	
(2) (A)-(iii), (B) -(ii), C-(iv), D-(i)	
(3) (A)-(iv), (B) -(iii), C-(ii), D-(i)	
(4) (A)-(iv), (B) -(ii), C-(i), D-(iii)	

Q.4 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. Herbarium	i. It is a place having a collection of preserved plants and animals
B. Key	ii. A list that enumerates methodically all the species found in an area with brief description aiding identification.
C. Museum	iii. Is a place where dried and pressed plant specimens mounted on sheets are kept
D. Catalogue	iv. A booklet containing a list of characters and their alternate which are helpful in identification of various taxa.

- (1) A-ii; B- iv; C- iii; D- i
 (2) A-iii; B- ii; C- i, D- iv
 (3) A-i; B- iv; C- iii ; D- ii
 (4) A-iii; B- iv; C - i; D- ii

Q.5 Select correctly written scientific name of Mango which was first described by Carolus Linnaeus: **[NEET-2019]**

- (1) *Mangifera indica* Car. Linn.
 (2) *Mangifera indica* Linn.
 (3) *Mangifera indica*
 (4) *Mangifera Indica*

Biological Classification

Q.1 Select the wrong statement: **[AIPMT-2015]**
 (1) The term 'contagium vivum fluidum' was coined by M.W. Beijerinck.
 (2) Mosaic disease in tobacco and AIDS in human being are caused by viruses.
 (3) The viroids were discovered by D.J. Ivanowsky.
 (4) W.M. Stanley showed that viruses could be crystallised.

Q.2 Pick up the wrong statement : **[AIPMT-2015]**
 (1) Some fungi are edible
 (2) Nuclear membrane is present in Monera
 (3) Cell wall is absent in Animalia
 (4) Protists have photosynthetic and heterotrophic modes of nutrition.

Q.3 Cell wall is absent in : **[AIPMT-2015]**
 (1) Mycoplasma
 (2) Nostoc
 (3) *Aspergillus*
 (4) *Funaria*

Q.4 In which group of organisms the cell walls forms two thin overlapping shells which fit together ? **[AIPMT-2015]**

- (1) Dinoflagellates
 (2) Slime moulds
 (3) Chrysophytes
 (4) Euglenoids

Q.5 The imperfect fungi which are decomposers of litter and help in mineral cycling belong to: **[AIPMT-2015]**
 (1) Phycomycetes
 (2) Ascomycetes
 (3) Deuteromycetes
 (4) Basidiomycetes

Q.6 Choose the wrong statement : **[AIPMT-2015]**
 (1) Morels and truffles are poisonous mushrooms
 (2) Yeast is unicellular and useful in fermentation
 (3) *Penicillium* is multicellular and produces antibiotics
 (4) *Neurospora* is used in the study of biochemical genetics.

- Q.7** Which of the following statements is wrong for viroids? [NEET I-2016]
 (1) They cause infections
 (2) Their RNA is of high molecular weight
 (3) They lack a protein coat
 (4) They are smaller than viruses
- Q.8** Which one of the following statements is wrong? [NEET I-2016]
 (1) Eubacteria are also called false bacteria
 (2) Phycomycetes are also called algal fungi
 (3) Cyanobacteria are also called blue-green algae
 (4) Golden algae are also called desmids.
- Q.9** Chryophytes, Euglenoids, Dinoflagellates and Slime moulds are included in the Kingdom: [NEET I-2016]
 (1) Fungi (2) Animalia
 (3) Monera (4) Protista.
- Q.10** Which of the following is the major component of cell wall of most fungi: [NEET I-2016]
 (1) Cellulose (2) Hemicellulose
 (3) Chitin (4) Peptidoglycan
- Q.11** Select the wrong statement: [NEET II-2016]
 (1) The walls of diatoms are easily destructible
 (2) 'Diatomaceous earth' is formed by the cell walls of diatoms.
 (3) Diatoms are chief producers in the oceans.
 (4) Diatoms are microscopic and float passively in water.
- Q.12** Which one of the following is wrong for fungi? [NEET II-2016]
 (1) They are eukaryotic
 (2) All fungi possess a purely cellulosic cell wall
 (3) They are heterotrophic
 (4) They are both unicellular and multicellular
- Q.13** Methanogens belong to: [NEET II-2016]
 (1) eubacteria (2) archaeobacteria
 (3) dinoflagellates (4) slime moulds
- Q.14** Which of the following are found in extreme saline conditions? [NEET-2017]
 (1) Eubacteria
 (2) Cyanobacteria
 (3) Mycobacteria
 (4) Archaeobacteria
- Q.15** Viroids differ from viruses in having [NEET-2017]
 (1) DNA molecules without protein coat.
 (2) RNA molecules with protein coat.
 (3) RNA molecules without protein coat.
 (4) DNA molecules with protein coat.
- Q.16** Which among the following are the smallest living cells, known without a definite cell wall, pathogenic to plants as well as animals and can survive without oxygen? [NEET-2017]
 (1) Pseudomonas (2) Mycoplasma
 (3) Nostoc (4) Bacillus
- Q.17** Select the wrong statement [NEET-2018]
 (1) Pseudopodia are locomotory and feeding structures in Sporozoans
 (2) Mushrooms belong to Basidiomycetes
 (3) Cell wall is present in members of Fungi and Plantae
 (4) Mitochondria are the powerhouse of the cell in all kingdoms except Monera.
- Q.18** Ciliates differ from all other protozoans in [NEET-2018]
 (1) using pseudopodia for capturing prey
 (2) having a contractile vacuole for removing excess water
 (3) using flagella for locomotion
 (4) having two types of nuclei
- Q.19** Which of the following organisms are known as chief producers in the oceans? [NEET-2018]
 (1) Cyanobacteria (2) Diatoms
 (3) Dinoflagellates (4) Euglenoids
- Q.20** Which among the following is not a prokaryote? [NEET-2018]
 (1) Nostoc (2) Mycobacterium
 (3) Saccharomyces (4) Oscillatoria
- Q.21** After karyogamy followed by meiosis, spores are produced exogenously in [NEET-2018]
 (1) Agaricus
 (2) Alternaria
 (3) Neurospora
 (4) Saccharomyces
- Q.22** Which of the following statements is incorrect? [NEET-2019]
 (1) Viroids lack a protein coat
 (2) Viruses are obligate parasites
 (3) Infective constituent in viruses is the protein coat
 (4) Prions consist of abnormally folded proteins
- Q.23** Which of the following statements is incorrect? [NEET-2019]
 (1) Morels and truffles are edible delicacies.
 (2) *Claviceps* is a source of many alkaloids and LSD.
 (3) Conidia are produced exogenously and ascospores endogenously.
 (4) Yeasts have filamentous bodies with long thread-like hyphae.

- Q.24** Which of the following is correct about viroids? [NEET-2020]
 (1) They have free RNA without protein coat
 (2) They have DNA with protein coat
 (3) They have free DNA without protein coat
 (4) They have RNA with protein coat
- Q.25** Which of the following statement is correct? [NEET-2021]
 (1) Fusion of protoplasts between two motile non-motile gametes is called plasmogamy.
 (2) Organisms that depend on living plants are called saprophytes.
 (3) Some of the organisms can fix atmospheric nitrogen in specialized cells called sheath cells
 (4) Fusion of two cells is called Karyogamy.
- Q.26** Which of the following is a **correct** statement? [NEET-2022]
 (1) Bacteria are exclusively heterotrophic organisms.
 (2) Slime moulds are saprophytic organisms classified under Kingdom Monera.
 (3) Mycoplasma have DNA, Ribosome and cell wall
 (4) Cyanobacteria are a group of autotrophic organisms classified under Kingdom Monera.
- Q.27** Which one of the following is not a criterion for classification of fungi? [NEET-2024]
 (1) Fruiting body
 (2) Morphology of mycelium
 (3) Mode of nutrition
 (4) Mode of spore formation
- Q.28** Match List-I with List-II:

List-I		List-II	
Organism		Mode of Nutrition	
A.	Euglenoid	I.	Parasitic
B.	Dinoflagellate	II.	Saprophytic
C.	Slime mould	III.	Photosynthetic
D.	<i>Plasmodium</i>	IV.	Switching between photosynthetic and heterotrophic mode

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

- Q.29** Each of the following characteristics represent a Kingdom proposed by Whittaker. Arrange the following in increasing order of complexity of body organization. [NEET-2025]
 A. Multicellular heterotrophs with cell wall made of chitin.
 B. Heterotrophs with tissue/organ/organ system level of body organization.
 C. Prokaryotes with cell wall made of polysaccharides and amino acids.
 D. Eukaryotic autotrophs with tissue/organ level of body organization.
 E. Eukaryotes with cellular body organization.
 Choose the correct answer from the options given below:
 (1) A, C, E, B, D (2) C, E, A, D, B
 (3) A, C, E, D, B (4) C, E, A, B, D
- Q.30** Who is known as the father of Ecology in India? [NEET-2025]
 (1) S.R. Kashyap (2) Ramdeo Misra
 (3) Ram Udair (4) Birbal Sahni

Plant Kingdom

- Q.1** In bryophytes and pteridophytes, transport of male gametes requires : [NEET Phase I-2016]
 (1) Birds (2) Water
 (3) Wind (4) Insects
- Q.2** Which one of the following statements is wrong? [NEET Phase II-2016]
 (1) Algae increase the level of dissolved oxygen in the immediate environment.
 (2) Algin is obtained from red algae, and carrageen from brown algae.
 (3) Agar-agar is obtained from *Gelidium* and *Gracilaria*
 (4) *Laminaria* and *Sargassum* are used as food.
- Q.3** Conifers are adapted to tolerate extreme environmental conditions because of : [NEET II-2016]
 (1) broad hardy leaves
 (2) superficial stomata
 (3) thick cuticle
 (4) presence of vessels.
- Q.4** An example of colonial alga is : [NEET-2017]
 (1) *Volvox* (2) *Ulothrix*
 (3) *Spirogyra* (4) *Chlorella*
- Q.5** Select the mismatch. [NEET-2017]
 (1) *Cycas* - Dioecious
 (2) *Salvinia* - Heterosporous
 (3) *Equisetum* - Homosporous
 (4) *Pinus* - Dioecious

- Q.6** Zygotic meiosis is characteristic of: [NEET-2017]
 (1) *Fucus*
 (2) *Funaria*
 (3) *Chlamydomonas*
 (4) *Marchantia*
- Q.7** Which of the following statement is correct? [NEET-2018]
 (1) Horsetails are gymnosperms
 (2) *Selaginella* is heterosporous while *Salvinia* is homosporous
 (3) Ovules are not enclosed by ovary wall in gymnosperms
 (4) Stems are usually unbranched in both *Cycas* and *Cedrus*.
- Q.8** Which one is wrongly matched? [NEET-2018]
 (1) Gemma cups - *Marchantia*
 (2) Biflagellate zoospores - Brown algae
 (3) Uniflagellate gametes - *Polysiphonia*
 (4) Unicellular organism - *Chlorella*
- Q.9** Winged pollen grains are present in [NEET - 2018]
 (1) Mango (2) *Cycas*
 (3) Mustard (4) *Pinus*
- Q.10** *Pinus* seed cannot germinate and establish without fungal association. This is because : [NEET-2019]
 (1) its embryo is immature
 (2) it has obligate association with mycorrhizae.
 (3) it has very hard seed coat.
 (4) its seeds contain inhibitors that prevent germination.
- Q.11** Which of the following pairs is of unicellular algae? [NEET-2020]
 (1) *Gelidium* and *Gracilaria*
 (2) *Anabaena* and *Volvox*
 (3) *Chlorella* and *Spirulina*
 (4) *Laminaria* and *Sargassum*
- Q.12** Strobili or cones are found in [NEET-2020]
 (1) *Pteris* (2) *Marchantia*
 (3) *Equisetum* (4) *Salvinia*
- Q.13** Floridean starch has structure similar to [NEET-2020]
 (1) Amylopectin and glycogen
 (2) Mannitol and algin
 (3) Laminarin and cellulose
 (4) Starch and cellulose
- Q.14** Which of the following algae contains mannitol as reserve food material? [NEET-2021]
 (1) *Gracilaria*
 (2) *Volvox*
 (3) *Ulothrix*
 (4) *Ectocarpus*
- Q.15** Genera like *Selaginella* and *Salvinia* produce two kinds of spores. Such plants are known as: [NEET-2021]
 (1) Heterosorus (2) Homosporous
 (3) Heterosporous (4) Homosorus
- Q.16** Which of the following algae produce Carrageen? [NEET-2021]
 (1) Brown algae (2) Red algae
 (3) Blue-green algae (4) Green algae
- Q.17** Gemmae are present in: [NEET-2021]
 (1) Pteridophytes (2) Some Gymnosperms
 (3) Some Liverworts (4) Mosses
- Q.18** Match the plant with the kind of life cycle it exhibits: [NEET-2022]

List-I	List-II
(a) <i>Spirogyra</i>	(i) Dominant diploid sporophyte vascular plant, with highly reduced male or female gametophyte
(b) Fern	(ii) Dominant haploid free-living gametophyte
(c) <i>Funaria</i>	(iii) Dominant diploid sporophyte alternating with reduced gametophyte called prothallus
(d) <i>Cycas</i>	(iv) Dominant haploid leafy gametophyte alternating with partially dependent multicellular sporophyte

 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)-(ii), (b)-(iv), (c)-(i), (d)-(iii)
 (4) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
- Q.19** Which of the following is **incorrectly** matched ? [NEET-2022]
 (1) *Ulothrix* - Mannitol
 (2) *Porphyra* - Floridian Starch
 (3) *Volvox* - Starch
 (4) *Ectocarpus* - Fucoxanthin
- Q.20** Hydrocolloid carrageen is obtained from : [NEET-2022]
 (1) Phaeophyceae and Rhodophyceae
 (2) Rhodophyceae only
 (3) Phaeophyceae only
 (4) Chlorophyceae and Phaeophyceae
- Q.21** Given below are two statements : One is labelled as **Assertion A** and the other is labelled as Reason R. **Assertion (A):** In gymnosperms the pollen grains are released from the microsporangium and carried by air currents.

Reason (R): Air currents carry the pollen grains to the mouth of the archegonia where the male gametes are discharged and pollen tube is not formed.

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.22 Given below are two statements : One is labelled as **Assertion A** and the other is labelled as **Reason R** :
Assertion (A) : The first stage of gametophyte in the life cycle of moss is protonema stage.

Reason (R): Protonema develops directly from spores produced in capsule.

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

[NEET-2023]

- (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.23 Identify the pair of heterosporous pteridophytes among the following : [NEET-2023]

- (1) *Selaginella* and *Salvinia*
 (2) *Psilotum* and *Salvinia*
 (3) *Equisetum* and *Salvinia*
 (4) *Lycopodium* and *Selaginella*

Q.24 Read the following statements and choose the set of correct statements:

In the members of Phaeophyceae,

- A. Asexual reproduction occurs usually by biflagellate zoospores.
 B. Sexual reproduction is by oogamous method only.
 C. Stored food is in the form of carbohydrates which is either mannitol or laminarin.
 D. The major pigments found are chlorophyll a, c and carotenoids and xanthophyll.
 E. Vegetative cells have a cellulosic wall, usually covered on the outside by gelatinous coating of algin.

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

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

Q.25 Match List I with List II [NEET-2024]

List-I

- A. *Rhizopus*
 B. *Ustilago*
 C. *Puccinia*
 D. *Agaricus*

List-II

- I. Mushroom
 II. Smut fungus
 III. Bread mould
 IV. Rust fungus

Choose the correct answer from the options given below:

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

Q.26 Identify the Incorrect pair: [Re-NEET 2024]

- (1) Sphenopsida - *Adiantum*
 (2) Pteropsida - *Dryopteris*
 (3) Psilopsida - *Psilotum*
 (4) Lycopsida - *Selaginella*

Q.27 Which of the following is the correct match?

[Re-NEET 2024]

- (1) Gymnosperms: *Cedrus*, *Pinus*, *Sequoia*
 (2) Angiosperms: *Wolffia*, *Eucalyptus*, *Sequoia*
 (3) Bryophytes: *Polytrichum*, *Polysiphonia*, *Sphagnum*
 (4) Pteridophytes: *Equisetum*, *Ginkgo*, *Adiantum*

Q.28 The correct sequence of events in the life cycle of bryophytes is [NEET-2025]

- A. Fusion of antherozoid with egg.
 B. Attachment of gametophyte to substratum.
 C. Reduction division to produce haploid spores.
 D. Formation of sporophyte.
 E. Release of antherozoids into water.

Choose the correct answer from the options given below:

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

Q.29 Given below are the stages in the life cycle of pteridophytes. Arrange the following stages in the correct sequence. [NEET-2025]

- A. Prothallus stage
 B. Meiosis in spore mother cells
 C. Fertilisation
 D. Formation of archegonia and antheridia in gametophyte.
 E. Transfer of antherozoids to the archegonia in presence of water.

Choose the correct answer from the options given below:

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

- Q.30** Match List-I with List-II [NEET-2025]
List-I
 A. Pteridophyte
 B. Bryophyte
 C. Angiosperm
 D. Gymnosperm

- List-II**
 I. Salvia
 II. Ginkgo
 III. Polytrichum
 IV. Salvinia

Choose the option with all correct matches :

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

- Q.31** Which one of the following is the characteristic feature of gymnosperms? [NEET-2025]

- (1) Seeds are enclosed in fruits.
 (2) Seeds are naked.
 (3) Seeds are absent
 (4) Gymnosperms have flowers for reproduction.

- Q.32** In bryophytes, the gemmae help in which one of the following ? [NEET-2025]

- (1) Sexual reproduction
 (2) Asexual reproduction
 (3) Nutrient absorption
 (4) Gaseous exchange

Animal Kingdom

- Q.1** Body having meshwork of cells, internal cavities lined with food filtering flagellated cells and indirect development are the characteristics of phylum : [AIPMT-2015]

- (1) Protozoa
 (2) Coelenterata
 (3) Porifera
 (4) Mollusca

- Q.2** Metagenesis refers to: [AIPMT-2015]

- (1) Presence of a segmented body and parthenogenetic mode of reproduction
 (2) Presence of different morphic forms
 (3) Alternation of generation between asexual and sexual phases of an organism
 (4) Occurrence of a drastic change in form during post-embryonic development

- Q.3** A jawless fish, which lays eggs in fresh water and whose ammocoetes larvae after metamorphosis return to the ocean is : [AIPMT-2015]

- (1) *Neomyxine*
 (2) *Petromyzon*
 (3) *Eptatretus*
 (4) *Myxine*

- Q.4** Which of the following features is not present in the Phylum Arthropoda ? [NEET-2016]

- (1) Parapodia
 (2) Jointed appendages
 (3) Chitinous exoskeleton
 (4) Metameric segmentation

- Q.5** Choose the correct statements. [NEET II-2016]

- (1) All mammals are viviparous.
 (2) All cyclostomes do not possess jaws and paired fins.
 (3) All reptiles have a three chambered heart.
 (4) All Pisces have gills covered by an operculum.

- Q.6** Which one of the following characteristics is not shared by birds and mammals ? [NEET I-2016]

- (1) Viviparity
 (2) Warm blooded nature
 (3) Ossified endoskeleton
 (4) Breathing using lungs

- Q.7** Which of the following characteristic features always holds true for the corresponding group of animals ? [NEET I-2016]

(1)	Possess a mouth with an upper and a lower jaw	Chordata
(2)	3-chambered heart with one incompletely divided ventricle	Reptilia
(3)	Cartilaginous endoskeleton	Chondrichthyes
(4)	Viviparous	Mammalia

- Q.8** In case of poriferans, the spongocoel is lined with flagellated cells called. [NEET-2017]

- (1) Oscula
 (2) Choanocytes
 (3) Mesenchymal cells
 (4) Ostia

- Q.9** Important characteristic that hemichordates share with chordates is : [NEET-2017]

- (1) Ventral tubular nerve cord
 (2) Pharynx with gill slits
 (3) Pharynx without gill slits
 (4) Absence of notochord

- Q.10** Which among these is the correct combination of aquatic mammals? [NEET-2017]

- (1) Dolphins, Seals, Trygon
 (2) Whales, Dolphins, Seals
 (3) Trygon, Whales, Seals
 (4) Seals, Dolphins, Sharks

- Q.11** Identify the vertebrate group of animals characterized by crop and gizzard in its digestive system. [NEET-2018]

- (1) Aves
 (2) Reptilia
 (3) Amphibia
 (4) Osteichthyes

- Q.12** Which one of these animals is not a homeotherm?
 (1) *Corvus* (2) *Chelone* [NEET-2018]
 (3) *Macropus* (4) *Psittacula*
- Q.13** Match the following organisms with their respective characteristics :- [NEET-2019]
 (a) *Pila* (i) Flame cells
 (b) *Bombyx* (ii) Comb plates
 (c) *Pleurobrachia* (iii) Radula
 (d) *Taenia* (iv) Malpighian tubules
 Select the correct option from the following
 (a) (b) (c) (d) (a) (b) (c) (d)
 (1) (iii) (ii) (i) (iv) (2) (iii) (iv) (ii) (i)
 (3) (ii) (iv) (iii) (i) (4) (iiii) (ii) (iv) (i)
- Q.14** Consider following features: [NEET-2019]
 (a) Organ system level of organisation
 (b) Bilateral symmetry
 (c) True coelomates with segmentation of body
 Select the **correct** option of animal groups which possess all the above characteristics.
 (1) Annelida, Arthropoda and Chordata
 (2) Annelida, Arthropoda and Mollusca
 (3) Arthropoda, Mollusca and Chordata
 (4) Annelida, Mollusca and Chordata
- Q.15** Bilaterally symmetrical and acoelomate animals are exemplified by [NEET-2020]
 (1) Platyhelminthes (2) Aschelminthes
 (3) Annelida (4) Ctenophora
- Q.16** Match the following columns and select the correct option. [NEET-2020]
Column-I **Column-II**
 (a) 6-15 pairs of gill slits (i) Trygon
 (b) Heterocercal caudal fin (ii) Cyclostomes
 (c) Air Bladder (iii) Chondrichthyes
 (d) Poison sting (iv) Osteichthyes
 (a) (b) (c) (d)
 (1) (iii) (iv) (i) (ii)
 (2) (iv) (ii) (iii) (i)
 (3) (i) (iv) (iii) (ii)
 (4) (ii) (iii) (iv) (i)
- Q.17** Match the following columns and select the correct option. [NEET-2020]
Column-I **Column-II**
 (a) Gregarious, polyphagous pest (i) *Asterias*
 (b) Adult with radial symmetry and larva with bilateral symmetry (ii) Scorpion
 (c) Book lungs (iii) *Ctenoplana*
 (d) Bioluminescence (iv) *Locusta*
 (a) (b) (c) (d)
 (1) (iv) (i) (ii) (iii)
 (2) (iii) (ii) (i) (iv)
 (3) (ii) (i) (iii) (iv)
 (4) (i) (iii) (ii) (iv)
- Q.18** Which of the following statements are true for the phylum-Chordata? [NEET-2020]
 (a) In Urochordata notochord extends from head to tail and it is present throughout their life.
 (b) In Vertebrata notochord is present during the embryonic period only.
 (c) Central nervous system is dorsal and hollow.
 (d) Chordata is divided into 3 subphyla : Hemichordata, Tunicata and Cephalochordata.
 (1) (c) and (a) (2) (a) and (b)
 (3) (b) and (c) (4) (d) and (c)
- Q.19** Read the following statements. [NEET-2021]
 (a) Metagenesis is observed in Helminths.
 (b) Echinoderms are triploblastic and coelomate animals
 (c) Round worms have organ-system level of body organization
 (d) Comb plates present in ctenophores help in digestion.
 (e) Water vascular system is characteristic of Echinoderms.
 Choose the correct answer form the options given below.
 (1) (a), (b) and (c) are correct
 (2) (a), (d) and (e) are correct
 (3) (b), (c) and (e) are correct
 (4) (c), (d) and (e) are correct
- Q.20** Match List-I with List-II [NEET-2021]
- | List-I | | List-II | |
|--------|--------------|---------|--------------|
| (a) | Metamerism | (i) | Coelenterata |
| (b) | Canal system | (ii) | Ctenophora |
| (c) | Comb plates | (iii) | Annelida |
| (d) | Cnidoblasts | (iv) | Porifera |
- Choose the correct answer from the options given below.
 (a) (b) (c) (d)
 (1) (iii) (iv) (i) (ii)
 (2) (ii) (iv) (ii) (i)
 (3) (iv) (i) (ii) (iii)
 (4) (iv) (iii) (i) (ii)
- Q.21** Match the following : [NEET-2021]
- | List - I | | List - II | |
|----------|--------------------|-----------|-----------------------|
| (a) | <i>Physalia</i> | (i) | Pearl oyster |
| (b) | <i>Limulus</i> | (ii) | Portuguese Man of War |
| (c) | <i>Ancylostoma</i> | (iii) | Living fossil |
| (d) | <i>Pinctada</i> | (iv) | Hookworm |
- Choose the **correct** answer from the option given below.
 (a) (b) (c) (d)
 (1) (iv) (i) (iii) (ii)
 (2) (ii) (iii) (iv) (ii)
 (3) (i) (iv) (iii) (ii)
 (4) (ii) (iii) (i) (iv)

- Q.22** Which one of the following organisms bears hollow and pneumatic long bones? [NEET-2021]
 (1) *Hemidactylus*
 (2) *Macropus*
 (3) *Ornithorhynchus*
 (4) *Neophron*
- Q.23** Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.
Assertion (A) : All vertebrates are chordates but all chordates are not vertebrates.
Reason (R): Notochord is replaced by vertebral column in the adult vertebrates. [NEET-2022]
 In the light of the above statements, choose the most appropriate 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.24** In which of the following animals, digestive tract has additional chambers like crop and gizzard [NEET-2022]
 (1) *Bufo*, *Balaenoptera*, *Bangarus*
 (2) *Catla*, *Columba*, *Crocodylus*
 (3) *Pavo*, *Psittacula*, *Corvus*
 (4) *Corvus*, *Columba*, *Chameleon*
- Q.25** Exoskeleton of arthropods is composed of: [NEET-2022]
 (1) Cellulose (2) Chitin
 (3) Glucosamine (4) Cutin
- Q.26** Radial symmetry is NOT found in adults of phylum. [NEET-2023]
 (1) Hemichordata (2) Coelenterata
 (3) Echinodermata (4) Ctenophora
- Q.27** Match **List I** with **List II** [NEET-2023]

List I	List II
A. <i>Taenia</i>	I. Nephridia
B. <i>Paramoecium</i>	II. Contractile vacuole
C. <i>Periplaneta</i>	III. Flame cells
D. <i>Pheretima</i>	IV. Ureose gland

 Choose the correct answer from the options give below
 (1) A-I, B-II, C-IV, D-III
 (2) A-III, B-II, C-IV, D-I
 (3) A-II, B-I, C-IV, D-III
 (4) A-I, B-II, C-III, D-IV
- Q.28** Select the correct statements with reference to chordates. [NEET-2023]
 A. Presence of mid-dorsal, solid and double nerve cord.
 B. Presence of closed circulatory system
 C. Presence of paired pharyngeal gill slits
 D. Presence of dorsal heart
 E. Triploblastic pseudocoelomate animals
 Choose the correct answer from the options given below:
 (1) B and C only (2) B, D and E only
 (3) C, D and E only (4) A, C and D only
- Q.29** The unique mammalian characteristics are : [NEET-2023]
 (1) hairs, pinna and mammary glands
 (2) hairs, pinna and indirect development
 (3) pinna, monocondylic skull and mammary glands
 (4) hairs, tympanic membrane and mammary glands
- Q.30** Consider the following statements [NEET-2024]
 A. Annelids are true coelomates
 B. Poriferans are pseudocoelomates
 C. Aschelminthes are acoelomates
 D. Platyhelminthes are pseudocoelomates
 Choose the correct answer from the options given below :
 (1) D only (2) B only
 (3) A only (4) C only
- Q.31** Match List I with List II : [NEET-2024]

List I	List II
A. Pleurobrachia	I. Mollusca
B. Radula	II. Ctenophora
C. Stomochord	III. Osteichthyes
D. Air bladder	IV. Hemichordata

 Choose the correct answer from the options given below :
 (1) A - IV, B - III, C - II, D - I
 (2) A - IV, B - II, C - III, D - I
 (3) A - II, B - I, C - IV, D - III
 (4) A - II, B - IV, C - I, D - III
- Q.32** Match List I with List II : [NEET-2024]

List I	List II
A. <i>Pterophyllum</i>	I. Hag fish
B. <i>Myxine</i>	II. Saw fish
C. <i>Pristis</i>	III. Angel fish
D. <i>Exocoetus</i>	IV. Flying fish

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

- Q.33** The following are the statements about non-chordates:
 A. Pharynx is perforated by gill slits.
 B. Notochord is absent.
 C. Central nervous system is dorsal.
 D. Heart is dorsal if present.
 E. Post anal tail is absent.
 Choose the most appropriate answer from the options given below: [NEET-2024]
 (1) B, C & D only (2) A & C only
 (3) A, B & D only (4) B, D & E only
- Q.34** Match List-I with List-II:
- | List-I | | List-II | |
|--------|----------------|---------|--------------------|
| A. | Chondrichthyes | I. | <i>Clarias</i> |
| B. | Cyclostomata | II. | <i>Carcharodon</i> |
| C. | Osteichthyes | III. | <i>Myxine</i> |
| D. | Amphibia | IV. | <i>Ichthyophis</i> |
- Choose the correct answer from the options given below : [Re-NEET 2024]
 (1) A-II, B-IV, C-I, D-III
 (2) A-I, B-III, C-II, D-IV
 (3) A-II, B-III, C-I, D-IV
 (4) A-I, B-II, C-III, D-IV
- Q.35** Open Circulatory system is present in: [Re-NEET 2024]
 (1) *Palaemon*, *Nereis*, *Balanoglossus*
 (2) *Hirudinaria*, *Bombyx*, *Salpa*
 (3) *Anopheles*, *Limax*, *Limulus*
 (4) *Pheretima*, *Musca*, *Pila*
- Q.36** Which of the following pairs is an incorrect match? [Re-NEET 2024]
 (1) Annelids and arthropods - Bilateral symmetry
 (2) Sponges - Acoelomates
 (3) Coelenterates and Ctenophores - Radial symmetry
 (4) Platyhelminthes - Diploblastic organisation
- Q.37** Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R.
Assertion A: Members of subphylum vertebrates possess notochord during the embryonic period. The notochord is replaced by a cartilaginous or bony vertebral column in the adult.
Reason R: Thus all chordates are vertebrates not all vertebrates are chordates.
 In the light of the above statements choose the correct answer from the option given below. [Re-NEET 2024]
 (1) A is true but R is false.
 (2) A is false but R is true
 (3) Both A and R are true and R is the correct explanation of A.
 (4) Both A and R are true but R is NOT the correct explanation of A.
- Q.38** While trying to find out the characteristic of a newly found animal, a researcher did the histology of adult animal and observed a cavity with presence of mesodermal tissue towards the body wall but no mesodermal tissue was observed towards the alimentary canal. What could be the possible coelome of that animal ? [NEET-2025]
 (1) Acoelomate
 (2) Pseudocoelomate
 (3) Schizocoelomate
 (4) Spongocoelomate
- Q.39** Role of the water vascular system in Echinoderms is : [NEET-2025]
 A. Respiration and Locomotion
 B. Excretion and Locomotion
 C. Capture and transport of food
 D Digestion and Respiration
 E. Digestion and Excretion
 Choose the correct answer from the options given below:
 (1) A and B only
 (2) A and C only
 (3) B and C only
 (4) B, D and E only
- Q.40** All living members of the class Cyclostomata are: [NEET-2025]
 (1) Free living
 (2) Endoparasite
 (3) Symbiotic
 (4) Ectoparasite
- Q.41** Given below are two statements: one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**
Assertion (A) : All vertebrates are chordates but all chordates are not vertebrate. [NEET-2025]
Reason (R) : The members of subphylum vertebrata possess notochord during the embryonic period, the notochord is replaced by a cartilaginous or bony vertebral column in adults.
 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

Morphology of Flowering Plants

- Q.1** Roots play insignificant role in absorption of water in : [AIPMT-2015]
 (1) Pea (2) Wheat
 (3) Sunflower (4) Pistia
- Q.2** Axile placentation is present in : [AIPMT-2015]
 (1) Pea (2) *Argemone*
 (3) *Dianthus* (4) Lemon
- Q.3** The wheat grain has an embryo with one large, shield shaped cotyledon known as : [AIPMT-2015]
 (1) Scutellum (2) Coleoptile
 (3) Epiblast (4) Coleorhiza
- Q.4** Tricarpellary, syncarpous gynoecium is found in flowers of : [NEET Phase I-2016]
 (1) Fabaceae (2) Poaceae
 (3) Liliaceae (4) Solanaceae
- Q.5** Which of the following is not a stem modification ? [NEET Phase I-2016]
 (1) Tendrils of cucumber
 (2) Flattened structures of *Opuntia*
 (3) Pitcher of *Nepenthes*
 (4) Thorns of citrus
- Q.6** Stems modified into flat green organs performing the functions of leaves are known as : [NEET Phase I-2016]
 (1) Phylloclades (2) Scales
 (3) Cladodes (4) Phyllodes
- Q.7** Free-central placentation is found in : [NEET Phase II-2016]
 (1) *Dianthus* (2) *Argemone*
 (3) *Brassica* (4) Citrus
- Q.8** How many plants among *Indigofera*, *Sesbania*, *Salvia*, *Allium*, *Aloe*, mustard, groundnut, radish, gram and turnip have stamens with different lengths in their flowers? [NEET II-2016]
 (1) Three (2) Four
 (3) Five (4) Six
- Q.9** Coconut fruit is a [NEET-2017]
 (1) berry (2) nut
 (3) capsule (4) drupe
- Q.10** In *Bougainvillea*, thorns are the modifications of : [NEET-2017]
 (1) adventitious root (2) stem
 (3) leaf (4) stipules
- Q.11** The morphological nature of the edible part of coconut is : [NEET II-2017]
 (1) Cotyledon (2) endosperm
 (3) pericarp (4) perisperm
- Q.12** The term 'Polyadelphous' is related to : [NEET 2017, NEET II-2016]
 (1) Gynoecium
 (2) androecium
 (3) corolla
 (4) calyx
- Q.13** Root hair develop form the region of : [NEET-2017]
 (1) elongation
 (2) root cap
 (3) meristematic activity
 (4) maturation
- Q.14** Pneumatophores occur in :- [NEET-2018]
 (1) Halophytes
 (2) Free floating hydrophytes
 (3) Carnivorous plants
 (4) Submerged hydrophytes
- Q.15** Sweet potato is a modified [NEET-2018]
 (1) Stem (2) Adventitious root
 (3) Tap root (4) Rhizome
- Q.16** Placentation, in which ovules develop on the inner wall of the ovary or in peripheral part, is : [NEET-2019]
 (1) Basal (2) Axile
 (3) Parietal (4) Free central
- Q.17** Ray florets have [NEET-2020]
 (1) Superior ovary
 (2) Hypogynous ovary
 (3) Half inferior ovary
 (4) Inferior ovary
- Q.18** The roots that originate from the base of the stem are [NEET-2020]
 (1) Primary roots (2) Prop roots
 (3) Lateral roots (4) Fibrous roots
- Q.19** The ovary is half inferior in : [NEET-2020]
 (1) Mustard (2) Sunflower
 (3) Plum (4) Brinjal
- Q.20** Diadelphous stamens are found in : [NEET-2021]
 (1) Citrus
 (2) Pea
 (3) China rose and citrus
 (4) China rose

Q.21 Match Column - I with Column - II [NEET-2021]

- | | |
|---|--|
| <p>(a) $\% \overset{\curvearrowright}{\underset{\oplus}{O}} K_{(5)} C_{1+2+(2)} A_{(9)+1} \underline{G}_1$</p> <p>(b) $\oplus \overset{\curvearrowright}{\underset{\oplus}{O}} K_{(5)} \overline{C}_{(5)} \underline{A}_5 \underline{G}_2$</p> <p>(c) $\oplus \overset{\curvearrowright}{\underset{\oplus}{O}} P_{(3+3)} \overline{A}_{3+3} \underline{G}_{(3)}$</p> <p>(d) $\oplus \overset{\curvearrowright}{\underset{\oplus}{O}} K_{2+2} C_4 A_{2-4} \underline{G}_{(2)}$</p> | <p>(i) Brassicaceae</p> <p>(ii) Liliaceae</p> <p>(iii) Fabaceae</p> <p>(iv) Solanaceae</p> |
|---|--|

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

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

Q.22 Which one of the following plants shows vexillary aestivation and diadelphous stamens ? [NEET-2022]

- (1) *Pisum sativum* (2) *Allium cepa*
 (3) *Solanum nigrum* (4) *Colchicum autumnale*

Q.23 The flowers are Zygomorphic in: [NEET-2022]

- (a) Mustard (b) Gulmohar
 (c) *Cassia* (d) *Datura*
 (e) Chilly

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

- (1) (b), (c) Only (2) (d), (e) Only
 (3) (c), (d), (e) Only (4) (a), (b), (c) Only

Q.24 Identify the correct set of statements: [NEET-2022]

- (a) The leaflets are modified into pointed hard thorns in *Citrus* and *Bougainvillea*
 (b) Axillary buds form slender and spirally coiled tendrils in cucumber and pumpkin
 (c) Stem is flattened and fleshy in *Opuntia* and modified to perform the function of leaves
 (d) *Rhizophora* shows vertically upward growing roots that help to get oxygen for respiration
 (e) Sub-aerially growing stems in grasses and strawberry help in vegetative propagation

Choose the correct answer from the options given below:

- (1) (a) and (d) Only
 (2) (b), (c), (d) and (e) Only
 (3) (a), (b), (d) and (e) Only
 (4) (b) and (c) Only

Q.25 Axile placentation is observed in [NEET-2023]

- (1) China rose. Beans and Lupin
 (2) Tomato. Dianthus and Pea
 (3) China rose. Petunia and Lemon
 (4) Mustard. Cucumber and Primrose

Q.26 Family Fabaceae differs from Solanaceae and Liliaceae. With respect to the stamens, pick out the characteristics specific to family. Fabaceae but not found in Solanaceae or Liliaceae. [NEET-2023]

- (1) Polyadelphous and epipetalous stamens
 (2) Monoadelphous and Monothealous anthers
 (3) Epiphylous and Dithecous anthers
 (4) Diadelphous and Dithecous anthers

Q.27 Given below are two statements : One is labelled as **Assertion A** and the other is labelled as Reason R. **Assertion A** : A flower is defined as modified shoot wherein the shoot apical meristem changes to floral meristem.

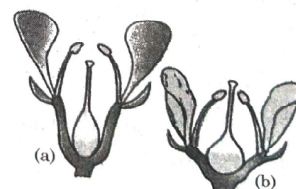
Reason R : Internode of the shoot gets condensed to produce different floral appendages laterally at successive nodes instead of leaves. [NEET-2023]

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.28 Identify the type of flowers based on the position of calyx, corolla and androecium with respect to the ovary from the given figures (a) and (b)

[NEET-2024]

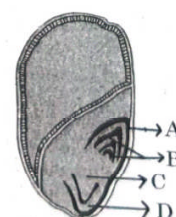


- (1) (a) Perigynous; (b) Perigynous
 (2) (a) Epigynous; (b) Hypogynous
 (3) (a) Hypogynous; (b) Epigynous
 (4) (a) Perigynous; (b) Epigynous

Q.29 Which of the following is an example of actinomorphic flower? [NEET-2024]

- (1) *Sesbania* (2) *Datura*
 (3) *Cassia* (4) *Pisum*

Q.30 Identify the part of the seed from the given figure which is destined to form root when the seed germinates.



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

Q.31 Match List I with List II [NEET-2024]

List I (Types of Stamens) **List II** (Example)

- A. Monoadelphous I. Citrus
B. Diadelphous II. Pea
C. Polyadelphous III. Lily
D. Epiphyllous IV. China-rose

Choose the correct answer from the options given below:

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

Q.32 Match List I with List II [NEET-2024]

List I **List II**
A. Rose I. Twisted aestivation
B. Pea II. Perigynous flower
C. Cotton III. Drupe
D. Mango IV. Marginal placentation

Choose the correct answer from the options given below :

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

Q.33 Match List-I with List-II:

List-I		List-II	
A.	Vexillary aestivation	I.	Brinjal
B.	Epipetalous stamens	II.	Peach
C.	Epiphyllous stamens	III.	Pea
D.	Perigynous flower	IV.	Lily

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

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

Q.34 Match List-I with List-II:

List-I		List-II	
A.	China rose	I.	Free central
B.	Mustard	II.	Basal
C.	Primrose	III.	Axile
D.	Marigold	IV.	Parietal

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

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

Q.35 Which of the following examples show monocarpellary, unilocular ovary with many ovules?

- A. Sesbania B. Brinjal
C. *Indigofera* D. Tobacco
E. *Asparagus*

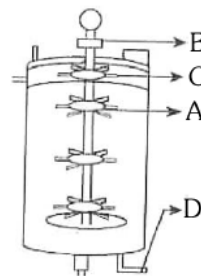
Choose the correct answer from the options given below : [Re-NEET 2024]

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

Q.36 In the seeds of cereals, the outer covering of endosperm separates the embryo by a protein-rich layer called : [NEET-2025]

- (1) Coleoptile (2) Coleorhiza
(3) Integument (4) Aleurone Layer

Q.37 Identify the part of a bio-reactor which is used as a foam breaker from the given figure. [NEET-2025]



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

Q.38 Which of the following is an example of a zygomorphic flower ? [NEET-2025]

- (1) Petunia (2) Datura
(3) Pea (4) Chili

Anatomy of Flowering Plants

Q.1 Cortex is the region found between : [NEET II-2016]

- (1) epidermis and stele
(2) pericycle and endodermis
(3) endodermis and pith
(4) endodermis and vascular bundle

Q.2 Identify the wrong statement in context of heartwood.

- (1) It is highly durable. [NEET-2017]
(2) It conducts water and minerals efficiently.
(3) It comprises dead elements with highly lignified walls.
(4) Organic compounds are deposited in it.

Q.3 Stomata in grass leaf are [NEET-2018]

- (1) Dumb-bell shaped
(2) Kidney shaped
(3) Rectangular
(4) Barrel shaped

Q.4 Secondary xylem and phloem in dicot stem are produced by [NEET-2018]

- (1) Apical meristem
- (2) Vascular cambium
- (3) Phellogen
- (4) Axillary meristem

Q.5 Casparian strips occur in [NEET-2018]

- (1) Epidermis
- (2) Pericycle
- (3) Cortex
- (4) Endodermis

Q.6 Plants having little or no secondary growth are [NEET-2018]

- (1) Grasses
- (2) Deciduous angiosperms
- (3) Conifers
- (4) Cycads

Q.7 Grass leaves curl inwards during very dry weather. Select the most appropriate reason from the following: [NEET-2019]

- (1) Closure of stomata
- (2) Flaccidity of bulliform cells
- (3) Shrinkage of air spaces in spongy mesophyll
- (4) Tyloses in vessels

Q.8 Phloem in gymnosperms lacks : [NEET-2019]

- (1) Albuminous cells and sieve cells
- (2) Sieve tubes only
- (3) Companion cells only
- (4) Both sieve tubes and companion cells

Q.9 The transverse section of a plant shows following anatomical features : [NEET-2020]

- (a) Large number of scattered vascular bundles surrounded by bundle sheath
- (b) Large conspicuous parenchymatous ground tissue
- (c) Vascular bundles conjoint and closed
- (d) Phloem parenchyma absent

Identify the category of plant and its part :

- (1) Monocotyledonous root
- (2) Dicotyledonous stem
- (3) Dicotyledonous root
- (4) Monocotyledonous stem

Q.10 Identify the incorrect statement. [NEET-2020]

- (1) Sapwood is involved in conduction of water and minerals from root to leaf
- (2) Sapwood is the innermost secondary xylem and is lighter in colour
- (3) Due to deposition of tannins, resins, oils etc., heart wood is dark in colour
- (4) Heart wood does not conduct water but gives mechanical support

Q.11 Match List - I with List - II. [NEET-2021]

List - I		List - II	
(a)	Lenticels	(i)	Phellogen
(b)	Cork cambium	(ii)	Suberin deposition
(c)	Secondary cortex	(iii)	Exchange of gases
(d)	Cork	(iv)	Phelloderm

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

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

Q.12 Match List - I with List - II. [NEET-2021]

List - I		List - II	
(a)	Cells with active cell division capacity	(i)	Vascular tissues
(b)	Tissue having all cells similar in structure and function	(ii)	Meristematic tissue
(c)	Tissue having different types of cells	(iii)	Sclereids
(d)	Dead cells with highly thickened walls and narrow lumen	(iv)	Simple tissue

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

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

Q.13 In old trees the greater part of secondary xylem is dark brown and resistant to insect attack due to:

- (a) secretion of secondary metabolites and their deposition in the lumen of vessels.
- (b) deposition of organic compounds like tannins and resins in the central layers of stem.
- (c) deposition of suberin and aromatic substances in the outer layer of stem.
- (d) deposition of tannins, gum, resin and aromatic substances in the peripheral layers of stem.
- (e) presence of parenchyma cells, functionally active xylem elements and essential oils. [NEET-2022]

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

- (1) (c) and (d) Only
- (2) (d) and (e) Only
- (3) (b) and (d) Only
- (4) (a) and (b) Only

- Q.14** Identify the correct statements: [NEET-2023]
 A. Lenticels are the lens-shaped openings permitting the exchange of gases.
 B. Bark formed early in the season is called hard bark.
 C. Bark is a technical term that refers to all tissues exterior to vascular cambium.
 D. Bark refers to periderm and secondary phloem.
 E. Phellogen is single-layered in thickness.
 Choose the correct answer from the options given below :

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

- Q.15** Given below are two statements:
Statement I : Endarch and exarch are the terms often used for describing the position of secondary xylem in the plant body.

Statement II : Exarch condition is the most common feature of the root system. [NEET-2023]

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.16** Given below are two statements : One is labelled as **Assertion A** and the other is labelled as **Reason R**:
Assertion A : Late wood has fewer xylary elements with narrow vessels. [NEET-2023]

Reason R : Cambium is less active in winters.

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.

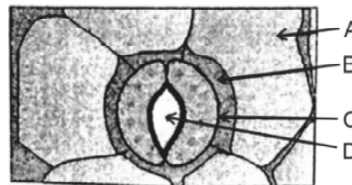
- Q.17** Given below are two statements: [NEET-2024]
Statement I : Parenchyma is living but collenchyma is dead tissue.
Statement II : Gymnosperms lack xylem vessels but presence of xylem vessels is the characteristic of angiosperms.

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.18** Bulliform cells are responsible for [NEET-2024]
 (1) Providing large spaces for storage of sugars.
 (2) Inward curling of leaves in monocots.
 (3) Protecting the plant from salt stress.
 (4) Increased photosynthesis in monocots.

- Q.19** In the given figure, which component has thin outer walls and highly thickened inner walls? [NEET-2024]



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

- Q.20** Which of the following simple tissues are commonly found in the fruit walls of nuts and pulp of pear? [Re-NEET 2024]

- (1) Sclereids
 (2) Fibres
 (3) Parenchyma
 (4) Collenchyma

- Q.21** Which one of the following is not found in Gymnosperms? [Re-NEET 2024]

- (1) Sieve cells
 (2) Albuminous cells
 (3) Tracheids
 (4) Vessels

- Q.22** Which of the following helps in maintenance of the pressure gradient in sieve tubes? [Re-NEET 2024]

- (1) Albuminous cells
 (2) Sieve cells
 (3) Phloem parenchyma
 (4) Companion cells

- Q.23** Given below are two statements:
Statement I : In a dicotyledonous leaf, the adaxial epidermis generally bears more stomata than the abaxial epidermis.

Statement II : In a dicotyledonous leaf, the adaxially placed palisade parenchyma is made up of elongated cells, which are arranged vertically and parallel to each other.

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.24** Find the statement that is NOT correct with regard to the structure of monocot stem. [NEET-2025]
 (1) Hypodermis is parenchymatous
 (2) Vascular bundles are scattered.
 (3) Vascular bundles are conjoint and closed.
 (4) Phloem parenchyma is absent.
- Q.8** The ciliated epithelial cells are required to move particles or mucus in a specific direction. In humans, these cells are mainly present in : [NEET-2019]
 (1) Bile duct and Bronchioles
 (2) Fallopian tubes and Pancreatic duct
 (3) Eustachian tube and Salivary duct
 (4) Bronchioles and Fallopian tubes

Structural Organisation in Animals

- Q.1** The function of the gap junction is to : [AIPMT-2015]
 (1) Separate two cells from each other
 (2) Stop substance from leaking across a tissue
 (3) Performing cementing to keep neighbouring cells together
 (4) Facilitate communication between adjoining cells by connecting the cytoplasm for rapid transfer of ions, small molecules and some large molecules.
- Q.2** Smooth muscles are : [NEET - 2016]
 (1) Involuntary, fusiform, non-striated
 (2) Voluntary, multinucleate, cylindrical
 (3) Involuntary, cylindrical, striated
 (4) Voluntary, spindle-shaped, uninucleate
- Q.3** Which type of tissue correctly matches with its location ? [NEET - 2016]
- | Tissue | Location |
|---------------------------|-------------------|
| (1) Transition epithelium | Tip of nose |
| (2) Cuboidal epithelium | Lining of stomach |
| (3) Smooth muscle | Wall of intestine |
| (4) Areolar tissue | Tendons |
- Q.4** In male cockroaches, sperms are stored in which part of the reproductive system? [NEET- 2016]
 (1) Seminal vesicles (2) Mushroom glands
 (3) Testes (4) Vas deferens
- Q.5** In smooth and cardiac muscles, cell junctions are represented by – [NEET - 2018]
 (1) Gap junction (2) Desmosomes
 (3) Tight junction (4) Zonula occludens
- Q.6** Which among the following is predominant epithelia in digestive tract? [NEET - 2018]
 (1) Stratified squamous epithelia
 (2) Simple cuboidal epithelia
 (3) Simple squamous epithelia
 (4) Pseudostratified ciliated epithelia
- Q.7** Which of the following features is used to identify a male cockroach from a female cockroach? [NEET - 2018]
 (1) Forewings with darker tegmina
 (2) Presence of caudal styles
 (3) Presence of a boat shaped sternum on the 9th abdominal segment
 (4) Presence of anal cerci
- Q.9** Goblet cells of alimentary canal are modified from [NEET-2020]
 (1) Columnar epithelial cells
 (2) Chondrocytes
 (3) Compound epithelial cells
 (4) Squamous epithelial cells
- Q.10** Cuboidal epithelium with brush border of microvilli is found in [NEET-2020]
 (1) Ducts of salivary gland
 (2) Proximal convoluted tubule of nephron
 (3) Eustachian tube
 (4) Lining of intestine
- Q.11** If the head of cockroach is removed, it may live for few days because [NEET-2020]
 (1) the cockroach does not have nervous system.
 (2) the head holds a small proportion of a nervous system while the rest is situated along the ventral part of its body.
 (3) the head holds a 1/3rd of a nervous system while the rest is situated along the dorsal part of its body.
 (4) the supra-oesophageal ganglia of the cockroach are situated in ventral part of abdomen.
- Q.12** Which of the following statements wrongly represents the nature of smooth muscle? [NEET-2021]
 (1) They are involuntary muscles
 (2) Communication among the cells is performed by intercalated discs
 (3) These muscles are present in the wall of blood vessels.
 (4) These muscle have no striation
- Q.13** Which of the following characteristics is incorrect with respect to cockroach? [NEET-2021]
 (1) Hypopharynx lies within the cavity enclosed by the mouth parts.
 (2) In females 7th - 9th sterna together form a genital pouch
 (3) 10th abdominal segment in both sexes, bears a pair of anal cerci.
 (4) A ring of gastric caeca is present at the junction of midgut and hind gut.

Q.14 Identify the types of cell junctions that help to stop the leakage of the substances across a tissue and facilitation of communication with neighbouring cells via rapid transfer of ions and molecules.

[NEET-2021]

- (1) Tight junctions and Gap junctions, respectively.
- (2) Adhering junctions and Tight junctions, respectively
- (3) Adhering junctions and Gap junctions, respectively
- (4) Gap junctions and Adhering junctions, respectively

Q.15 Match **List -I** with **List - II**. [NEET-2022]

List-I	List-II
(a) Bronchioles	(i) Dense Regular Connective Tissue
(b) Goblet cell	(ii) Loose Connective Tissue
(c) Tendons	(iii) Glandular Tissue
(d) Adipose Tissue	(iv) Ciliated Epithelium

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 Tegmina in cockroach, arises from: [NEET-2022]

- (1) Mesothorax
- (2) Metathorax
- (3) Prothorax and Mesothorax
- (4) Prothorax

Q.17 Which of the following is **not** a connective tissue? [NEET-2022]

- | | |
|--------------------|---------------|
| (1) Adipose tissue | (2) Cartilage |
| (3) Neuroglia | (4) Blood |

Q.18 In cockroach, excretion is brought about by- [NEET-2023]

- | | |
|----------------------|------------------|
| A. Phallic gland | B. Urecose gland |
| C. Nephrocytes | D. Fat body |
| E. Collateral glands | |

Choose the correct answer from the options given below:

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

Q.19 Match **List I** with **List II**. [NEET-2023]

List I	List II
A. Mast cells	I. Ciliated epithelium
B. Inner surface of bronchiole	II. Areolar connective tissue
C. Blood	III. Cuboidal epithelium
D. Tubular parts of nephron	IV. specialised connective tissue

Choose the **correct answer** from the options give below

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

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

Statement I : Ligaments are dense irregular tissue.

Statement II : Cartilage is dense regular tissue.

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.21 Which of the following is characteristic feature of cockroach regarding sexual dimorphism? [NEET-2023]

- (1) Presence of anal styles
- (2) Presence of sclerites
- (3) Presence of anal cerci
- (4) Dark brown body colour and anal cerci

Q.22 Match List I with List II related to digestive system of cockroach. [NEET-2024]

List I	List II
A. The structures used for storing of food	I. Gizzard
B. Ring of 6-8 blind tubules at junction of foregut and midgut.	II. Gastric Caeca
C. Ring of 100-150 yellow coloured thin filaments at junction of midgut and hindgut.	III. Malpighian tubules
D. The structures used for grinding the food	IV. Crop

Choose the correct answer from the options given below:

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

Q.23 Match List I with List II: [NEET-2024]

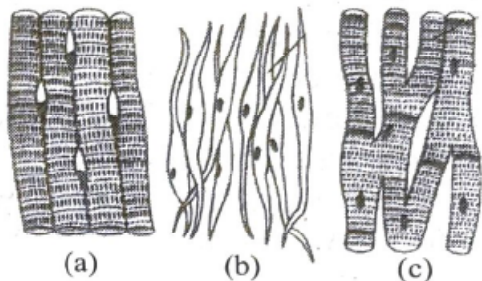
List-I	List II
A. Unicellular glandular epithelium	I. Salivary glands
B. Compound epithelium	II. Pancreas
C. Multicellular glandular of epithelium alimentary canal	III. Goblet cells
D. Endocrine glandular epithelium	IV. Moist surface of buccal cavity

Choose the correct answer from the options given below:

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

- Q.24** In both sexes of cockroach, a pair of jointed filamentous structures called anal cerci are present on **[NEET-2024]**
- (1) 11th segment
 - (2) 5th segment
 - (3) 10th segment
 - (4) 8th and 9th segment

- Q.25** Three types of muscles are given as a, b and c. Identify the correct matching pair along with their location in human body: **[NEET-2024]**



Name of muscle/location

- (1) (a) Involuntary – Nose tip
(b) Skeletal – Bone
(c) Cardiac – Heart
 - (2) (a) Smooth - Toes
(b) Skeletal – Legs
(c) Cardiac – Heart
 - (3) (a) Skeletal - Triceps
(b) Smooth – Stomach
(c) Smooth – Heart
 - (4) (a) Skeletal - Biceps
(b) Involuntary – Intestine
(c) Cardiac – Heart
- Q.26** Which of the following statements is correct about the type of junction and their role in our body? **[Re-NEET 2024]**
- (1) Adhering junctions facilitate the cells to communicate with each other.
 - (2) Tight junctions help to stop substances from leaking across a tissue.
 - (3) Tight junctions help to perform cementing to keep neighbouring cells together.
 - (4) Gap junctions help to create gap between the cells and tissues.
- Q.27** Which of the following is/are present in female cockroach?
- A. Collateral gland
 - B. Mushroom gland
 - C. Spermatheca
 - D. Anal style
 - E. Phallic gland
- Choose the most appropriate answer from the options given below: **[Re-NEET 2024]**

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

- Q.28** In which of the following connective tissues, the cells secrete fibres of collagen or elastin?
- A. Cartilage
 - B. Bone
 - C. Adipose tissue
 - D. Blood
 - E. Areolar tissue

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

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

- Q.29** Match List-I with List-II:

List-I		List-II	
A.	Squamous Epithelium	I.	Goblet cells of alimentary canal
B.	Ciliated Epithelium	II.	Inner lining of pancreatic ducts
C.	Glandular Epithelium	III.	Walls of blood vessels
D.	Compound Epithelium	IV.	Inner surface of Fallopian tubes

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

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

- Q.30** In frog, the Renal portal system is a special venous connection that acts to link : **[NEET-2025]**
- (1) Liver and intestine
 - (2) Liver and kidney
 - (3) Kidney and intestine
 - (4) Kidney and lower part of body

- Q.31** Frogs respire in water by skin and buccal cavity and on land by skin, buccal cavity and lungs. **[NEET-2025]**
- Choose the **correct** answer from the following :
- (1) The statement is true for water but false for land
 - (2) The statement is true for both the environment
 - (3) The statement is false for water but true for land
 - (4) The statement is false for both the environment

Cell : The Unit of Life

- Q.1** Cellular organelles with membranes are :
[AIPMT- 2015]
- (1) Endoplasmic reticulum, ribosomes and nuclei
 - (2) Lysosomes, Golgi apparatus and mitochondria
 - (3) Nuclei, ribosomes and mitochondria
 - (4) Chromosomes, ribosomes and endoplasmic reticulum.
- Q.2** Match the columns and identify the correct options :
[AIPMT- 2015]
- | Column-I | Column-II |
|---------------|---|
| A. Thylakoids | (i) Disc-shaped sacs in Golgi apparatus |
| B. Cristae | (ii) Condensed structure of DNA |
| C. Cisternae | (iii) Flat membranous sacs in stroma |
| D. Chromatin | (iv) Infoldings in mitochondria |
- (1) A-iii, B-i, C-iv, D-ii
 - (2) A-iii, B-iv, C-ii, D-i
 - (3) A-iv, B-iii, C-i, D-ii
 - (4) A-iii, B-iv, C-i, D-ii
- Q.3** Which of the following structures is not found in a prokaryotic cell ?
[AIPMT- 2015]
- (1) Mesosome
 - (2) Plasma membrane
 - (3) Nuclear envelope
 - (4) Ribosome
- Q.4** Select the mismatch : [NEET Phase II- 2016]
- (1) Gas vacuoles - Green bacteria
 - (2) Large central vacuoles - Animal cells
 - (3) Protists - Eukaryotes
 - (4) Methanogens - Prokaryotes
- Q.5** A cell organelle containing hydrolytic enzymes is :
[NEET Phase II- 2016]
- | | |
|--------------|---------------|
| (1) Lysosome | (2) Microsome |
| (3) Ribosome | (4) Mesosome |
- Q.6** Mitochondria and chloroplast are :
(A) Semi-autonomous organelles
(B) Formed by division of pre-existing organelles and they contain DNA but lack protein synthesising machinery.
Which one of the following options is correct ?
[NEET Phase I- 2016]
- (1) (A) is true but (B) is false
 - (2) Both (A) and (B) are false
 - (3) Both (A) and (B) are correct
 - (4) (B) is true but (A) is false.
- Q.7** Water soluble pigments found in plant cell vacuoles are :
[NEET Phase I- 2016]
- (1) Carotenoids
 - (2) Anthocyanins
 - (3) Xanthophylls
 - (4) Chlorophylls
- Q.8** Microtubules are the constituents of :
[NEET Phase I- 2016]
- (1) Centrioles, spindle fibres and chromatin
 - (2) Centrosome, nucleosome and centrioles
 - (3) Cilia, flagella and peroxisomes
 - (4) Spindle fibres, centrioles and cilia.
- Q.9** Which one of the following cell organelles is enclosed by a single membrane ?
[NEET Phase I- 2016]
- (1) Lysosomes
 - (2) Nuclei
 - (3) Mitochondria
 - (4) Chloroplasts
- Q.10** Select the wrong statement [NEET Phase II- 2016]
- (1) Bacterial cell wall is made up of peptidoglycan.
 - (2) Pili and fimbriae are mainly involved in motility of bacterial cells.
 - (3) Cyanobacteria lack flagellated cells.
 - (4) Mycoplasma is a wall-less microorganism.
- Q.11** Which of the following cell organelles is responsible for extracting energy from carbohydrates to form ATP?
[NEET- 2017]
- (1) Ribosome
 - (2) Chloroplast
 - (3) Mitochondrion
 - (4) Lysosome
- Q.12** Which of the following is true for nucleolus?
[NEET- 2018]
- (1) It takes part in spindle formation
 - (2) It is a membrane-bound structure
 - (3) Larger nucleoli are present in dividing cells
 - (4) It is a site for active ribosomal RNA synthesis
- Q.13** The Golgi complex participates in [NEET- 2018]
- (1) Respiration in bacteria
 - (2) Formation of secretory vesicles
 - (3) Fatty acid breakdown
 - (4) Activation of amino acid
- Q.14** Which of the following events does not occur in rough endoplasmic reticulum?
[NEET- 2018]
- (1) Cleavage of signal peptide
 - (2) Protein glycosylation
 - (3) Protein folding
 - (4) Phospholipid synthesis

- Q.15** Many ribosomes may associate with a single mRNA to form multiple copies of a polypeptide simultaneously. Such strings of ribosomes are termed as [NEET- 2018]
- (1) Plastidome
 - (2) Polyhedral bodies
 - (3) Polysome
 - (4) Nucleosome
- Q.16** Select the incorrect match : [NEET- 2018]
- (1) Submetacentric – L-shaped chromosomes
 - (2) Allosomes – Sex chromosomes
 - (3) Lampbrush chromosomes – Diplotene bivalents
 - (4) Polytene chromosomes – Oocytes of amphibians
- Q.17** Which of the following pair of organelles does not contain DNA :- [NEET-2019]
- (1) Mitochondria and Lysosomes
 - (2) Chloroplast and Vacuoles
 - (3) Lysosomes and Vacuoles
 - (4) Nuclear envelope and Mitochondria
- Q.18** Which of the following statements is not correct ? [NEET-2019]
- (1) Lysosomes have numerous hydrolytic enzymes.
 - (2) The hydrolytic enzymes of lysosomes are active under acidic pH.
 - (3) Lysosomes are membrane bound structures.
 - (4) Lysosomes are formed by the process of packaging in the endoplasmic reticulum.
- Q.19** The concept of “*Omnis cellula-e cellula*” regarding cell division was first proposed by : [NEET-2019]
- (1) Rudolf Virchow
 - (2) Theodore Schwann
 - (3) Schleiden
 - (4) Aristotle
- Q.20** Which of the following statements regarding mitochondria is incorrect ? [NEET-2019]
- (1) Outer membrane is permeable to monomers of carbohydrates fats and proteins.
 - (2) Enzymes of electron transport are embedded in outer membrane.
 - (3) Inner membrane is convoluted with infoldings.
 - (4) Mitochondrial matrix contains single circular DNA molecule and ribosomes.
- Q.21** Which of the following statements about inclusion bodies is incorrect? [NEET-2020]
- (1) These are involved in ingestion of food particles
 - (2) They lie free in the cytoplasm
 - (3) These represent reserve material in cytoplasm
 - (4) They are not bound by any membrane
- Q.22** Which is the important site of formation of glycoproteins and glycolipids in eukaryotic cells? [NEET-2020]
- (1) Peroxisomes
 - (2) Golgi bodies
 - (3) Polysomes
 - (4) Endoplasmic reticulum
- Q.23** Match List - I with List -II
- | List - I | | List - II | |
|----------|------------|-----------|---|
| (a) | Cristae | (i) | Primary constriction in chromosome |
| (b) | Thylakoids | (ii) | Disc-shaped sacs in Golgi apparatus |
| (c) | Centromere | (iii) | Infoldings in mitochondria |
| (d) | Cisternae | (iv) | Flattened membranous sacs in stroma of plastids |
- Choose the **correct** answer from the options given below. [NEET-2021]
- | (a) | (b) | (c) | (d) |
|-----------|-------|-------|------|
| (1) (i) | (iv) | (iii) | (ii) |
| (2) (iii) | (iv) | (i) | (ii) |
| (3) (ii) | (iii) | (iv) | (i) |
| (4) (iv) | (iii) | (ii) | (i) |
- Q.24** When the centromere is situated in the middle of two equal arms of chromosomes, the chromosome is referred as: [NEET-2021]
- (1) Telocentric
 - (2) Sub-metacentric
 - (3) Acrocentric
 - (4) Metacentric
- Q.25** The organelles that are included in the endomembrane system are : [NEET-2021]
- (1) Endoplasmic reticulum, Golgi complex, Lysosomes and Vacuoles.
 - (2) Golgi complex, Mitochondria , Ribosomes and Lysosomes
 - (3) Golgi complex, Endoplasmic reticulum, Mitochondria and Lysosomes
 - (4) Endoplasmic reticulum, Mitochondria, Ribosomes and Lysosomes
- Q.26** Which of the following statements with respect to Endoplasmic Reticulum is **incorrect**? [NEET-2022]
- (1) SER is devoid of ribosomes
 - (2) In prokaryotes only RER are present
 - (3) SER are the sites for lipid synthesis
 - (4) RER has ribosomes attached to ER

Q.27 Match List-I with List-II.

List-I	List-II
(a) Metacentric chromosome	(i) Centromere situated close to the end forming one extremely short and one very long arms
(b) Acrocentric chromosome	(ii) Centromere at the terminal end
(c) Sub- metacentric	(iii) Centromere in the middle forming two equal arms of chromosomes
(d) Telocentric	(iv) Centromere slightly away from the middle forming one shorter arm and one longer arm

[NEET-2022]

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

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

Q.28 Which of the following functions is carried out by cytoskeleton in a cell ? [NEET-2023]

- (1) Protein synthesis
- (2) Motility
- (3) Transportation
- (4) Nuclear division

Q.29 Which of the following are NOT considered as the part of endomembrane system ? [NEET-2023]

- A. Mitochondria
- B. Endoplasmic Reticulum
- C. Chloroplasts
- D. Golgi complex
- E. Peroxisomes

Choose the most appropriate answer from the options given below:

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

Q.30 Match List I with List II : [NEET-2024]

List I	List II
A. Axoneme	I. Centriole
B. Cartwheel pattern	II. Cilia and flagella
C. Crista	III. Chromosome
D. Satellite	IV. Mitochondria

Choose the correct answer from the options given below :

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

Q.31 The DNA present in chloroplast is: [NEET-2024]

- (1) Circular, single stranded
- (2) Linear, double stranded
- (3) Circular, double stranded
- (4) Linear, single stranded

Q.32 Match List I with List II [NEET-2024]

List-I	List-II
A. Nucleolus	I. Site of formation of glycolipid
B. Centriole	II. Organization like the cartwheel
C. Leucoplasts	III. Site for active ribosomal RNA synthesis
D. Golgi apparatus	IV. For storing nutrients

Choose the correct answer from the options given below:

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

Q.33 Given below are two statements: [NEET-2024]

Statement I: Mitochondria and chloroplasts both double membranes bound organelles.

Statement II: Inner membrane of mitochondria is relatively less permeable, as compared chloroplast. In the light of the above statements, choose the misappropriate 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.34 Match List-I with List-II [Re-NEET-2024]

List-I	List-II
A. Fleming	I. Disc shaped sacs or cisternae near cell nucleus
B. Robert Brown	II. Chromatin
C. George Palade	III. Ribosomes
D. Camillo Golgi	IV. Nucleus

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

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

Q.35 Mesosome in a cell is a : [Re-NEET-2024]

- (1) Membrane bound vesicular structure
- (2) Chain of many ribosomes attached to a single mRNA
- (3) Special structure formed by extension of plasma membrane
- (4) Medium sized chromosome

Q.36 Match List-I with List-II: [Re-NEET-2024]

	List-I		List-II
A.	Metacentric chromosome	I.	Chromosome has a terminal centromere
B.	Sub-metacentric chromosome	II.	Middle centromere forming two equal arms of chromosome
C.	Acrocentric chromosome	III.	Centromere is slightly away from the middle of chromosome resulting into two unequal arms
D.	Telocentric chromosome	IV.	Centromere is situated close to its end forming one extremely short and one very long arm

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

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

Q.37 Match List-I with List-II. [Re-NEET-2024]

	List-I		List-II
A.	F ₁ Particles	I.	Chromosomes
B.	Histones	II.	Cilia
C.	Axoneme	III.	Golgi apparatus
D.	Cisternae	IV.	Mitochondria

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

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

Q.38 Given below are two statements: [Re-NEET-2024]

Statement I : Concentrically arranged cisternae of Golgi complex are arranged near the nucleus with distinct convex cis or maturing and concave trans or forming face.

Statement II : A number of proteins are modified in the cisternae of Golgi complex before they are released from cis face.

In the light of the above statements, choose the correct answer from the option 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.39 From the statements given below choose the correct option : [NEET-2025]

- A. The eukaryotic ribosomes are 80S and prokaryotic ribosomes are 70S.
 - B. Each ribosome has two subunits.
 - C. The two subunits of 80S ribosome are 60S and 40S while that of 70S are 50S and 30S.
 - D. The two subunits of 80S ribosome are 60S and 20S and that of 70S are 50S and 20S.
 - E. The two subunits of 80S ribosome are 60S and 30S and that of 70S are 50S and 30S.
- (1) A, B, C are true
 - (2) A, B, D are true
 - (3) A, B, E are true
 - (4) B, D, E are true

Q.40 Match list - I with List - II [NEET-2025]

List - I	List - II
A. Centromere	I. Mitochondrion
B. Cilium	II. Cell division
C. Cristae	III. Cell movement
D. Cell membrane	IV. Phospholipid Bilayer

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

Q.41 A specialised membranous structure in a prokaryotic cell which helps in cell wall formation. DNA replication and respiration is : [NEET-2025]

- (1) Mesosome
- (2) Chromatophores
- (3) Cristae
- (4) Endoplasmic Reticulum

Q.42 Given below are two statements: one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**
Assertion (A) : The primary function of the Golgi apparatus is to package the materials made by the endoplasmic reticulum and deliver it to intracellular targets and outside the cell. [NEET-2025]

Reason (R) : Vesicles containing materials made by the endoplasmic reticulum fuse with the cis face of the Golgi apparatus, and they are modified and released from the trans face of the Golgi apparatus. 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

Biomolecules

Q.1 The chitinous exoskeleton of arthropods is formed by the polymerisation of : [AIPMT 2015]

- (1) N-acetyl glucosamine
- (2) Lipoglycans
- (3) Keratin sulphate and chondroitin sulphate
- (4) D-glucosamine

Q.2 Which one of the following is a non-reducing carbohydrate ? [AIPMT 2015]

- (1) Maltose
- (2) Sucrose
- (3) Lactose
- (4) Ribose 5-phosphate

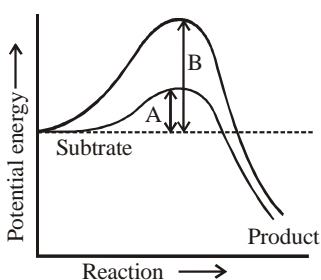
Q.3 Which of the following biomolecules does have a phosphodiester bond ? [AIPMT 2015]

- (1) Amino acids in a polypeptide
- (2) Nucleic acids in a nucleotide
- (3) Fatty acids in a diglyceride
- (4) Monosaccharides in a polysaccharide

Q.4 A non-proteinaceous enzyme is : [NEET II-2016]

- (1) Lysozyme
- (2) Ribozyme
- (3) Ligase
- (4) Deoxyribonuclease

Q.5 Which of the following describes the given graph correctly ? [NEET II-2016]



- (1) Endothermic reaction with energy A in presence of enzyme and B in absence of enzyme.
- (2) Exothermic reaction with energy A in presence of enzyme and B in absence of enzyme
- (3) Endothermic reaction with energy A in absence of enzyme and B in presence of enzyme
- (4) Exothermic reaction with energy A in absence of enzyme and B in presence of enzyme.

Q.6 Which of the following is the least likely to be involved in stabilising the three-dimensional folding of most proteins ? [NEET - 2016]

- (1) Hydrogen bonds
- (2) Electrostatic interaction
- (3) Hydrophobic interaction
- (4) Ester bonds

Q.7 Which one of the following statements is wrong ? [NEET Phase-I 2016]

- (1) Uracil is a pyrimidine
- (2) Glycine is a sulphur containing amino acid
- (3) Sucrose is a disaccharide
- (4) Cellulose is a polysaccharide

Q.8 A typical fat molecule is made up of : [NEET Phase-I 2016]

- (1) One glycerol and one fatty acid molecule
- (2) Three glycerol and three fatty acid molecules
- (3) Three glycerol molecules and one fatty acid molecule
- (4) One glycerol and three fatty acid molecules.

Q.9 Which of the following statements is correct with reference to enzymes? [NEET 2017]

- (1) Holoenzyme = Apoenzyme + coenzyme
- (2) Coenzyme = Apoenzyme + Holoenzyme
- (3) Holoenzyme = Coenzyme + Co-factor
- (4) Apoenzyme = Holoenzyme + Coenzyme

Q.10 Which of the following are not polymeric? [NEET 2017]

- (1) Proteins
- (2) Polysaccharides
- (3) Lipids
- (4) Nucleic acids

Q.11 The two functional groups characteristic of sugars are [NEET - 2018]

- (1) Carbonyl and phosphate
- (2) Carbonyl and methyl
- (3) Hydroxyl and methyl
- (4) Carbonyl and hydroxyl

Q.12 Consider the following statements : [NEET-2019]

- (A) Coenzyme or metal ion that is tightly bound to enzyme protein is called prosthetic group.
- (B) A complete catalytic active enzyme with its bound prosthetic group is called apoenzyme.

Select the correct option.

- (1) Both (A) and (B) are true.
- (2) (A) is true and (B) is false.
- (3) Both (A) and (B) are false.
- (4) (A) is false and (B) is true.

Q.13 Identify the basic amino acid from the following. [NEET-2020]

- (1) Glutamic Acid
- (2) Lysine
- (3) Valine
- (4) Tyrosine

Q.14 Which one of the following is the most abundant protein in the animals? [NEET-2020]

- (1) Collagen
- (2) Lectin
- (3) Insulin
- (4) Haemoglobin

Q.15 Match the following [NEET-2020]

- | | |
|-------------------------------------|---------------|
| (a) Inhibitor of catalytic activity | (i) Ricin |
| (b) Possess peptide bonds | (ii) Malonate |
| (c) Cell wall material in fungi | (iii) Chitin |
| (d) Secondary metabolite | (iv) Collagen |

Choose the correct option from the following

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

- Q.16** Secondary metabolites such as nicotine, strychnine and caffeine are produced by plants for their [NEET-2020]
 (1) Growth response
 (2) Defence action
 (3) Effect on reproduction
 (4) Nutritive value
- Q.17** Identify the substances having glycosidic bond and peptide bond, respectively in their structure [NEET-2020]
 (1) Glycerol, trypsin
 (2) Cellulose, lecithin
 (3) Inulin, insulin
 (4) Chitin, cholesterol
- Q.18** Which of the following are **not** secondary metabolites in plants? [NEET-2021]
 (1) Amino acids, glucose
 (2) Vinblastin, curcumin
 (3) Rubber, gums
 (4) Morphine, codeine
- Q.19** Match List-I with List-II [NEET-2021]
- | List - I | | List - II | |
|----------|------------------------|-----------|----------------------|
| (a) | Protein | (i) | C = C double bonds |
| (b) | Unsaturated fatty acid | (ii) | Phosphodiester bonds |
| (c) | Nucleic acid | (iii) | Glycosidic bond |
| (d) | Polysaccharide | (iv) | Peptide bonds |
- Choose the correct answer from options given below
- | | | | |
|----------|-------|-------|-------|
| (a) | (b) | (c) | (d) |
| (1) (i) | (iv) | (iii) | (ii) |
| (2) (ii) | (i) | (iv) | (iii) |
| (3) (iv) | (iii) | (i) | (ii) |
| (4) (iv) | (i) | (ii) | (iii) |
- Q.20** Identify the incorrect pair. [NEET-2021]
 (1) Toxin - Abrin
 (2) Lectins - Concanavalin A
 (3) Drugs - Ricin
 (4) Alkaloids - Codeine
- Q.21** Match List -I with List -II. [NEET-2022]
List-I (Biological Molecules) **List-II** (Biological functions)
 (a) Glycogen (i) Hormone
 (b) Globulin (ii) Biocatalyst
 (c) Steroids (iii) Antibody
 (d) Thrombin (iv) Storage product
 Choose the **correct answer** from the options given below:
 (1) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)
 (2) (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)
 (3) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)
 (4) (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)
- Q.22** A dehydration reaction links two glucose molecules to produce maltose. If the formula for glucose is $C_6H_{12}O_6$ then what is the formula for maltose? [NEET-2022]
 (1) $C_{12}H_{24}O_{12}$ (2) $C_{12}H_{22}O_{11}$
 (3) $C_{12}H_{24}O_{11}$ (4) $C_{12}H_{20}O_{10}$
- Q.23** Read the following statements on lipids and find out **correct** set of statements: [NEET-2022]
 (a) Lecithin found in the plasma membrane is a glycolipid
 (b) Saturated fatty acids possess one or more c = c bonds
 (c) Gingely oil has lower melting point, hence remains as oil in winter
 (d) Lipids are generally insoluble in water but soluble in some organic solvents
 (e) When fatty acid is esterified with glycerol, monoglycerides are formed
 Choose the **correct answer** from the options given below:
 (1) (a), (d) and (e) only
 (2) (c), (d) and (e) only
 (3) (a), (b) and (d) only
 (4) (a), (b) and (c) only
- Q.24** Cellulose does not form blue colour with Iodine because [NEET-2023]
 (1) It is a helical molecule.
 (2) It does not contain complex helices and hence cannot hold iodine molecules.
 (3) It breaks down when iodine reacts with it.
 (4) It is a disaccharide.
- Q.25** Melonate inhibits the growth of pathogenic bacteria by inhibiting the activity of [NEET-2023]
 (1) Amylase
 (2) Lipase
 (3) Dinitrogenase
 (4) Succinic dehydrogenase
- Q.26** Given below are two statements :
Statement I : A protein is imagined as a line, the left end represented by first amino acid (C-terminal) and the right end represented by last amino acid (N-terminal).
Statement II : Adult human haemoglobin, consists of 4 subunits (two subunits of α type and two subunits β type.) [NEET-2023]
 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.27 Given below are two statements :

Statement I : Low temperature preserves the enzyme in a temporarily inactive state whereas high temperature destroys enzymatic activity because proteins are denatured by heat.

Statement II : When the inhibitor closely resembles the substrate in its molecular structure and inhibits the activity of the enzyme, it is known as competitive inhibitor. **[NEET-2023]**

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.28 Match List I with List II : **[NEET-2024]**

List-I	List-II
A. Lipase	I. Peptide bond
B. Nuclease	II. Ester bond
C. Protease	III. Glycosidic bond
D. Amylase	IV. Phosphodiester bond

Choose the correct answer from the options given below :

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

Q.29 Match List-I with List-II **[NEET-2024]**

List-I	List-II
A. GLUT-4	I. Hormone
B. Insulin	II. Enzyme
C. Trypsin	III. Intercellular ground substance
D. Collagen	IV. Enables glucose transport into cells

Choose the correct answer from the options given below.

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

Q.30 The cofactor of the enzyme carboxypeptidase is: **[NEET-2024]**

- (1) Haem
- (2) Zinc
- (3) Niacin
- (4) Flavin

Q.31 Inhibition of Succinic dehydrogenase enzyme by malonate is a classical example of: **[NEET-2024]**

- (1) Enzyme activation
- (2) Cofactor inhibition
- (3) Feedback inhibition
- (4) Competitive inhibition

Q.32 Lecithin, a small molecular weight organic compound found in living tissues, is an example of: **[NEET-2024]**

- (1) Carbohydrates
- (2) Amino acids
- (3) Phospholipids
- (4) Glycerides

Q.33 Regarding catalytic cycle of an enzyme action, select the correct sequential steps : **[NEET-2024]**

- A. Substrate enzyme complex formation.
- B. Free enzyme ready to bind with another substrate.
- C. Release of products.
- D. Chemical bonds of the substrate broken.
- E. Substrate binding to active site.

Choose the correct answer from the options given below :

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

Q.34 Ligases is a class of enzymes responsible for catalysing the linking together of two compounds.

Which of the following bonds is not catalysed by it? **[Re-NEET 2024]**

- (1) C – C
- (2) P – O
- (3) C – O
- (4) C – N

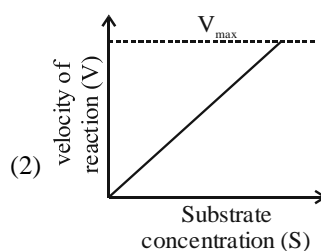
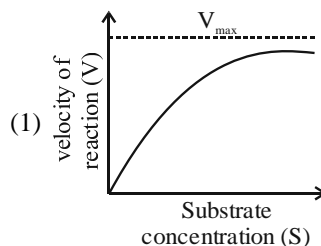
Q.35 Which of the following are not fatty acids?

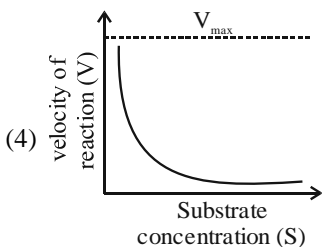
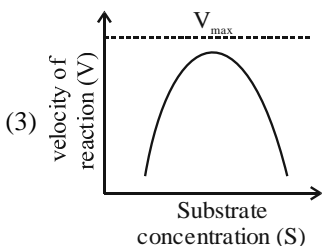
- A. Glutamic acid
- B. Arachidonic acid
- C. Palmitic acid
- D. Lecithin
- E. Aspartic acid

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

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

Q.36 Which of the following graphs depicts the effect of substrate concentration on velocity of enzyme catalysed reaction? **[Re-NEET 2024]**





Q.37 Enzymes that catalyse the removal of groups from substrates by mechanisms other than hydrolysis leaving double bonds, are known as: [Re-NEET 2024]

- (1) Transferases
- (2) Oxidoreductases
- (3) Dehydrogenases
- (4) Lyases

Q.38 Match List-I with List-II:

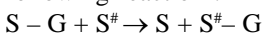
List-I		List-II	
A.	Primary structure of protein	I.	Human haemoglobin
B.	Secondary structure of protein	II.	Disulphide bonds
C.	Tertiary structure of protein	III.	Polypeptide chain
D.	Quaternary structure of protein	IV.	Alpha helix and β sheet

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

Q.39 Name the class of enzyme that usually catalyze the following reaction : [NEET-2025]



Where, G \rightarrow a group other than hydrogen

S \rightarrow a substrate

S[#] \rightarrow another substrate

- (1) Hydrolase
- (2) Lyase
- (3) Transferase
- (4) Ligase

Q.40 Which one of the following enzymes contains 'Haem' as the prosthetic group ? [NEET-2025]

- (1) RuBisCo
- (2) Carbonic anhydrase
- (3) Succinate dehydrogenase
- (4) Catalase

Q.41 The protein portion of an enzyme is called : [NEET-2025]

- (1) Cofactor
- (2) Coenzyme
- (3) Apoczyme
- (4) Prosthetic group

Cell Cycle and Cell Division

Q.1 Arrange the following events of meiosis in correct sequence : [AIPMT -2015]

- (i) Crossing over
 - (ii) Synapsis
 - (iii) Terminalisation of chiasmata
 - (iv) Disappearance of nucleolus
- (1) i, ii, iii, iv
 - (2) ii, iii, iv, i
 - (3) ii, i, iv, iii
 - (4) ii, i, iii, iv

Q.2 During cell growth, DNA synthesis takes place in : [NEET II -2016]

- (1) S-phase
- (2) G₁-phase
- (3) G₂-phase
- (4) M-phase

Q.3 Which of the following is not a characteristic feature during mitosis in somatic cells? [NEET I- 2016]

- (1) Chromosome movement
- (2) Synapsis
- (3) Spindle fibres
- (4) Disappearance of nucleolus

Q.4 Match the stages of meiosis in column I to their characteristic features in column II and select the correct option using the codes given below :

[NEET II-2016]

Column I	Column II
A. Pachytene	(i) Pairing of homologous chromosomes
B. Metaphase I	(ii) Terminalisation of chiasmata
C. Diakinesis	(iii) Crossing - over takes place
D. Zygotene	(iv) Chromosomes align at equatorial plate

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

- Q.5** In meiosis crossing over is initiated at :
[NEET I-2016]
(1) Zygotene (2) Diplotene
(3) Pachytene (4) Leptotene
- Q.6** Which of the following options gives the correct sequence of events during mitosis? [NEET-2017]
(1) Condensation → Nuclear membrane disassembly → Arrangement at equator → Centromere division → Segregation → Telophase
(2) Condensation → Crossing over → Nuclear membrane disassembly → Segregation → Telophase
(3) Condensation → Arrangement at equator → Centromere division → Segregation → Telophase
(4) Condensation → Nuclear membrane disassembly → Crossing over → Segregation → Telophase
- Q.7** The stage during which separation of the paired homologous chromosomes begins is [NEET-2018]
(1) Diakinesis (2) Diplotene
(3) Pachytene (4) Zygotene
- Q.8** The correct sequence of phases of cell cycle is :
[NEET-2019]
(1) $M \rightarrow G_1 \rightarrow G_2 \rightarrow S$
(2) $G_1 \rightarrow G_2 \rightarrow S \rightarrow M$
(3) $S \rightarrow G_1 \rightarrow G_2 \rightarrow M$
(4) $G_1 \rightarrow S \rightarrow G_2 \rightarrow M$
- Q.9** Cells in G_0 phase : [NEET-2019]
(1) exit the cell cycle
(2) enter the cell cycle
(3) suspend the cell cycle
(4) terminate the cell cycle
- Q.10** Dissolution of the synaptonemal complex occurs during [NEET-2020]
(1) Zygotene (2) Leptotene
(3) Diplotene (4) Pachytene
- Q.11** Identify the correct statement with regard to G_1 phase (Gap 1) of interphase. [NEET-2020]
(1) Reorganisation of all cell components takes place.
(2) Cell is metabolically active, grows but does not replicate its DNA.
(3) Nuclear Division takes place.
(4) DNA synthesis or replication takes place.
- Q.12** Match the following with respect to meiosis [NEET-2020]
(a) Zygotene (i) Terminalization
(b) Pachytene (ii) Chiasmata
(c) Diplotene (iii) Crossing over
(d) Diakinesis (iv) Synapsis

Select the correct option from the following

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

- Q.13** Some dividing cells exit the cell cycle and enter vegetative inactive stage. This is called quiescent stage (G_0). This process occurs at the end of [NEET-2020]
(1) G_1 phase (2) S_1 phase
(3) G_2 phase (4) M phase
- Q.14** Which of the following stages of meiosis involves division of centromere? [NEET-2021]
(1) Metaphase II
(2) Anaphase II
(3) Telophase II
(4) Metaphase I
- Q.15** Match List-I with List-II [NEET-2021]

List - I		List - II	
(a)	S phase	(i)	Proteins are synthesized
(b)	G_2 phase	(ii)	Inactive phase
(c)	Quiescent stage	(iii)	Interval between mitosis and initiation of DNA replication
(d)	G_1 phase	(iv)	DNA replication

Choose the correct answer from options given below

- | | | | |
|-----------|------|-------|-------|
| (a) | (b) | (c) | (d) |
| (1) (iv) | (ii) | (iii) | (i) |
| (2) (iv) | (i) | (ii) | (iii) |
| (3) (ii) | (iv) | (iii) | (i) |
| (4) (iii) | (ii) | (i) | (iv) |
- Q.16** Which stage of meiotic prophase shows terminalisation of chiasmata as its distinctive feature? [NEET-2021]
(1) Zygotene (2) Diakinesis
(3) Pachytene (4) Leptotene
- Q.17** The fruit fly has 8 chromosomes ($2n$) in each cell. During interphase of Mitosis if the number of chromosomes at G_1 phase is 8, what would be the number of chromosomes after S phase? [NEET-2021]
(1) 16 (2) 4
(3) 32 (4) 8
- Q.18** The centriole undergoes duplication during : [NEET-2021]
(1) Prophase (2) Metaphase
(3) G_2 phase (4) S-phase

- Q.19** Which one of the following never occurs during mitotic cell division ? [NEET-2022]
 (1) Movement of centrioles towards opposite poles
 (2) Pairing of homologous chromosomes
 (3) Coiling and condensation of the chromatids
 (4) Spindle fibres attach to kinetochores of chromosomes
- Q.20** Select the **incorrect** statement with reference to mitosis: [NEET-2022]
 (1) Spindle fibres attach to centromere of chromosomes.
 (2) Chromosomes decondense at telophase.
 (3) Splitting of centromere occurs at anaphase.
 (4) All the chromosomes lie at the equator at meta phase.
- Q.21** Which one of the following never occurs during mitotic cell division ? [NEET-2022]
 (1) Movement of centrioles towards opposite poles
 (2) Pairing of homologous chromosomes
 (3) Coiling and condensation of the chromatids
 (4) Spindle fibres attach to kinetochores of chromosomes
- Q.22** The appearance of recombination homologous chromosomes during meiosis characterizes : [NEET-2022]
 (1) Bivalent
 (2) Sites at which crossing over occurs
 (3) Terminalization
 (4) Synaptonemal complex
- Q.23** Given below are two statements:
Statement I : During G_0 phase of cell cycle, the cell is metabolically inactive.
Statement II The centrosome undergoes duplication during S phase of interphase. [NEET-2023]
 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 incorrect but Statement II is correct.
 (4) Both Statement I and Statement II are correct.
- Q.24** Select the correct statements. [NEET-2023]
 A. Tetrad formation is seen during Leptotene.
 B. During Anaphase, the centromeres split and chromatids separate.
 C. Terminalization takes place during Pachytene.
 D. Nucleolus, Golgi complex and ER are reformed during Telophase.
 E. Crossing over takes place between sister chromatids of homologous chromosome.
 Choose the correct answer from the options given below:
 (1) B and D only (2) A, C and E only
 (3) B and E only (4) A and C only
- Q.25** Match List I with List II [NEET-2023]
List I List II
 A. M Phase I. Proteins are synthesized
 B. G_2 Phase II. Inactive phase
 C. Quiescent stage III. Interval between mitosis and initiation of DNA replication
 D. G_1 , Phase IV. Equational division
 Choose the correct answer from the options given below:
 (1) A-IV, B-II, C-I, D-III (2) A-IV, B-I, C-II, D-III
 (3) A-II, B-IV, C-I, D-III (4) A-III, B-II, C-IV, D-I
- Q.26** Among eukaryotes, replication of DNA takes place in - [NEET-2023]
 (1) S phase (2) G_1 phase
 (3) G_2 phase (4) M phase
- Q.27** Which of the following stages of meiosis involves division of centromere ? [NEET-2023]
 (1) Metaphase II (2) Anaphase II
 (3) Telophase (4) Metaphase I
- Q.28** The process of appearance of recombination nodules occurs at which sub stage of prophase I in meiosis ? [NEET-2023]
 (1) Pachytene (2) Diplotene
 (3) Diakinesis (4) Zygotene
- Q.29** Following are the stages of cell division : [NEET-2024]
 A. Gap 2 phase B. Cytokinesis
 C. Synthesis phase D. Karyokinesis
 E. Gap 1 phase
 Choose the correct sequence of stages from the options given below :
 (1) E - C - A - D - B (2) C - E - D - A - B
 (3) E - B - D - A - C (4) B - D - E - A - C
- Q.30** Match List I with List II : [NEET-2024]
List I List II
(Sub Phases of Prophase I) **(Specific Characters)**
 A. Diakinesis I. Synaptonemal complex formation
 B. Pachytene II. Completion of terminalisation of chiasmata
 C. Zygotene III. Chromosomes look like thin threads
 D. Leptotene IV. Appearance of recombination nodules
 Choose the correct answer from the options given below
 (1) A - IV, B - III, C - II, D - I
 (2) A - IV, B - II, C - III, D - I
 (3) A - I, B - II, C - IV, D - III
 (4) A - II, B - IV, C - I, D - III

- Q.31** Given below are two statements [NEET-2024]
Statement I : Chromosomes become gradually visible under light microscope during leptotene stage.
Statement II : The beginning of diplotene stage is recognized by dissolution of synaptonemal complex.
 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.32** Spindle fibers attach to kinetochores of chromosomes during [NEET-2024]
 (1) Telophase (2) Prophase
 (3) Metaphase (4) Anaphase

- Q.33** Recombination between homologous chromosomes is completed by the end of [Re-NEET 2024]
 (1) Diakinesis (2) Zygotene
 (3) Diplotene (4) Pachytene

- Q.34** Match List-I with List-II:

List-I Event		List-II Stage of Prophase-I (Meiosis-I)	
A.	Chiasmata formation	I.	Pachytene
B.	Crossing over	II.	Diakinesis
C.	Synaptonemal complex formation	III.	Diplotene
D.	Terminalisation of chiasmata	IV.	Zygotene

Choose the correct answer from the options given below : [Re-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-II, B-III, C-IV, D-I

- Q.35** Match List-I with List-II:

List-I		List-II	
A.	Cells are metabolically active and proliferate	I.	G ₂ phase
B.	DNA replication takes place	II.	G ₁ phase
C.	Proteins are synthesised	III.	G ₀ phase
D.	Quiescent stage with metabolically active cells	IV.	S phase

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

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

- Q.36** What is the main function of the spindle fibers during mitosis? [NEET-2025]

- (1) To separate the chromosomes
 (2) To synthesize new DNA
 (3) To repair damaged DNA
 (4) To regulate cell growth

Photosynthesis in Higher Plants

- Q.1** In photosynthesis, the light-independent reactions take place at : [AIPMT-2015]
 (1) Photosystem II (2) Stroma matrix
 (3) Thylakoid lumen (4) Photosystem I
- Q.2** In a chloroplast the highest number of protons are found in : [NEET Phase I-2016]
 (1) Intermembrane space (2) Antennae complex
 (3) Stroma (4) Lumen of thylakoids.
- Q.3** The process which makes major difference between C_3 and C_4 plants is : [NEET II-2016]
 (1) Glycolysis (2) Calvin cycle
 (3) Photorespiration (4) respiration
- Q.4** A plant in your garden to avoid photorespiratory losses, has improved water use efficiency, shows high rates of photosynthesis at high temperatures and has improved efficiency of nitrogen utilisation. In which of the following physiological groups would you assign this plants ? [NEET Phase I-2016]
 (1) CAM (2) Nitrogen fixer
 (3) C_3 (4) C_4
- Q.5** With reference to factors affecting the rate of photosynthesis, which of the following statements is not correct? [NEET-2017]
 (1) increasing atmospheric CO_2 concentration upto 0.05% can enhance CO_2 fixation rate.
 (2) C_3 plants respond to higher temperature with enhanced photosynthesis while C_4 plants have much lower temperature optimum.
 (3) Tomato is a greenhouse crop which can be grown in CO_2 -enriched atmosphere for higher yield.
 (4) Light saturation for CO_2 fixation occurs at 10% of full sunlight.
- Q.6** Phosphoenol pyruvate(PEP) is the primary CO_2 acceptor in : [NEET-2017]
 (1) C_4 plants (2) C_2 plants
 (3) C_3 and C_4 plants (4) C_3 plants
- Q.7** Oxygen is not produced during photosynthesis by [NEET-2018]
 (1) *Cycas* (2) *Nostoc*
 (3) Green sulphur bacteria (4) *Chara*
- Q.8** Which of the following is not a product of light reaction of photosynthesis? [NEET-2018]
 (1) NADPH (2) NADH
 (3) ATP (4) Oxygen
- Q.9** The first stable product of CO_2 fixation in sorghum is : [NEET-2021]
 (1) Oxaloacetic acid (2) Succinic acid
 (3) Phosphoglyceric acid (4) Pyruvic acid
- Q.10** Which of the following statements is incorrect? [NEET-2021]
 (1) Stroma lamellae have PS I only and lack NADP reductase.
 (2) Grana lamellae have both PS I and PS II.
 (3) Cyclic photophosphorylation involves both PS I and PS II.
 (4) Both ATP and $NADPH + H^+$ are synthesized during non-cyclic photophosphorylation.
- Q.11** What is the role of large bundle sheath cells found around the vascular bundles in C_4 plants ? [NEET-2022]
 (1) To increase the number of chloroplast for the operation of Calvin cycle
 (2) To enable the plant to tolerate high temperature
 (3) To protect the vascular tissue from high light intensity
 (4) To provide the site for photorespiratory pathway
- Q.12** Which one of the following is **not true** regarding the release of energy during ATP synthesis through chemiosmosis? It involves: [NEET-2022]
 (1) Breakdown of electron gradient
 (2) Movement of protons across the membrane to the stroma
 (3) Reduction of NADP to $NADPH_2$ on the stroma side of the membrane
 (4) Breakdown of proton gradient
- Q.13** Given below are two statements : [NEET-2022]
Statement I : The primary CO_2 acceptor in C_4 plants is phosphoenolpyruvate and is found in the mesophyll cells.
Statement II : Mesophyll cells of C_4 plants lack RuBisCo enzyme.
 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.14** The reaction centre in PS II has an absorption maxima at [NEET-2023]
 (1) 700 nm (2) 660 nm (3) 780 nm (4) 680 nm
- Q.15** How many ATP and NADPH, are required for the synthesis of one molecule of Glucose during Calvin cycle ? [NEET-2023]
 (1) 18 ATP and 12 $NADPH_2$
 (2) 12 ATP and 16 $NADPH_2$
 (3) 18 ATP and 16 $NADPH_2$
 (4) 12 ATP and 12 $NADPH_2$

- Q.16** Which of the following are required for the dark reaction of photosynthesis? [NEET-2024]
 A. Light B. Chlorophyll C. CO_2
 D. ATP E. NADPH

Choose the correct answer from the options given below:

- (1) D and E only (2) A, B and C only
 (3) B, C and D only (4) C, D and E only
- Q.17** How many molecules of ATP and NADPH are required for every molecule of CO_2 fixed in the Calvin cycle? [NEET-2024]
 (1) 3 molecules of ATP and 2 molecules of NADPH
 (2) 2 molecules of ATP and 3 molecules of NADPH
 (3) 2 molecules of ATP and 2 molecules of NADPH
 (4) 3 molecules of ATP and 3 molecules of NADPH

- Q.18** Given below are two statements: [NEET-2024]

Statement I: In C_3 plants, some O_2 binds to RuBisCO, hence CO_2 fixation is decreased.

Statement II: In C_4 plants, mesophyll cells show very little photorespiration while bundle sheath cells do not show photorespiration.

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.19** Which of the following are required for the light reaction of Photosynthesis?

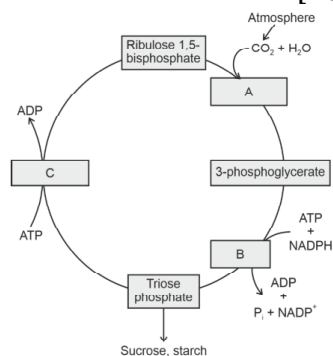
A. CO_2 B. O_2 C. H_2O D. Chlorophyll E. Light
 Choose the correct answer from the options given below: [Re-NEET 2024]

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

- Q.20** Which one of the following products diffuses out of the chloroplast during photosynthesis? [Re-NEET 2024]

- (1) ADP (2) NADPH (3) O_2 (4) ATP

- Q.21** Observe the given figure. Identify the different stages labelled with alphabets by selecting the correct option: [Re-NEET 2024]



- (1) A-Carboxylation, B-Regeneration, C-Reduction
 (2) A-Reduction, B-Decarboxylation, C-Regeneration
 (3) A-Carboxylation, B-Reduction, C-Regeneration
 (4) A-Reduction, B-Carboxylation, C-Regeneration

- Q.22** Which of the following statements about RuBisCO is true? [NEET-2025]

- (1) It is active only in the dark.
 (2) It has higher affinity of oxygen than carbon dioxide.
 (3) It is an enzyme involved in the photolysis of water.
 (4) It catalyzes the carboxylation of RuBP

- Q.23** Match List I with List II [NEET-2025]

List I	List II
A. Chlorophyll a	I. Yellow-green
B. Chlorophyll b	II. Yellow
C. Xanthophylls	III. Blue-green
D. Carotenoids	IV. Yellow to Yellow-orange

Choose the option with all correct matches.

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

Respiration in Plants

- Q.1** Which of the following biomolecules is common to respiration mediated breakdown of fats, carbohydrates and proteins? [NEET II -2013, 2016]

- (1) Glucose - 6 - phosphate
 (2) Fructose 1,6 - bisphosphate
 (3) Pyruvic acid
 (4) Acetyl CoA

- Q.2** Oxidative phosphorylation is : [NEET II -2016]

- (1) formation of ATP by transfer of phosphate group from a substrate to ADP.
 (2) oxidation of phosphate group in ATP
 (3) addition of phosphate group to ATP.
 (4) formation of ATP by energy released from electrons removed during substrate oxidation.

- Q.3** The chemiosmotic coupling hypothesis of oxidative phosphorylation proposes that adenosine triphosphate (ATP) is formed because: [AIIMS-2016]

- (1) A proton gradient forms across the inner mitochondrial membrane.
 (2) There is a change in the permeability of the inner mitochondrial membrane towards adenosine diphosphate (ADP)
 (3) High energy bonds are formed in mitochondrial proteins
 (4) ADP is pumped out of the matrix into the intermembrane space.

- Q.4** Which statement is wrong for Kreb's cycle?

- (1) There is one point in the cycle where FAD^+ is reduced to FADH_2 . [NEET-2017]
 (2) During conversion of succinyl CoA to succinic acid, a molecule of GTP is synthesised.

- (3) The cycle starts with condensation of acetyl group (acetyl CoA) with pyruvic acid to yield citric acid.
 (4) There are three points in the cycle where NAD^+ is reduced to $\text{NADH} + \text{H}^+$.
- Q.5** What is the role of NAD^+ in cellular respiration?
 (1) It is a nucleotide source for ATP synthesis.
 (2) It functions as an electron carrier. [NEET- 2018]
 (3) It functions as an enzyme.
 (4) It is the final electron acceptor for anaerobic respiration.
- Q.6** Which of these statements is incorrect?
 (1) Glycolysis operates as long as it is supplied with NAD that can pick up hydrogen atoms
 (2) Glycolysis occurs in cytosol [NEET- 2018]
 (3) Enzymes of TCA cycle are present in mitochondrial matrix
 (4) Oxidative phosphorylation takes place in outer mitochondrial membrane
- Q.7** Respiratory Quotient (RQ) value of tripalmitin is :
 [NEET-2019]
 (1) 0.9 (2) 0.7 (3) 0.07 (4) 0.09
- Q.8** Conversion of glucose to glucose-6-phosphate, the first irreversible reaction of glycolysis, is catalyzed by:
 [NEET-2019]
 (1) Aldolase (2) Hexokinase
 (3) Enolase (4) Phosphofructokinase
- Q.9** The oxygenation activity of RuBisCo enzyme in photorespiration leads to the formation of
 [NEET-2020]
 (1) 1 molecule of 3-C compound
 (2) 1 molecule of 6-C compound
 (3) 1 molecule of 4-C compound and 1 molecule of 2-C compound
 (4) 2 molecules of 3-C compound
- Q.10** Which of the following statements is incorrect?
 [NEET-2021]
 (1) In ETC (Electron Transport Chain), one molecule of $\text{NADH} + \text{H}^+$ gives rise to 2 ATP molecules, and one FADH_2 given rise to 3 ATP molecules.
 (2) ATP is synthesized through complex V.
 (3) Oxidation-reduction reactions produce proton gradient in respiration.
 (4) During aerobic respiration, role of oxygen is limited to the terminal stage.
- Q.11** What amount of energy is released from glucose during lactic acid fermentation?
 [NEET-2022]
 (1) More than 18% (2) About 10%
 (3) Less than 7% (4) Approximately 15%
- Q.12** What is the net gain of ATP when each molecule of glucose is converted to two molecules of pyruvic acid?
 [NEET-2022]
 (1) Six (2) Two (3) Eight (4) Four
- Q.13** Which of the following combinations is required for chemiosmosis?
 [NEET-2023]
 (1) membrane, proton pump, proton gradient, NADP synthase
 (2) proton pump, electron gradient. ATP synthase
 (3) proton pump, electron gradient. NADP synthase
 (4) membrane, proton pump, proton gradient. ATP synthase
- Q.14** Given below are two statements : One is labelled as **Assertion A** and the other is labelled as **Reason R**:
Assertion A : ATP is used at two steps in glycolysis.
Reason R : First ATP is used in converting glucose into glucose-6-phosphate and second ATP is used in conversion of fructose-6-phosphate into fructose-1-6-diphosphate. [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.15** Match **List I** with **List II** [NEET-2023]

List I	List II
A. Oxidative decarboxylation	I. Citrate synthase
B. Glycolysis	II. Pyruvate dehydrogenase
C. Oxidative phosphorylation	III. Electron transport system
D. Tricarboxylic acid cycle	IV. EMP pathway

 Choose the correct answer from the options given below:
 (1) A-II, B-IV, C-I, D-III
 (2) A-III, B-I, C-II, D-IV
 (3) A-II, B-IV, C-III, D-I
 (4) A-III, B-IV, C-II, D-I
- Q.16** Identify the step in tricarboxylic acid cycle, which does not involve oxidation of substrate. [NEET-2024]
 (1) Isocitrate \rightarrow α -ketoglutaric acid
 (2) Malic acid \rightarrow Oxaloacetic acid
 (3) Succinic acid \rightarrow Malic acid
 (4) Succinyl-CoA \rightarrow Succinic acid
- Q.17** Match List I with List II

List I	List II
A. Citric acid cycle	I. Cytoplasm
B. Glycolysis	II. Mitochondrial matrix
C. Electron transport system	III. Intermembrane space of mitochondria
D. Proton gradient	IV. Inner mitochondrial membrane

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

Q.18 Match List-I with List-II:

List-I		List-II	
A.	ETS Complex I	I.	NADH Dehydrogenase
B.	ETS Complex II	II.	Cytochrome bc_1
C.	ETS Complex III	III.	Cytochrome C oxidase
D.	ETS Complex IV	IV.	Succinate Dehydrogenase

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

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

Q.19 Which of the following are correct about cellular respiration?

- A. Cellular respiration is the breaking of C-C bonds of complex organic molecules by oxidation.
 B. The entire cellular respiration takes place in Mitochondria.
 C. Fermentation takes place under anaerobic condition in germinating seeds.
 D. The fate of pyruvate formed during glycolysis depends on the type of organism also.
 E. Water is formed during respiration as a result of O_2 accepting electrons and getting reduced.

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

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

Q.20 The complex II of mitochondrial electron transport chain is also known as [NEET-2025]

- (1) Cytochrome bc_1
 (2) Succinate dehydrogenase
 (3) Cytochrome c oxidase
 (4) NADH dehydrogenase

Plant Growth and Development

Q.1 You are given a tissue with its potential for differentiation in an artificial culture. Which of the following pairs of hormones would you add to the medium to secure shoots as well as roots? [NEET II-2016]

- (1) IAA and gibberellin
 (2) Auxin and cytokinin
 (3) Auxin and abscisic acid
 (4) Gibberellin and abscisic acid

Q.2 Fruit and leaf drop at early stages can be prevented by the application of: [NEET-2017]

- (1) ethylene (2) auxins
 (3) gibberellic acid (4) cytokinins

Q.3 What is the site of perception of photoperiod necessary for induction of flowering in plants: [NEET-2019] [Not in new syllabus of NEET]

- (1) Lateral buds (2) Pulvinus
 (3) Shoot apex (4) Leaves

Q.4 It takes very long time for pineapple plants to produce flowers. Which combination of hormones can be applied to artificially induce flowering in pineapple plants throughout the year to increase yield?

- (1) Auxin and Ethylene [NEET-2019]
 (2) Gibberellin and Cytokinin
 (3) Gibberellin and Abscisic acid
 (4) Cytokinin and Abscisic acid

Q.5 The process of growth is maximum during [NEET-2020]

- (1) Lag phase (2) Senescence
 (3) Dormancy (4) Log phase

Q.6 Name the plant growth regulator which upon spraying on sugarcane crop, increases the length of stem, thus increasing the yield of sugarcane crop. [NEET-2020]

- (1) Gibberellin (2) Ethylene
 (3) Abscisic acid (4) Cytokinin

Q.7 Which of the following is not an inhibitory substance governing seed dormancy? [NEET-2020]

- (1) Abscisic acid (2) Phenolic acid
 (3) Para-ascorbic acid (4) Gibberellic acid

Q.8 Plants follow different pathways in response to environment or phases of life to form different kinds of structures. This ability is called: [NEET-2021]

- (1) Flexibility (2) Plasticity
 (3) Maturity (4) Elasticity

Q.9 The gaseous plant growth regulator is used in plants to: [NEET-2022]

- (1) promote root growth and root hair formation to increase the absorption surface
 (2) help overcome apical dominance
 (3) kill dicotyledonous weeds in the fields
 (4) speed up the malting process

Q.10 Which one of the following plants does **not** show plasticity? [NEET-2022]

- (1) Coriander (2) Buttercup
 (3) Maize (4) Cotton

Q.11 Production of Cucumber has increased manifold in recent years. Application of which of the following phytohormones has resulted in this increased yield as the hormone is known to produce female flowers in the plants: [NEET-2022]

- (1) Gibberellin (2) Ethylene
(3) Cytokinin (4) ABA

Q.12 Match List I with List II. [NEET-2023]

List I	List II
A. Logistic growth	I. Unlimited resource availability condition
B. Exponential growth	II. Limited resource availability condition
C. Expanding age pyramid	III. The percent pyramid individuals of pre reproductive age is largest followed by reproductive and post reproductive age groups
D. Stable age pyramid	IV. The percent pyramid individuals of pre-reproductives and reproductive age group are same

Choose the correct answer from the options given below

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

Q.13 Which hormone promotes internode/petiole elongation in deep water rice? [NEET-2023]

- (1) Kinetin (2) Ethylene
(3) 2, 4-D (4) GA₃

Q.14 Spraying of which of the following phytohormone on juvenile conifers helps in hastening the maturity period, that leads to early seed production? [NEET-2023]

- (1) Gibberellic Acid
(2) Zeatin
(3) Absciscic Acid
(4) Indole-3-butyric Acid

Q.15 Auxin is used by gardeners to prepare weed-free lawns. But no damage is caused to grass as auxin

- (1) can help in cell division in grasses, to produce growth.
(2) promotes apical dominance. [NEET-2024]
(3) promotes abscission of mature leaves only.
(4) does not affect mature monocotyledonous plants.

Q.16 Spraying sugarcane crop with which of the following plant growth regulators, increases the length of stem, thus, increasing the yield? [NEET-2024]

- (1) Absciscic acid (2) Auxin
(3) Gibberellin (4) Cytokinin

Q.17 Match List-I with List-II:

List-I		List-II	
A.	Absciscic acid	I.	Promotes female flowers in cucumber
B.	Ethylene	II.	Helps seeds to withstand desiccation
C.	Gibberelin	III.	Helps in nutrient mobilization
D.	Cytokinin	IV.	Promotes bolting in beet, cabbage etc.

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

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

Q.18 F. Skoog observed that callus proliferated from the internodal segments of tobacco stem when auxins was supplied with one of the following except:

- (1) Extract of Vascular tissues [Re-NEET 2024]
(2) Coconut milk
(3) Absciscic acid
(4) Yeast Extract

Q.19 Given below are some statements about plant growth regulators.

- A. All Gas are acidic in nature.
B. Auxins are antagonists to Gas.
C. Zeatin was isolated from coconut milk.
D. Ethylene induces flowering in Mango.
E. Absciscic acid induces parthenocary.

Choose the correct set of statements from the option given below: [Re-NEET 2024]

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

Q.20 Which one of the following phytohormones promotes nutrient mobilization which helps in the delay of leaf senescence in plants? [NEET-2025]

- (1) Ethylene (2) Absciscic acid
(3) Gibberellin (4) Cytokinin

Q.21 Read the following statements on plant growth and development. [NEET-2025]

- A. Parthenocary can be induced by auxins.
B. Plant growth regulators can be involved in promotion as well as inhibition of growth.
C. Dedifferentiation is a pre-requisite for redifferentiation.
D. Absciscic acid is a plant growth promoter.
E. Apical dominance promotes the growth of lateral buds.

Choose the option with all correct statements.

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

Breathing and Exchange of Gases

- Q.1** Name the pulmonary disease in which alveolar surface area involved in gas exchange is drastically reduced due to damage in the alveolar walls :[AIPMT-2015]
 (1) Pneumonia (2) Asthma
 (3) Pleurisy (4) Emphysema
- Q.2** Reduction in pH of blood will :
 [NEET Phase I-2016]
 [Not in new syllabus of NEET]
 (1) Decrease the affinity of haemoglobin with oxygen
 (2) Release bicarbonate ions by the liver
 (3) Reduce the rate of heart beat
 (4) Reduce the blood supply to the brain.
- Q.3** Name the chronic respiratory disorder caused mainly by cigarette smoking : [NEET Phase I-2016]
 (1) Respiratory acidosis
 (2) Respiratory alkalosis
 (3) Emphysema
 (4) Asthma
- Q.4** Lungs do not collapse between breaths and some air always remains in the lungs which can never be expelled because : [NEET Phase II-2016]
 (1) There is a negative pressure in the lungs
 (2) There is a negative intrapleural pressure pulling at the lung walls
 (3) There is a positive intrapleural pressure
 (4) Pressure in the lungs is higher than the atmospheric pressure.
- Q.5** The partial pressure of oxygen in the alveoli of the lungs is : [NEET Phase II-2016]
 (1) equal to that in the blood
 (2) more than that in the blood
 (3) less than that in the blood
 (4) less than that of carbon dioxide
- Q.6** Lungs are made up of air - filled sacs, the alveoli. They do not collapse even after forceful expiration, because of : [NEET-2017]
 (1) inspiratory reserve volume
 (2) tidal volume
 (3) expiratory reserve volume
 (4) residual volume
- Q.7** Which of the following options correctly represents the lung conditions in asthma and emphysema, respectively? [NEET-2018]
 (1) Increased respiratory surface; Inflammation of bronchioles
 (2) Increased number of bronchioles; Increased respiratory surface
 (3) Inflammation of bronchioles; Decreased respiratory surface
 (4) Decreased respiratory surface; Inflammation of bronchioles
- Q.8** 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. Tidal volume | i. 2500 – 3000 mL |
| b. Inspiratory Reserve volume | ii. 1100 – 1200 mL |
| c. Expiratory Reserve volume | iii. 500 – 550 mL |
| d. Residual volume | iv. 1000 – 1100 mL |
- a b c d**
- (1) a → i, b → iv, c → ii, d → iii
 (2) a → iii, b → i, c → iv, d → ii
 (3) a → iii, b → ii, c → i, d → iv
 (4) a → iv, b → iii, c → ii, d → i
- Q.9** Which of the following is an occupational respiratory disorder? [NEET-2018]
 (1) Botulism (2) Silicosis
 (3) Anthracis (4) Emphysema
- Q.10** Tidal Volume and Expiratory Reserve Volume of an athlete is 500 mL and 1000 mL respectively. What will be his Expiratory Capacity if the Residual Volume is 1200 mL? [NEET-2019]
 (1) 1500 mL (2) 1700 mL
 (3) 2200 mL (4) 2700 mL
- Q.11** Identify the wrong statement with reference to transport of oxygen [NEET-2020]
 (1) Partial pressure of CO₂ can interfere with O₂ binding with haemoglobin
 (2) Higher H⁺ conc. in alveoli favours the formation of oxyhaemoglobin
 (3) Low pCO₂ in alveoli favours the formation of oxyhaemoglobin
 (4) Binding of oxygen with haemoglobin is mainly related to partial pressure of O₂
- Q.12** Select the correct events that occur during inspiration. [NEET-2020]
 (a) Contraction of diaphragm
 (b) Contraction of external inter-costal muscles
 (c) Pulmonary volume decreases
 (d) Intra pulmonary pressure increases
 (1) (c) and (d) (2) (a), (b) and (d)
 (3) only (d) (4) (a) and (b)
- Q.13** Select the favourable conditions required for the formation of oxyhaemoglobin at the alveoli. [NEET-2021]
 (1) Low pO₂, high pCO₂, more H⁺, higher temperature
 (2) High pO₂, high pCO₂, less H⁺, higher temperature
 (3) Low pO₂, low pCO₂, more H⁺, higher temperature
 (4) High pO₂, low pCO₂, less H⁺, lower temperature
- Q.14** The partial pressures (in mm Hg) of oxygen (O₂) and carbon dioxide (CO₂) at alveoli (the site of diffusion) are : [NEET-2021]
 (1) pO₂=40 & pCO₂=45 (2) pO₂=95 & pCO₂=40
 (3) pO₂=159 & pCO₂=0.3 (4) pO₂=104 & pCO₂=40

Q.15 Which of the following is **not** the function of conducting part of respiratory system ?

- (1) Inhaled air is humidified [NEET-2022]
 (2) Temperature of inhaled air is brought to body temperature
 (3) Provides surface for diffusion of O_2 and CO_2
 (4) It clears inhaled air from foreign particles

Q.16 Under normal physiological conditions in human being every 100 ml of oxygenated blood can deliver _____ ml of O_2 to the tissues. [NEET-2022]

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

Q.17 Vital capacity of lung is _____ [NEET-2023]

- (1) IRV + ERV + TV + RV (2) IRV + ERV + TV - RV
 (3) IRV + ERV + TV (4) IRV + ERV

Q.18 Match List I with List II :

List I

- A. Expiratory capacity
 B. Functional residual capacity
 C. Vital capacity
 D. Inspiratory capacity

List II

- I. Expiratory reserve volume + Tidal volume + Inspiratory reserve volume
 II. Tidal volume + Expiratory reserve volume
 III. Tidal volume + Inspiratory reserve volume
 IV. Expiratory reserve volume + Residual volume

Choose the correct answer from the options given below :

[NEET-2024]

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

Q.19 Match List-I with List-II:

List-I		List-II	
A.	Residual Volume	I.	Maximum volume of air that can be breathed in after forced expiration
B.	Vital Capacity	II.	Volume of air inspired or expired during normal respiration
C.	Expiratory Capacity	III.	Volume of air remaining in lungs after forcible expiration
D.	Tidal Volume	IV.	Total volume of air expired after normal inspiration

Choose the correct answer from the options given below :

[Re-NEET 2024]

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

Q.20 Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: During the transportation of gases, about 20-25 percent of CO_2 is carried by Haemoglobin as carbamino-haemoglobin.

Reason R: This binding is related to high pCO_2 and low pO_2 in tissues.

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

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

Body Fluids and Circulation

Q.1 Which one of the following animals has two separate circulatory pathways ? [AIPMT- 2015]

- (1) Whale (2) Shark
 (3) Frog (4) Lizard

Q.2 Doctors use stethoscope to hear the sounds produced during each cardiac cycle. The second sound is heard when : [AIPMT- 2015]

- (1) AV node receives signal from SA node
 (2) AV valves open up
 (3) Ventricular walls vibrate due to gushing in of blood from atria
 (4) Semilunar valves close down after the blood flows into vessels from ventricles.

Q.3 Serum differ from blood in: [NEET II-2016]

- (1) lacking globulins
 (2) lacking albumins
 (3) lacking clotting factors
 (4) lacking antibodies

Q.4 Blood pressure in the pulmonary artery is :

[NEET I-2016]

- (1) More than that in the pulmonary vein
 (2) Less than that in the vena cava
 (3) Same as that in the aorta
 (4) More than that in the carotid.

Q.5 Name the blood cells, whose reduction in number can cause clotting disorder, leading to excessive loss of blood from the body : [NEET II-2016]

- (1) Erythrocytes (2) Leucocytes
 (3) Neutrophils (4) Thrombocytes

Q.6 Adult human RBCs are enucleate. Which of the following statement(s) is/are most appropriate explanation for this feature? [NEET -2017]

- (i) They do not need to reproduce.
 (ii) They are somatic cells.
 (iii) They do not metabolise.
 (iv) All their internal space is available for oxygen transport.
 (1) only (i) (2) (i), (ii) and (iv)
 (3) (ii) and (iii) (4) only (iv)

- Q.7** Match the items given in Column I with those in Column II and select the correct option given below :

[NEET-2018]

Column I

- a. Fibrinogen
b. Globulin
c. Albumin

a b c

- (1) (i) (iii) (ii)
(3) (iii) (ii) (i)

Column II

- (i) Osmotic balance
(ii) Blood clotting
(iii) Defence mechanism

a b c

- (2) (i) (ii) (iii)
(4) (ii) (iii) (i)

- Q.8** Match the items given in Column I with those in Column II and select the correct option given below :

[NEET-2018]

Column I

- a. Tricuspid valve
b. Bicuspid valve
c. Semilunar valve

Column II

- i. Between left atrium and left ventricle
ii. Between right ventricle and pulmonary artery
iii. Between right atrium and right ventricle

a b c

- (1) i, ii, iii
(2) i, iii, ii
(3) iii, i, ii
(4) ii, i, iii

- Q.9** Match the Column - I with Column -II

[NEET-2019]

[Not in new syllabus of NEET]

	Column - I		Column - II
(a)	P-wave	(i)	Depolarisation of ventricles
(b)	QRS complex	(ii)	Repolarisation of ventricles
(c)	T-wave	(iii)	Coronary ischemia
(d)	Reduction in the size T-wave	(iv)	Depolarisation of atria
		(v)	Repolarisation of atria

Select the correct option-

(a) (b) (c) (d)

- (1) (iv) (i) (ii) (iii)
(2) (iv) (i) (ii) (v)
(3) (ii) (i) (v) (iii)
(4) (ii) (iii) (v) (iv)

- Q.10** Which would be the heart rate of a person if the cardiac output is 5L, blood volume in the ventricles at the end of diastole is 100 mL and at the end of ventricular systole is 50 mL ?

[NEET-2019]

- (1) 50 beats per minute
(2) 75 beats per minute
(3) 100 beats per minute
(4) 125 beats per minute

- Q.11** The QRS complex in a standard ECG represents

[NEET-2020]

- (1) Depolarisation of auricles
(2) Depolarisation of ventricles
(3) Repolarisation of ventricles
(4) Repolarisation of auricles

- Q.12** Match the following columns and select the correct option.

[NEET-2020]

Column - I

- (a) Eosinophils
(b) Basophils
(c) Neutrophils

Column - II

- (i) Immune response
(ii) Phagocytosis
(iii) Release histaminase, destructive enzymes
(iv) Release granules containing histamine

(a) (b)

- (1) (iv) (i)
(2) (i) (ii)
(3) (ii) (i)
(4) (iii) (iv)

(c) (d)

- (ii) (iii)
(iv) (iii)
(iii) (iv)
(ii) (i)

- Q.13** Which enzyme is responsible for the conversion of inactive fibrinogens to fibrins ?

[NEET-2021]

- (1) Renin
(2) Epinephrine
(3) Thrombokinase
(4) Thrombin

- Q.14** Which one of the following statements is **correct**?

[NEET-2022]

- (1) The tricuspid and the bicuspid valves open due to the pressure exerted by the simultaneous contraction of the atria
(2) Blood moves freely from atrium to the ventricle during joint diastole.
(3) Increased ventricular pressure causes closing of the semilunar valves.
(4) The atria-ventricular node (AVN) generates an action potential to stimulate atrial contraction

- Q.15** Given below are two statements:

Statement I: The coagulum is formed of network of threads called thrombins.

Statement II: Spleen is the graveyard of erythrocytes. 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.16** Which of the following statements are correct ?
[NEET-2023]
- A. Basophils are most abundant cells of the total WBCs
B. Basophils secrete histamine, serotonin and heparin
C. Basophils are involved in inflammatory response
D. Basophils have kidney shaped nucleus
E. Basophils are agranulocytes
- Choose the correct answer from the options given below:
- (1) C and E only (2) B and C only
(3) A and B only (4) D and E only
- Q.17** Match List I with List II [NEET-2023]
- | List I | List II |
|----------------|----------------------------------|
| A. P - wave | I. Beginning of systole |
| B. Q - wave | II. Repolarisation of ventricles |
| C. QRS complex | III. Depolarisation of atria |
| D. T - wave | IV. Depolarisation of ventricles |
- Choose the correct answer from the options given below
- (1) A-IV, B-III, C-II, D-I
(2) A-II, B-IV, C-I, D-III
(3) AI, B-II, C-III, D-IV
(4) A-III, B-I, C-IV, D-II
- Q.18** Following are the stages of pathway for conduction of an action potential through the heart
- A. AV bundle B. Purkinje fibres
C. AV node D. Bundle branches
E. SA node
- Choose the correct sequence of pathway from the options given below [NEET-2024]
- (1) E - A - D - B - C
(2) E - C - A - D - B
(3) A - E - C - B - D
(4) B - D - E - C - A
- Q.19** Match List I with List II :
- | List I | List II |
|----------------|---|
| A. P wave | I. Heart muscles are electrically silent. |
| B. QRS complex | II. Depolarisation of ventricles. |
| C. T wave | III. Depolarisation of atria. |
| D. T-P gap | IV. Repolarisation of ventricles. |
- Choose the correct answer from the options given below : [NEET-2024]
- (1) A - IV, B - II, C - I, D - III
(2) A - I, B - III, C - IV, D - II
(3) A - III, B - II, C - IV, D - I
(4) A - II, B - III, C - I, D - IV
- Q.20** A person with blood group ARh⁻ can receive the blood transfusion from which of the following types?
A. BRh⁻ B. ABRh⁻ C. ORh⁻
D. ARh⁻ E. ARh⁺
- Choose the correct answer from the options given below: [Re-NEET 2024]
- (1) D and E only (2) D only
(3) A and B only (4) C and D only
- Q.21** Lub' sound of Heart is caused by the _____.
[Re-NEET 2024]
- (1) closure of the semilunar valves
(2) opening of tricuspid and bicuspid valves
(3) opening of the semilunar valves
(4) closure of the tricuspid and bicuspid valves
- Q.22** What is the name of the blood vessel that carries deoxygenated blood from the body to the heart in a frog ? [NEET-2025]
- (1) Aorta (2) Pulmonary artery
(3) Pulmonary vein (4) Vena cava
- Q.23** Which one of the following statements refers to Reductionist Biology? [NEET-2025]
- (1) Physico-chemical approach to study and understand living organisms.
(2) Physiological approach to study and understand living organisms.
(3) Chemical approach to study and understand living organisms.
(4) Behavioural approach to study and understand living organisms.

Excretory Products and Their Elimination

- Q.1** The part of nephron involved in active reabsorption of sodium is : [NEET II-2016]
- (1) distal convoluted tubule
(2) proximal convoluted tubule
(3) Bowman's capsule
(4) descending limb of Henle's loop
- Q.2** A decrease in blood pressure/volume will not cause the release of : [NEET- 2017]
- (1) atrial natriuretic factor (2) aldosterone
(3) ADH (4) renin
- Q.3** Which of the following statements is correct? [NEET-2017]
- (1) The descending limb of loop of Henle is impermeable to water.
(2) The ascending limb of loop of Henle is permeable to water.
(3) The descending limb of loop of Henle is permeable to electrolytes.
(4) The ascending limb of loop of Henle is impermeable to water.

Q.4 Match the items given in Column I with those in Column II and select the correct option given below :
[NEET- 2018]

Column I

- a. Glycosuria
b. Gout
c. Renal calculi
d. Glomerular nephritis

Column II

- i. Accumulation of uric acid in joints
ii. Mass of crystallised salts within the kidney
iii. Inflammation in glomeruli
iv. Presence of glucose in urine

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

Q.5 Match the items given in Column I with those in Column II and select the correct option given below:

Column I (Function)

- a. Ultrafiltration
b. Concentration of urine
c. Transport of urine
d. Storage of urine corpuscle

Column II [NEET-2018] (Part of Excretory system)

- i. Henle's loop
ii. Ureter
iii. Urinary bladder
iv. Malpighian
v. Proximal convoluted tubule

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

Q.6 Use of an artificial kidney during hemodialysis may result in :
[NEET-2019]

- (a) Nitrogenous waste build-up in the body
(b) Non-elimination of excess potassium ions
(c) Reduced absorption of calcium ions from gastrointestinal tract
(d) Reduced RBC production

Which of the following options is the most appropriate?

- (1) (a) and (b) are correct
(2) (b) and (c) are correct
(3) (c) and (d) are correct
(4) (a) and (d) are correct

Q.7 Which of the following factors is responsible for the formation of concentrated urine ?
[NEET-2019]
[Not in new syllabus of NEET]

- (1) Low levels of antidiuretic hormone.
(2) Maintaining hyperosmolarity towards inner medullary interstitium in the kidneys.
(3) Secretion of erythropoietin by juxtaglomerular complex.
(4) Hydrostatic pressure during glomerular filtration.

Q.8 Nitrogenous waste is excreted in the form of pellet or paste by:
[NEET-2022]

[Not in new syllabus of NEET]

- (1) *Salamandra*
(2) *Hippocampus*
(3) *Pavo*
(4) *Ornithorhynchus*

Q.9 Given below are two statements : [NEET-2024]

Statement I : In the nephron, the descending limb of loop of Henle is impermeable to water and permeable to electrolytes.

Statement II : The proximal convoluted tubule is lined by simple columnar brush border epithelium and increases the surface area for reabsorption.

In the light of the above statements, choose the correct answer from the option 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.10 Choose the correct statement given below regarding juxta medullary nephron.
[NEET-2024]

- (1) Juxta medullary nephrons outnumber the cortical nephrons.
(2) Juxta medullary nephrons are located in the columns of Bertini.
(3) Renal corpuscle of juxta medullary nephron lies in the outer portion of the renal medulla.
(4) Loop of Henle of juxta medullary nephron runs deep into medulla.

Q.11 Diuresis is prevented by: [Re-NEET 2024]

- (1) Renin from JG cell via switching off the osmoreceptors
(2) ANF from adrenal medulla
(3) Aldosterone from adrenal medulla
(4) Vasopressin from Neurohypophysis

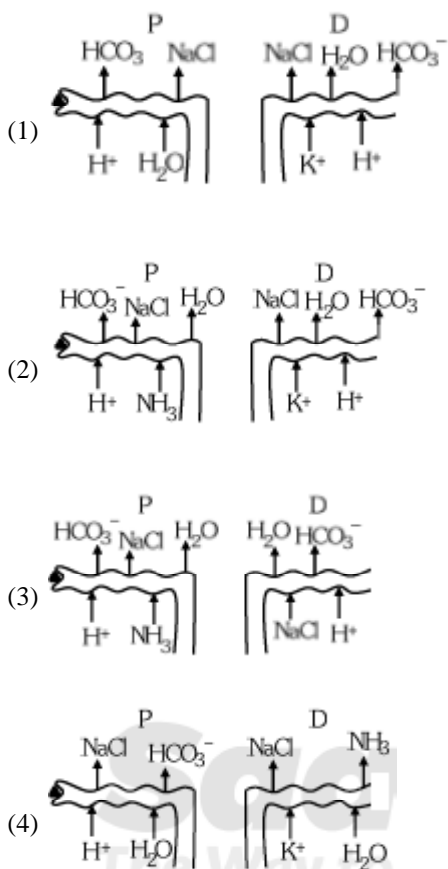
Q.12 Given below are two statements: [Re-NEET 2024]

Statements I: Concentrated urine is formed due to counter current mechanism in nephron.

Statement II: Counter current mechanism helps to maintain osmotic gradient in the medullary interstitium. 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.13** Which of the following diagrams is correct with regard to the proximal (P) and distal (D) tubule of the Nephron. [NEET-2025]



Locomotion and Movement

- Q.1** Which of the following is not a function of the skeletal system : [AIPMT-2015]
 (1) Production of body heat
 (2) Locomotion
 (3) Production of erythrocytes
 (4) Storage of minerals
- Q.2** Which of the following joints would allow no movement? [AIPMT-2015]
 (1) Synovial joint (2) Ball and Socket joint
 (3) Fibrous joint (4) Cartilaginous joint
- Q.3** Lack of relaxation between successive stimuli in sustained muscle contraction is known as : [NEET I-2016]
 (1) Tetanus (2) Tonus
 (3) Spasm (4) Fatigue
- Q.4** Name the ion responsible for unmasking of active sites for myosin for cross-bridge activity during muscle contraction. [NEET II-2016]
 (1) Calcium (2) Magnesium
 (3) Sodium (4) Potassium
- Q.5** Osteoporosis, an age-related disease of skeletal system, may occur due to : [NEET II-2016]
 (1) immune disorder affecting neuromuscular junction leading to fatigue
 (2) high concentration of Ca^{++} and Na^+
 (3) decreased level of estrogen
 (4) accumulation of uric acid leading to inflammation of joints.
- Q.6** The pivot joint between atlas and axis is a type of : [NEET-2017]
 (1) cartilaginous joint
 (2) synovial joint
 (3) saddle joint
 (4) fibrous joint
- Q.7** Out of X pairs of ribs in humans only Y pairs are true ribs. Select the option that correctly represents values of X and Y and provides their explanation. [NEET-2017]
 (1) X = 12, Y = 5 → True ribs are attached dorsally to vertebral column and sternum on the two ends.
 (2) X = 24, Y = 2 → The true ribs are dorsally attached to vertebral column but are free on ventral side.
 (3) X = 24, Y = 12 → True ribs are dorsally attached to vertebral column but are free on ventral side.
 (4) X = 12, Y = 7 → True ribs are attached dorsally to vertebral column and ventrally to the sternum.
- Q.8** Calcium is important in skeletal muscle contraction because it [NEET-2018]
 (1) Detaches the myosin head from the actin filament.
 (2) Activates the myosin ATPase by binding to it.
 (3) Binds to troponin to remove the masking of active sites on actin for myosin.
 (4) Prevents the formation of bonds between the myosin cross bridges and the actin filament.
- Q.9** Which of the following muscular disorders is inherited? [NEET-2019]
 (1) Tetany
 (2) Muscular dystrophy
 (3) Myasthenia gravis
 (4) Botulism
- Q.10** Select the correct option . [NEET-2019]
 (1) 8th, 9th and 10th pairs of ribs articulate directly with the sternum.
 (2) 11th and 12th pairs of ribs are connected to the sternum with the help of hyaline cartilage.
 (3) Each rib is a flat thin bone and all the ribs are connected dorsally to the thoracic vertebrae and ventrally to the sternum.
 (4) There are seven pairs of vertebrosteral, three pairs of vertebrochondral and two pairs of vertebral ribs.

Q.11 Match the following columns and select the correct option. [NEET-2020]

Column-I

- (a) Floating Ribs
(b) Acromion
(c) Scapula
(d) Glenoid cavity

Column-II

- (i) Located between second and seventh ribs
(ii) Head of the Humerus
(iii) Clavicle
(iv) Do not connect with the sternum

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

Q.12 Chronic auto immune disorder affecting neuro muscular junction leading to fatigue, weakening and paralysis of skeletal muscle is called as :

[NEET-2021]

- (1) Muscular dystrophy (2) Myasthenia gravis
(3) Gout (4) Arthritis

Q.13 Match List - I with List - II [NEET-2021]

List - I		List - II	
(a)	Scapula	(i)	Cartilaginous joints
(b)	Cranium	(ii)	Flat bone
(c)	Sternum	(iii)	Fibrous joints
(d)	Vertebral column	(iv)	Triangular flat bone

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

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

Q.14 During muscular contraction which of the following events occur ? [NEET-2021]

- (a) 'H' zone disappears
(b) 'A' band widens
(c) 'I' band reduces in width
(d) Myosine hydrolyzes ATP, releasing the ADP and Pi
(e) Z-lines attached to actins are pulled inwards

Choose the correct answer from the options given below.

- (1) (a), (b), (c) (d) only (2) (b), (c), (d), (e) only
(3) (b), (d), (e) (a) only (4) (a), (c), (d) (e) only

Q.15 Which of the following is a **correct** match for disease and its symptoms? [NEET-2022]

- (1) Tetany - high Ca^{2+} level causing rapid spasms.
(2) Myasthenia gravis - Genetic disorder resulting in weakening and paralysis of skeletal muscle

- (3) Muscular dystrophy - An auto immune disorder causing progressive degeneration of skeletal muscle
(4) Arthritis - inflamed joints

Q.16 Which of the following is present between the adjacent bones of the vertebral column? [NEET-2022]

- (1) Cartilage
(2) Areolar tissue
(3) Smooth muscle
(4) Intercalated discs

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

Assertion (A): Osteoporosis is characterised by decreased bone mass and increased chances of fractures. [NEET-2022]

Reason (R): Common cause of osteoporosis is increased levels of estrogen.

In the light of the above statements, choose the **most appropriate** 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.18 Match List I with List II [NEET-2023]

List I**(Type of Joint)**

- A. Cartilaginous Joint
B. Ball and Socket Joint
C. Fibrous Joint
D. Saddle Joint

List II**(Found between)**

- I. Between flat skull bones
II. Between adjacent vertebrae in vertebral column
III. Between carpal and metacarpal of thumb
IV. Between Humerus and Pectoral girdle

Choose the correct answer from the options given below

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

Q.19 Match List I with List II :

List I

- A. Fibrous joints
B. Cartilaginous joints
C. Hinge joints
D. Ball and socket joints

List II

- I. Adjacent vertebrae, limited movement
II. Humerus and Pectoral girdle, rotational movement
III. Skull, don't allow any movement
IV. Knee, help in locomotion

Choose the correct answer from the options given below :

[NEET-2024]

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

Q.20 Match List-I with List-II:

List-I Location of Joint		List-II Types of Joint	
A.	Joint between humerus and pectoral girdle	I.	Gliding joint
B.	Knee joint	II.	Ball and Socket joint
C.	Joint between atlas and axis	III.	Hinge joint
D.	Joint between carpals	IV.	Pivot joint

Choose the correct answer from the options given below :

[Re-NEET 2024]

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

Q.21 Select the correct statements regarding mechanism of muscle contraction.

- A. It is initiated by a signal sent by CNS via sensory neuron.
- B. Neurotransmitter generates action potential in the sarcolemma.
- C. Increased Ca^{++} level leads to the binding of calcium with troponin on action filaments.
- D. Masking of active site for actin is activated.
- E. Utilising the energy from ATP hydrolysis to form cross bridge.

Choose the most appropriate answer from the options given below:

[Re-NEET 2024]

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

Q.22 Match List-I with List-II. [NEET-2025]

List-I		List-II	
A.	Emphysema	I.	Rapid spasms in muscle due to low Ca^{++} in body fluid
B.	Angina Pectoris	II.	Damaged alveolar walls and decreased respiratory surface
C.	Glomerulonephritis	III.	Acute chest pain when not enough oxygen is reaching to heart muscle
D.	Tetany	IV.	Inflammation of glomeruli of kidney

Choose the correct answer from the options given below :

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

Q.23 Which of the following statement is correct about location of the male frog copulatory pad ?

[NEET-2025]

- (1) First and Second digit of fore limb
- (2) First digit of hind limb
- (3) Second digit of fore limb
- (4) First digit of the fore limb

Neural Control and Coordination

Q.1 Photosensitive compound in human eye is made up of:

[NEET I-2016]

[Not in new syllabus of NEET]

- (1) Opsin and retinol
- (2) Transducin and retinene
- (3) Guanosine and retinol
- (4) Opsin and retinal

Q.2 Good vision depends on adequate intake of carotene rich food.

[NEET-2017]

[Not in new syllabus of NEET]

Select the best option from the following statements.

- (i) Vitamin A derivatives are formed from carotene.
 - (ii) The photopigments are embedded in the membrane discs of the inner segment.
 - (iii) Retinal is a derivative of vitamin A.
 - (iv) Retinal is a light absorbed part of all the visual photopigments.
- (1) (i), (iii) and (iv)
 - (2) (i) and (iii)
 - (3) (ii), (iii) and (iv)
 - (4) (i) and (ii)

Q.3 Myelin sheath is produced by :

[NEET II-2017]

- (1) astrocytes and Schwann cells.
- (2) Oligodendrocytes and osteoclasts
- (3) Osteoclasts and astrocytes
- (4) Schwann cells and oligodendrocytes.

Q.4 Receptor sites for neurotransmitters are present on :

[NEET-2017]

- (1) presynaptic membrane
- (2) tips of axons
- (3) post-synaptic membrane
- (4) membrane of synaptic vesicles

Q.5 The transparent lens in the human eye is held in its place by

[NEET-2018]

[Not in new syllabus of NEET]

- (1) smooth muscles attached to the iris
- (2) ligaments attached to the iris
- (3) ligaments attached to the ciliary body
- (4) smooth muscles attached to the ciliary body

Q.6 Which of the following statements is correct ?

[NEET-2019]

[Not in new syllabus of NEET]

- (1) Cornea is an external, transparent and protective proteinaceous covering of the eye-ball.
- (2) Cornea consists of dense connective tissue of elastin and can repair itself.
- (3) Cornea is convex, transparent layer which is highly vascularised.
- (4) Cornea consists of dense matrix of collagen and is the most sensitive portion of the eye.

Q.7 Which part of the brain is responsible for thermoregulation ?

[NEET-2019]

- (1) Cerebrum
- (2) Hypothalamus
- (3) Corpus callosum
- (4) Medulla oblongata

Q.8 Match the following columns and select the correct option.

[NEET-2020]

[Not in new syllabus of NEET]

Column-I

Column-II

- | | |
|---------------------|--------------------------------------|
| (a) Organ of Corti | (i) Connects middle ear and pharynx |
| (b) Cochlea | (ii) Coiled part of the labyrinth |
| (c) Eustachian tube | (iii) Attached to the oval window |
| (d) Stapes | (iv) Located on the basilar membrane |
| (a) | (b) |
| (1) (iii) | (i) |
| (2) (iv) | (ii) |
| (3) (i) | (ii) |
| (4) (ii) | (iii) |
| (c) | (d) |
| (1) (iii) | (iv) |
| (2) (iv) | (i) |
| (3) (i) | (iv) |
| (4) (ii) | (i) |

Q.9 Select the **incorrect** statement regarding synapses:

[NEET-2022]

- (1) Electrical current can flow directly from one neuron into the other across the electrical synapse.
- (2) Chemical synapses use neurotransmitters
- (3) Impulse transmission across a chemical synapse is always faster than that across an electrical synapse.
- (4) The membranes of presynaptic and postsynaptic neurons are in close proximity in an electrical synapse.

Q.10 The parts of human brain that helps in regulation of sexual behaviour, expression of excitement, pleasure, rage, fear etc. are :

[NEET-2023]

- (1) Corpora quadrigemina & hippocampus
- (2) Brain stem & epithalamus
- (3) Corpus callosum and thalamus
- (4) Limbic system & hypothalamus

Q.11 Match **List I** with **List II** with respect to human eye.

[NEET-2023]

[Not in new syllabus of NEET]

List I

List II

- | | |
|---------------|--|
| A. Fovea | I. Visible coloured portion of eye that regulates diameter of pupil. |
| B. Iris | II. External layer of eye formed of dense connective tissue. |
| C. Blind spot | III. Point of greatest visual acuity or resolution. |
| D. Sclera | IV. Point where optic nerve leaves the eyeball and photoreceptor cells are absent. |

Choose the correct answer from the options given below

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

Q.12 Match List I with List II :

List I

List II

- | | |
|-----------------|--|
| A. Pons | I. Provides additional space for Neurons, regulates posture and balance. |
| B. Hypothalamus | II. Controls respiration and gastric secretions. |
| C. Medulla | III. Connects different regions of the brain. |
| D. Cerebellum | IV. Neuro secretory cells |

Choose the correct answer from the options given below :

[NEET-2024]

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

Q.13 Given below are two statements:

Statement I: The cerebral hemispheres are connected by nerve tract known as corpus callosum.

Statement II: The brain stem consists of the medulla oblongata, pons and cerebrum.

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

[NEET-2024]

- (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.14 Match List-I with List-II:

List-I		List-II	
A.	Schwann cells	I.	Neurotransmitter
B.	Synaptic knob	II.	Cerebral cortex
C.	Bipolar neurons	III.	Myelin sheath
D.	Multipolar neurons	IV.	Retina

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

Chemical Coordination and Integration

Q.1 Which one of the following hormones is not involved in sugar metabolism ? [AIPMT-2015]

- (1) Insulin (2) Glucagon
(3) Cortisone (4) Aldosterone

Q.2 Which of the following pairs of hormones are not antagonistic (having opposite effects) to each other ? [NEET Phase I-2016]

- (1) Aldosterone Atrial Natriuretic Factor
(2) Relaxin Inhibin
(3) Parathormone Calcitonin
(4) Insulin Glucagon

Q.3 Graves' disease is caused due to : [NEET Phase II-2016]

- (1) Hyposecretion of thyroid gland
(2) Hypersecretion of thyroid gland
(3) Hyposecretion of adrenal gland
(4) Hypersecretion of adrenal gland

Q.4 Name a peptide hormone which acts mainly on hepatocytes, adipocytes and enhances cellular glucose uptake and utilisation : [NEET Phase II-2016]

- (1) Insulin (2) Glucagon
(3) Secretin (4) Gastrin

Q.5 The posterior pituitary gland is not a 'True' endocrine gland because. [NEET Phase II-2016]

- (1) it is provided with a duct.
(2) it only stores and releases hormones.
(3) it is under the regulation of hypothalamus.
(4) it secretes enzyme.

Q.6 A temporary endocrine gland in the human body is: [NEET-2017]

[Not in new syllabus of NEET]

- (1) corpus cardiacum (2) corpus luteum
(3) corpus allatum (4) pineal gland

Q.7 GnRH, a hypothalamic hormone, needed in reproduction, acts on - [NEET-2017]

- (1) anterior pituitary gland and stimulates secretion of LH and FSH.
(2) posterior pituitary gland and stimulates secretion of oxytocin and FSH
(3) posterior pituitary gland and stimulates secretion of LH and relaxin
(4) anterior pituitary gland and stimulates secretion of LH and oxytocin.

Q.8 Which of the following is an amino acid derived hormone? [NEET-2018]

- (1) Estradiol (2) Ecdysone
(3) Epinephrine (4) Estriol

Q.9 Which of the following hormones can play a significant role in osteoporosis? [NEET-2018]

- (1) Estrogen and Parathyroid hormone
(2) Progesterone and Aldosterone
(3) Aldosterone and Prolactin
(4) Parathyroid hormone and Prolactin

Q.10 Match the following hormones with the respective disease : [NEET-2019]

- (a) Insulin (i) Addison's disease
(b) Thyroxin (ii) Diabetes insipidus
(c) Corticoids (iii) Arcomegaly
(d) Growth Hormone (iv) Goitre
(v) Diabetes mellitus

Select the correct option.

(a) (b) (c) (d)

- (1) (v) (i) (ii) (iii)
(2) (ii) (iv) (iii) (i)
(3) (v) (iv) (i) (iii)
(4) (ii) (iv) (i) (iii)

Q.11 How does steroid hormone influence the cellular activities? [NEET-2019]

- (1) Changing the permeability of the cell membrane.
(2) Binding to DNA and forming a gene-hormone complex.
(3) Activating cyclic AMP located on the cell membrane.
(4) Using aquaporin channels as second messenger.

Q.12 Presence of which of the following conditions in urine are indicative of Diabetes Mellitus? [NEET-2020]

[Not in new syllabus of NEET]

- (1) Uraemia and Renal Calculi
(2) Ketonuria and Glycosuria
(3) Renal calculi and Hyperglycaemia
(4) Uraemia and Ketonuria

Q.13 Which of the following would help in prevention of diuresis? [NEET-2020]

[Not in new syllabus of NEET]

- (1) Reabsorption of Na^+ and water from renal tubules due to aldosterone
- (2) Atrial natriuretic factor causes vasoconstriction
- (3) Decrease in secretion of renin by JG cells
- (4) More water reabsorption due to under secretion of ADH

Q.14 Match the following columns and select the correct option. [NEET-2020]

Column-I		Column-II	
(a) Pituitary gland		(i) Grave's disease	
(b) Thyroid gland		(ii) Diabetes mellitus	
(c) Adrenal gland		(iii) Diabetes insipidus	
(d) Pancreas		(iv) Addison's disease	
(a)	(b)	(c)	(d)
(1) (iii)	(ii)	(i)	(iv)
(2) (iii)	(i)	(iv)	(ii)
(3) (ii)	(i)	(iv)	(iii)
(4) (iv)	(iii)	(i)	(ii)

Q.15 Select the correct statement. [NEET-2020]

- (1) Glucagon is associated with hypoglycemia.
- (2) Insulin acts on pancreatic cells and adipocytes.
- (3) Insulin is associated with hyperglycemia.
- (4) Glucocorticoids stimulate gluconeogenesis.

Q.16 Erythropoietin hormone which stimulate RBC formation is produced by : [NEET-2021]

- (1) The cells of rostral adenohypophysis
- (2) The cells of bone marrow
- (3) Juxtaglomerular cells of the kidney
- (4) Alpha cells of pancreas

Q.17 Which of the following are not the effects of Parathyroid hormone ? [NEET-2022]

- (a) Stimulates the process of bone resorption
- (b) Decreases Ca^{2+} level in blood
- (c) Reabsorption of Ca^{2+} by renal tubules
- (d) Decreases the absorption of Ca^{2+} from digested food
- (e) Increases metabolism of carbohydrates

Choose the **most appropriate** answer from the options given below:

- (1) (b), (d) and (e) only
- (2) (a) and (e) only
- (3) (b) and (c) only
- (4) (a) and (c) only

Q.18 Which of the following are NOT under the control of thyroid hormone? [NEET-2023]

- A. Maintenance of water and electrolyte balance
- B. Regulation of basal metabolic rate
- C. Normal rhythm of sleep-wake cycle
- D. Development of immune system
- E. Support the process of R.B.Cs formation

Choose the correct answer from the options given below:

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

Q.19 Which of the following is not a steroid hormone? [NEET-2024]

- (1) Glucagon
- (2) Cortisol
- (3) Testosterone
- (4) Progesterone

Q.20 Match List I with List II :

List I	List II
A. Exophthalmic goiter	I. Excess secretion of cortisol, moon face & hyperglycemia.
B. Acromegaly	II. Hypo-secretion of thyroid hormone and stunted growth.
C. Cushing's syndrome	III. Hyper secretion of thyroid hormone & protruding eye balls.
D. Cretinism	IV. Excessive secretion of growth hormone.

Choose the correct answer from the options given below :

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

Q.21 Match List-I with List-II:

List-I		List-II	
A.	Epinephrine	I.	Hyperlycemia
B.	Thyroxine	II.	Smooth muscle contraction
C.	Oxytocin	III.	Basal metabolic rate
D.	Glucagon	IV.	Emergency hormone

Choose the correct answer from the options given below :

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

Q.22 Identify the wrong statements :

- A. Erythropoietin is produced by juxtaglomerular cells of the kidney
- B. Leydig cells produce Androgens
- C. Atrial Natriuretic factor, a peptide hormone is secreted by the seminiferous tubules of the testes
- D. Cholecystokinin is produced by gastrointestinal tract
- E. Gastrin acts on intestinal wall and helps in the production of pepsinogen

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

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

Q.23 Match List-I with List-II **[NEET-2025]**

List-I	List-II
A. Progesterone	I. Pars intermedia
B. Relaxin	II. Ovary
C. Melanocyte stimulating hormone	III. Adrenal Medulla
D. Catecholamines	IV. Corpus luteum

Choose the correct answer from the options given below :

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

Q.24 Which of the following hormones released from the pituitary is actually synthesized in the hypothalamus? **[NEET-2025]**

- (1) Luteinizing hormone (LH)
(2) Anti-diuretic hormone (ADH)
(3) Follicle-stimulating hormone (FSH)
(4) Adrenocorticotrophic hormone (ACTH)

Q.25 Consider the following statements regarding function of adrenal medullary hormones: **[NEET-2025]**

- A. It causes pupillary constriction
B. It is a hyperglycemic hormone
C. It causes piloerection
D. It increases strength of heart contraction

Choose the correct answer from the options given below :

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

Q.26 Match List -I with List - II. **[NEET-2025]**

List-I	List-II
A. Heart	I. Erythropoietin
B. Kidney	II. Aldosterone
C. Gastrointestinal tract	III. Atrial natriuretic factor
D. Adrenal Cortex	IV. Secretin

Choose the correct answer from the options given below:

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

Q.27 Cardiac activities of the heart are regulated by :

- A. Nodal tissue **[NEET-2025]**
B. A special neural centre in the medulla oblongata
C. Adrenal medullary hormones
D. Adrenal cortical hormones

Choose the correct answer from the options given below :

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

ANSWER KEY

The Living World

Q.1 (3) Q.2 (4) Q.3 (1) Q.4 (4) Q.5 (2)

Biological Classification

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

Plant Kingdom

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

Animal Kingdom

Q.1 (3) Q.2 (3) Q.3 (2) Q.4 (1) Q.5 (2) Q.6 (1) Q.7 (3) Q.8 (2) Q.9 (2) Q.10 (2)
 Q.11 (1) Q.12 (2) Q.13 (2) Q.14 (1) Q.15 (1) Q.16 (4) Q.17 (1) Q.18 (3) Q.19 (3) Q.20 (2)
 Q.21 (2) Q.22 (4) Q.23 (4) Q.24 (3) Q.25 (2) Q.26 (1) Q.27 (2) Q.28 (1) Q.29 (1) Q.30 (3)
 Q.31 (3) Q.32 (3) Q.33 (4) Q.34 (3) Q.35 (3) Q.36 (4) Q.37 (1) Q.38 (2) Q.39 (2) Q.40 (4)
 Q.41 (1)

Morphology of Flowering Plants

Q.1 (4) Q.2 (4) Q.3 (1) Q.4 (3) Q.5 (3) Q.6 (1) Q.7 (1) Q.8 (2) Q.9 (4) Q.10 (2)
 Q.11 (2) Q.12 (2) Q.13 (4) Q.14 (1) Q.15 (2) Q.16 (3) Q.17 (4) Q.18 (4) Q.19 (3) Q.20 (2)
 Q.21 (4) Q.22 (1) Q.23 (1) Q.24 (2) Q.25 (3) Q.26 (4) Q.27 (4) Q.28 (1) Q.29 (2) Q.30 (4)
 Q.31 (2) Q.32 (2) Q.33 (1) Q.34 (3) Q.35 (4) Q.36 (4) Q.37 (4) Q.38 (3)

Anatomy of Flowering Plants

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

Structural Organisation in Animals

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

Cell : The Unit of Life

Q.1 (2) Q.2 (4) Q.3 (3) Q.4 (2) Q.5 (1) Q.6 (1) Q.7 (2) Q.8 (4) Q.9 (1) Q.10 (2)
 Q.11 (3) Q.12 (4) Q.13 (2) Q.14 (4) Q.15 (3) Q.16 (4) Q.17 (3) Q.18 (4) Q.19 (1) Q.20 (2)
 Q.21 (1) Q.22 (2) Q.23 (2) Q.24 (4) Q.25 (1) Q.26 (2) Q.27 (4) Q.28 (2) Q.29 (1) Q.30 (1)
 Q.31 (3) Q.32 (2) Q.33 (4) Q.34 (1) Q.35 (3) Q.36 (4) Q.37 (2) Q.38 (4) Q.39 (1) Q.40 (4)
 Q.41 (1) Q.42 (1)

Biomolecules

Q.1 (1)	Q.2 (2)	Q.3 (2)	Q.4 (2)	Q.5 (2)	Q.6 (4)	Q.7 (2)	Q.8 (4)	Q.9 (1)	Q.10 (3)
Q.11 (4)	Q.12 (3)	Q.13 (2)	Q.14 (1)	Q.15 (4)	Q.16 (2)	Q.17 (3)	Q.18 (1)	Q.19 (4)	Q.20 (3)
Q.21 (3)	Q.22 (2)	Q.23 (2)	Q.24 (2)	Q.25 (4)	Q.26 (3)	Q.27 (4)	Q.28 (4)	Q.29 (2)	Q.30 (2)
Q.31 (4)	Q.32 (3)	Q.33 (2)	Q.34 (1)	Q.35 (3)	Q.36 (1)	Q.37 (4)	Q.38 (1)	Q.39 (3)	Q.40 (4)
Q.41 (3)									

Cell Cycle and Cell Division

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

Photosynthesis in Higher Plants

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

Respiration in Plants

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

Plant Growth and Development

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

Breathing and Exchange of Gases

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

Body Fluids and Circulation

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

Excretory Products and Their Elimination

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

Locomotion and Movement

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

Neural Control and Coordination

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

Chemical Coordination and Integration

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