NEET Re-Exam 2026 Code 50

Question Paper

Conducted by National Testing Agency (NTA)

General Instructions

(i) The test is of 3 hours and 15 minutes duration.

(ii) This test paper consists of 180 questions. The maximum marks are 720.

(iii) Physics and Chemistry contains 45 questions each and Biology (Botany and Zoology) contains 90 questions.

(iv) Each question carries +4 marks for correct answer and –1 mark for wrong answer.

Physics

1. A particle of mass M moves along the horizontal x-axis from $x = 0$ to $x = L$. The coefficient of kinetic friction varies as

$$\mu_k(x) = \frac{\mu_0}{L}x$$

where μ_0 and L are constants. If the total work done by friction during the motion is

$$-\frac{\mu_0 M g L}{n}$$

where g is the acceleration due to gravity, find n.

(A) $\frac{1}{2}$

(B) 3

(C) 1

(D) $\frac{1}{3}$

---

2. The mean free path of molecules in an ideal gas A is half that of another ideal gas B. The diameter of the spherical molecules of gas A is twice the diameter of the molecules of gas B. If

number densities of the gases A and B are n_A and n_B, respectively, then the correct option is:

(A) $n_A = \frac{1}{2} n_B$

(B) $n_A = n_B$

(C) $n_A = 2n_B$

(D) $n_A = \frac{1}{4} n_B$

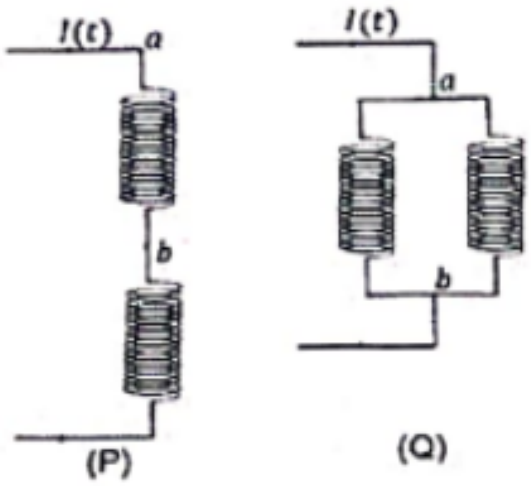
---

3. Two identical inductors are connected in two different configurations P and Q, where a time varying current $I(t)$ is flowing, as shown in the figure.

If the induced emf between points a and b for configuration P is E_P and that for configuration Q is E_Q, then the ratio

$$\frac{E_P}{E_Q}$$

is:



(A) 1

(B) $\frac{1}{4}$

(C) $\frac{1}{2}$

(D) 4

---

4. For sound waves, if the number of nodes for the 5th harmonic of an open-ended pipe is n and that for the 9th harmonic of the same pipe with one of its ends closed is m, the ratio n/m is:

(A) $\frac{3}{5}$

(B) $\frac{9}{5}$

(C) $\frac{5}{9}$

(D) 1

---

5. Consider a long solenoid of length l and radius r. If n is the number of turns per unit length and μ_0 is the permeability of free space, the inductance of the solenoid is:

(A) $2\mu_0\pi n^2 r^2 l$

(B) $\mu_0\pi n^2 r^2 l$

(C) $\mu_0 n^2 r^2 l$

(D) $\left(\frac{\mu_0}{2\pi}\right) n^2 r^2 l$

---

6. Consider a particle moving along a straight line, whose position as a function of time is given by

$$s(t) = \alpha t^2 - \beta t + \gamma$$

where $\alpha = 1\,\text{m s}^{-2}$, $\beta = 6\,\text{m s}^{-1}$ and $\gamma = 5\,\text{m}$. The average speed of the particle, in m s^{-1}, from $t = 0$ to $t = 6\,\text{s}$ is:

(A) 0

(B) 12

(C) 6

(D) 3

---

7. Consider the following nuclear reaction :

$$^{238}_{92}\text{U} \rightarrow {}^{234}_{90}\text{Th} + {}^{4}_{2}\text{He}$$

Take masses of ^{238}U, ^{234}Th and ^{4}He as 238.050 u, 234.043 u and 4.003 u, respectively. The Q-value for the reaction, in keV, is :

$$\textbf{Given : } 1\ u = 931.5\ \textbf{MeV}/c^2$$

(A) 3726

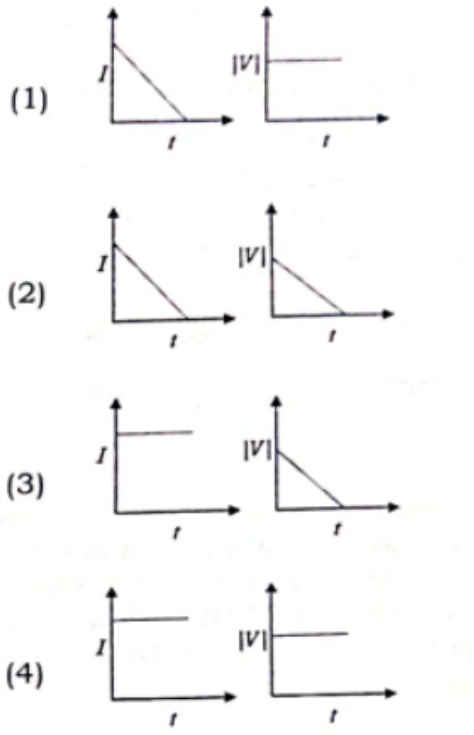
(B) 3730

(C) 3736

(D) 3740

---

8. A beam of light falls on a metal surface such that photo-electrons are generated. If the power of the light source starts to decrease linearly with time, then the variation of the photocurrent I and magnitude of the stopping potential $|V|$ with time is best represented by :



(A) I = constant, $|V|$ = constant

(B) I decreases linearly with time, $|V|$ remains constant

(C) I decreases linearly with time, $|V|$ also decreases linearly with time

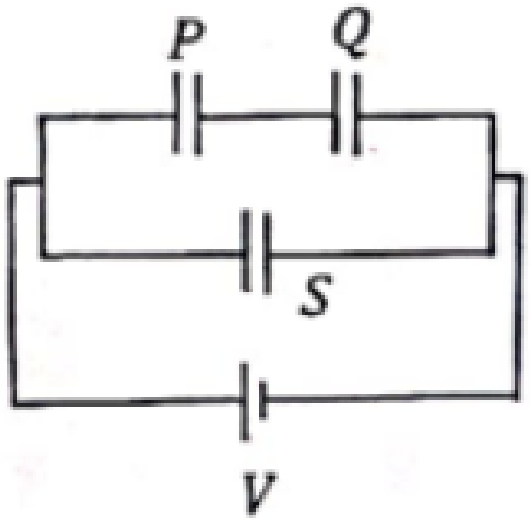
(D) $I =$ constant, $|V|$ decreases linearly with time

---

9. Three identical capacitors P, Q and S, each of capacitance C, are connected to a battery of voltage V, as shown in the figure. If the potential energy stored in the capacitor P and total energy stored in the system are U_P and U_T, respectively, then the ratio

$$\frac{U_P}{U_T}$$

is:



(A) $\frac{1}{6}$

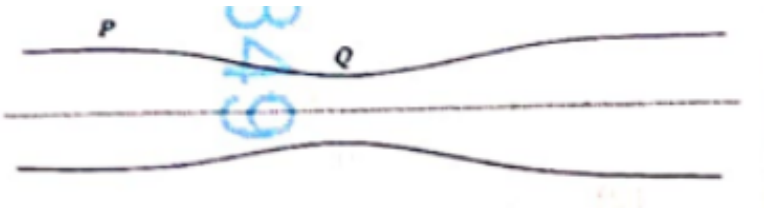
(B) $\frac{2}{3}$

(C) $\frac{1}{3}$

(D) $\frac{1}{2}$

---

10. Water flows in a streamline motion through a horizontal pipe of circular cross-section as shown in the figure. The pressure difference of water between P and Q is $15\,\text{N m}^{-2}$. The area of cross-section at P and Q are $40\,\text{cm}^2$ and $20\,\text{cm}^2$, respectively. The rate of flow of water through the pipe, in cm^3s^{-1}, is:



(A) 400

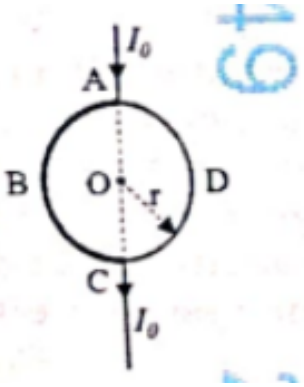
(B) 100

(C) 200

(D) 300

---

11. A current I_0 flows through a metallic circular loop of radius r as shown. The resistance of arc ABC is half that of arc ADC. Find the magnetic field at the centre O.



(A) $\frac{\mu_0 I_0}{6r}$

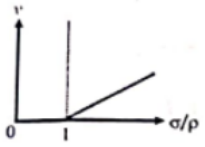
(B) $\frac{\mu_0 I_0}{2r}$

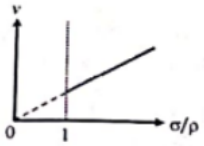
(C) $\frac{\mu_0 I_0}{12r}$

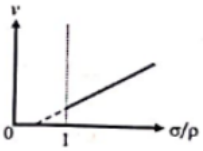
(D) $\frac{\mu_0 I_0}{4r}$

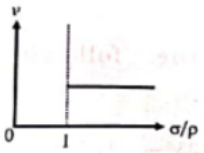
---

12. In the measurement of viscosity of liquids using terminal velocity experiment, spherical balls of same radius but having different densities are used. The variation of the terminal velocity (v) with the ratio of density of spherical ball (σ) to density of the liquid (ρ), is best represented by:

(1) 

(2) 

(3) 

(4) 

(A) Graph passing through the origin

(B) Straight line having positive slope and non-zero intercept

(C) Parabolic curve

(D) Hyperbolic curve

---

13. Two planets P_1 and P_2 with equal mass have radii R_1 and R_2, respectively, where

$$R_2 = \frac{R_1}{2}$$

The escape speeds of P_1 and P_2 are v_1 and v_2, respectively. Then the value of

$$\frac{v_2}{v_1}$$

is:

(A) 2

(B) $\frac{1}{\sqrt{2}}$

(C) 1

(D) $\sqrt{2}$

---

14. In a solar system, the time period of revolution of a planet tracing a circular orbit of radius R is proportional to:

(A) R^3

(B) $R^{1/2}$

(C) $R^{3/2}$

(D) R^2

---

15. Two infinitely long parallel conducting wires A and B carry currents I and $2I$, respectively, in the same direction. Wire A lies on an insulated floor while wire B is fixed at a height h above the floor. The minimum value of h so that wire A does not rise from the floor is:

(A) $\frac{4\mu_0 I^2}{\pi\lambda g}$

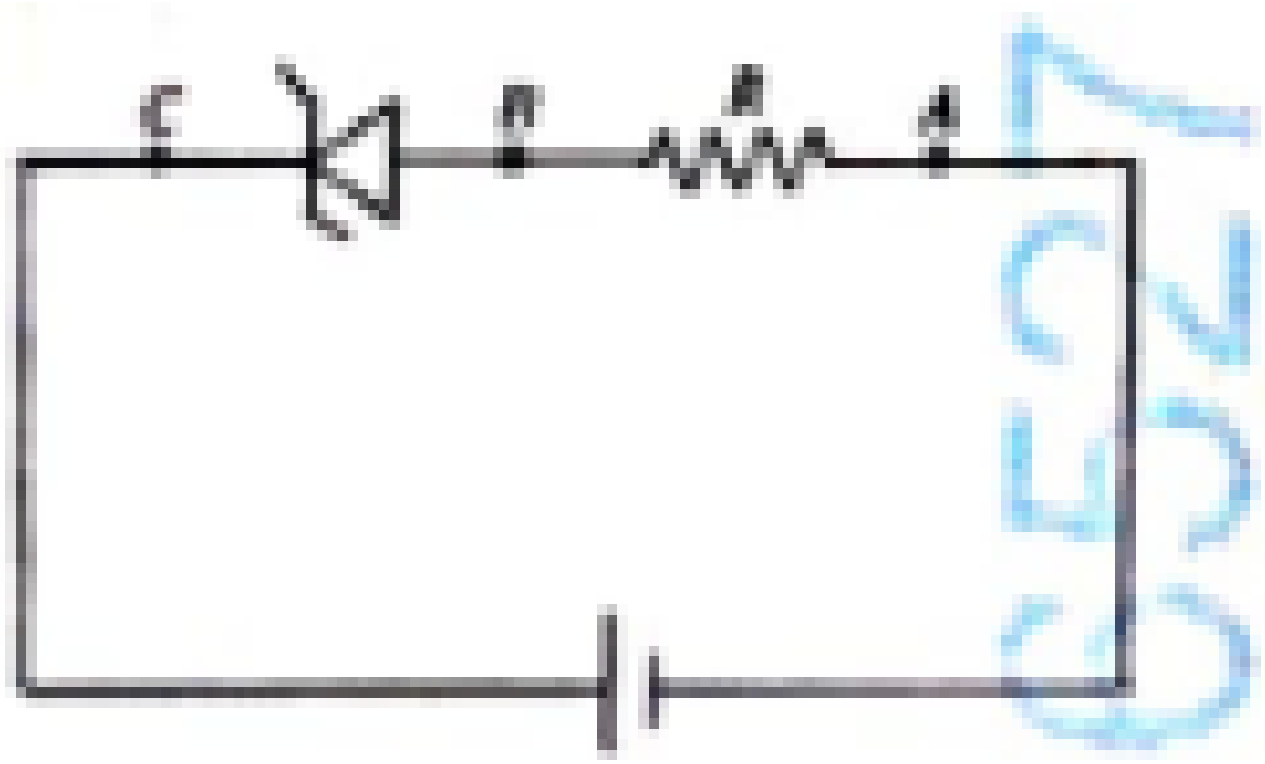
(B) $\frac{\mu_0 I^2}{2\pi\lambda g}$

(C) $\frac{\mu_0 I^2}{\pi\lambda g}$

(D) $\frac{2\mu_0 I^2}{\pi\lambda g}$

---

16. An ideal Zener diode with breakdown voltage of $3\,\text{V}$ is reverse biased with a negative input voltage $V_1 = -5\,\text{V}$. The magnitude of voltage difference between points B and A is:



(A) 0 V

(B) 3 V

(C) 2 V

(D) 1 V

---

17. In an adiabatic expansion, the temperature of one mole of an ideal monoatomic gas ($\gamma = \frac{5}{3}$) decreases from 60 K to 50 K. The work done by the gas in the process is: (Take the universal gas constant as $R = 8.3$ J mol^{-1}K^{-1})

(A) 166 J

(B) 41.5 J

(C) 83 J

(D) 124.5 J

18. A ray of light with wavelength λ is incident on three different photoelectric cells. The threshold wavelengths are λ_1, λ_2, and λ_3, and the magnitudes of stopping potentials are V_1, V_2, and V_3, respectively. If

$$\lambda_1 \leq \lambda, \qquad \lambda_2 > \lambda, \qquad \lambda_3 \gg \lambda$$

the correct option is:

(A) $V_1 < V_2,\ V_3 = 0$

(B) $V_1 = 0,\ V_2 < V_3$

(C) $V_1 > 0,\ V_2 = 0,\ V_3 = 0$

(D) $V_1 > V_2,\ V_3 = 0$

---

19. A photon and an electron, each of 20 eV energy, move in free space. The ratio of linear momentum of electron p_e to that of photon p_{ph},

$$\frac{p_e}{p_{ph}}$$

is :

$$\textbf{Take } c = 3 \times 10^8 \textbf{ ms}^{-1}, \quad e = 1.6 \times 10^{-19} \textbf{ C}, \quad m_e = 9 \times 10^{-31} \textbf{ kg}$$

(A) 711

(B) 355

(C) 1422

(D) 1067

---

20. Which of the following measurements require index correction?

(A) Measurement of resistance of a wire using meter bridge

(B) Measurement of gravitational acceleration using simple pendulum

(C) Measurement of focal length of lenses using optical bench

(D) Measurement of speed of sound using resonance tube

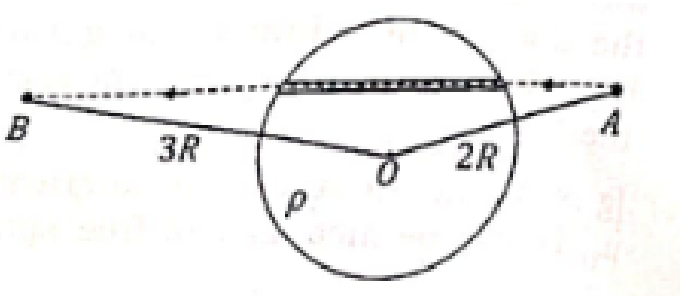
---

21. A unit positive point charge is taken slowly through an infinitesimally thin tube that is inside a charged dielectric sphere of radius R, having uniform positive charge density ρ,

as shown in the figure. The initial and final positions of the charge are marked by A and B, at distances $2R$ and $3R$ respectively, from the centre O of the sphere. In this process, the magnitude of the total work done on the point charge is

$$\frac{\rho R^2}{n\varepsilon_0}.$$

The value of n is :



(A) 2

(B) 6

(C) 9

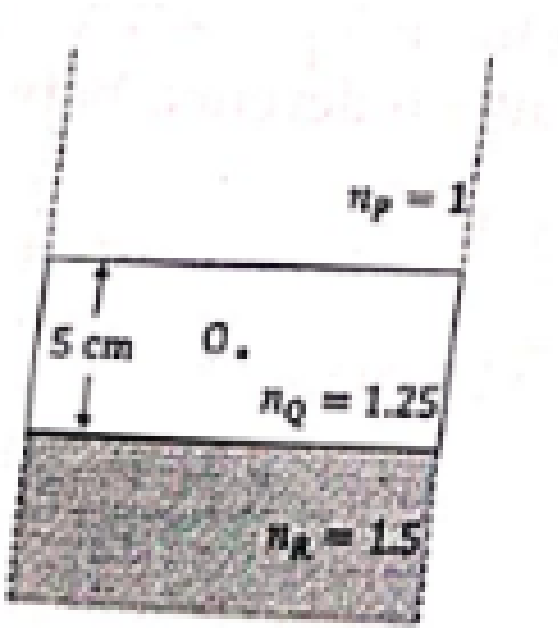
(D) 18

---

22. Consider three media P, Q and R with refractive indices 1, 1.25 and 1.5, respectively. The medium Q, having a thickness of 5 cm, is placed between extended media P and R as shown in the figure. An object O is placed at the centre of medium Q. If viewed from medium P near the normal direction, the apparent depth is h_1. For similar observation from medium R, the apparent depth is h_2. The value of

$$|h_1 - h_2|$$

in cm is :



(A) 0

(B) 1

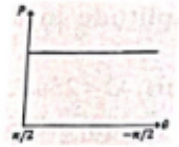
(C) 2

(D) 3

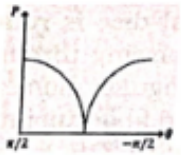
---

23. A frictionless circular wire of unit radius is fixed on the horizontal plane. Two point particles of unit mass start moving simultaneously from point A $\left(\theta = \frac{\pi}{2}\right)$ with identical uniform angular speeds in opposite directions, and meet again at point B $\left(\theta = -\frac{\pi}{2}\right)$. During this time, which of the following figures schematically represents the magnitude of the total linear momentum P of the system, as a function of θ?

(1)

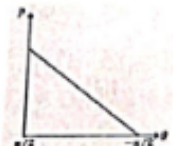


(2)



(3)

(4)



(A) Graph (1)

(B) Graph (2)

(C) Graph (3)

(D) Graph (4)

---

24. The temperature of a metallic sphere of radius R is increased by a small thermal expansion ΔT. If the linear coefficient of thermal expansion of the metal is α, the approximate increase in the volume of the sphere is :

(A) $2\pi R^3 \alpha \Delta T$

(B) $3\pi R^3 \alpha \Delta T$

(C) $4\pi R^3 \alpha \Delta T$

(D) $6\pi R^3 \alpha \Delta T$

25. A cylindrical cork of uniform density floats in a liquid of density ρ_1. If the cork is depressed slightly and released, it oscillates harmonically with time period T. If the same cork floats in another liquid of density ρ_2, then the similar oscillation has time period $2T$. The value of ρ_2/ρ_1 is :

(A) 4

(B) 2

(C) $\frac{1}{2}$

(D) $\frac{1}{4}$

---

26. One main scale division of a Vernier calliper is equal to 1 mm and the number of divisions on the Vernier scale is 10. When both the jaws touch each other, the Vernier scale shifts to the left of zero of the main scale in such a way that 4^{th} Vernier division coincides with a division of the main scale. If this Vernier calliper measures the length of a wire to be 1 cm, the actual length of the wire is:

(A) 0.60 cm

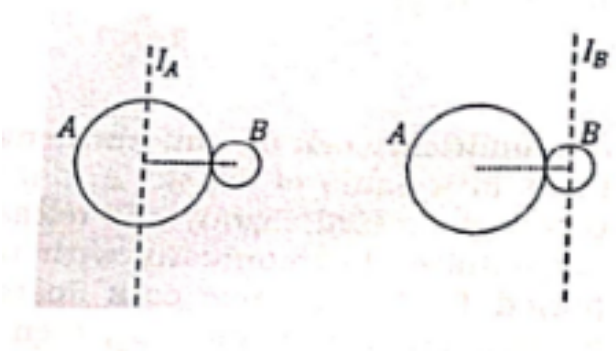
(B) 0.96 cm

(C) 1.00 cm

(D) 1.04 cm

---

27. A solid sphere A of radius R and mass M is attached to a smaller solid sphere B of radius $r < R$ and mass $m < M$. The line joining their centres lies along the horizontal. The moment of inertia of the system calculated about a vertical axis passing through the centre of A is I_A and that calculated about a vertical axis passing through the centre of B is I_B. The difference $I_A - I_B$ is :



(A) $(M-m)(R+r)^2$

(B) $(m-M)(R+r)^2$

(C) $(m-M)(R-r)^2$

(D) 0

---

28. A spring-mass simple harmonic oscillator has mass m and spring constant k. If the v–x graph is a circle, then:

(A) $k = 1/m$

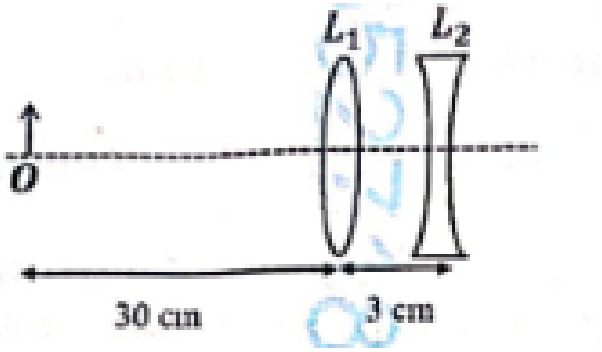
(B) $k = m$

(C) $k = m^2$

(D) $k = \sqrt{m}$

---

29. A lens combination consists of L_1 (f = +10 cm) and L_2 (f = -10 cm) separated by 3 cm. An object is placed 30 cm from L_1. Find the final image position.



(A) 20 cm left of concave

(B) 60 cm left of concave

(C) 30 cm right of concave

(D) 60 cm right of concave

---

30. An AC voltage $V = 220\sin(2\times10^3 t)$ is applied to an LCR circuit (L = 10 mH, C = 25 F, R = 100). Find current amplitude.

(A) 2.2 A

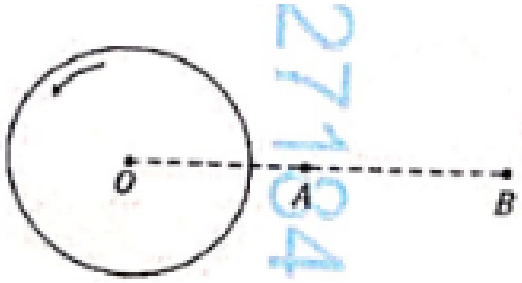
(B) 5.5 A

(C) 11.0 A

(D) 22.0 A

---

31. A disc rotates about a fixed axis O. Angular momenta L_A and L_B are measured at points A and B where $OB = 2OA$. Find L_A/L_B.



(A) 1/4

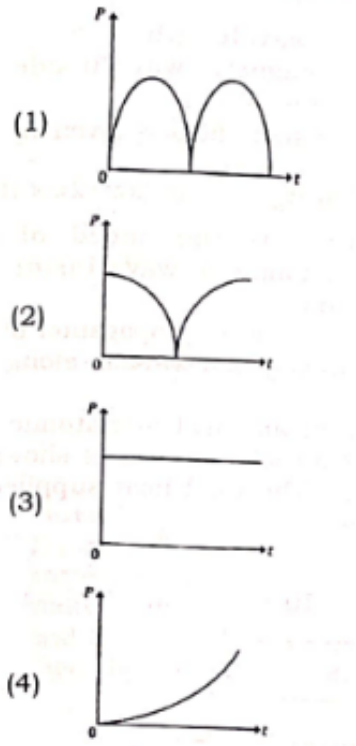
(B) 1/2

(C) 1

(D) 2

---

32. A loop has area $A = A_0(1 + \sin t)$. The dissipated power behaves as:



(A) Two positive humps

(B) One downward curve

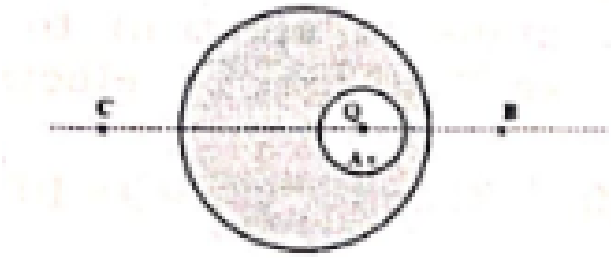
(C) Linear slope

(D) Upward curve

---

33. A point charge Q is placed inside a cavity within a solid isolated conducting sphere.

Consider points A, B, and C as shown in the figure, where the magnitudes of the electric fields are E_A, E_B, and E_C, respectively. The points B and C are at the same distance from the center of the solid sphere. The correct option is:



(A) $E_A = 0, E_B = E_C$

(B) $E_A \neq 0, E_B = E_C$

(C) $E_A = 0, E_B > E_C$

(D) $E_A \neq 0, E_B < E_C$

---

34. A fixed uniformly charged insulating sphere has radius R and charge +Q. A point charge -q (q « Q) with mass m is released from 3R. When the point charge reaches the surface, its speed is:

(A) $\sqrt{\frac{3Qq}{4\pi\epsilon_0 mR}}$

(B) $\sqrt{\frac{2Qq}{3\pi\epsilon_0 mR}}$

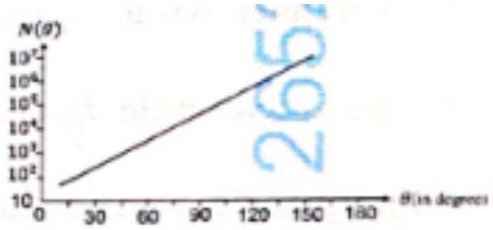
(C) $\sqrt{\frac{Qq}{3\pi\epsilon_0 mR}}$

(D) $\sqrt{\frac{Qq}{4\pi\epsilon_0 mR}}$

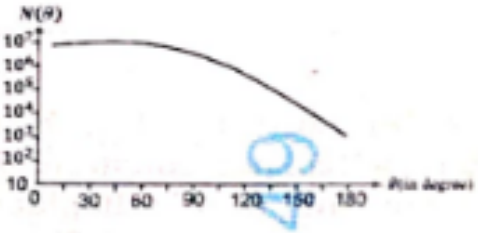
---

35. In the Geiger-Marsden experiment, the number of scattered α-particles $N(\theta)$ is plotted against scattering angle θ. Which plot represents the correct data?

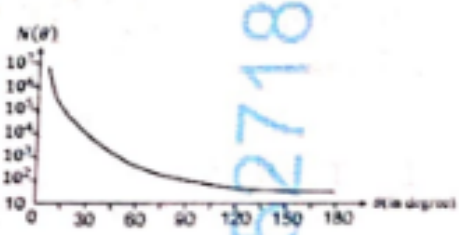
(1)



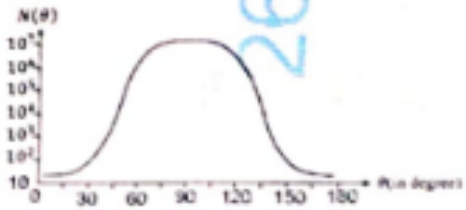
(2)



(3)



(4)



(A) Linear graph

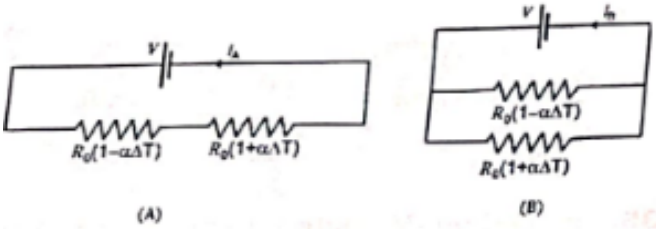
(B) Exponential decay

(C) Inverse fourth power decay

(D) Bell curve

---

36. Consider two circuits, (A) and (B), each having two resistors. One of them has a positive temperature coefficient of resistance, $+\alpha$, while the other one has a negative temperature coefficient of resistance, $-\alpha$. As the temperature is increased, the correct option that describes the variation of current in these circuits is :



(A) I_A remains constant while I_B increases

(B) I_A decreases while I_B increases

(C) I_A increases while I_B decreases

(D) both I_A and I_B remain constant

---

37. Consider that σ_s, k_B, b represent Stefan-Boltzmann constant, Boltzmann constant and Wien's displacement constant respectively. The dimension of $\sigma_s k_B^{-1} b$ is :

(A) $[L^{-1}T^{-1}K^{-2}]$

(B) $[L^{-1}K^{-2}]$

(C) $[L^{-1}T^{-1}K^{-3}]$

(D) $[L^{-1}T^{-1}K^{-4}]$

---

38. An electromagnetic wave travelling in a lossless dielectric medium having dielectric constant $\epsilon_r = 9$, has electric field $E_x = E_0 \sin(kz - 2\pi \times 10^6 t)\, V m^{-1}$. The incorrect statement is:

(A) The speed of wave is $10^8\, ms^{-1}$

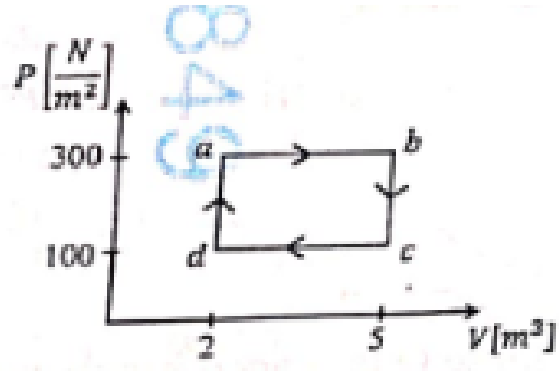
(B) Wavelength is 100 m

(C) Magnetic field is $B_y = \frac{E_0}{v} \sin(kz - \omega t)$

(D) Direction of propagation is along +z

---

39. One mole of an ideal monatomic gas undergoes a cyclic process. The total heat supplied to the gas is:



(A) 400 J

(B) 500 J

(C) 600 J

(D) 800 J

---

40. An electron is revolving in an excited state of Hydrogen with velocity $\sqrt{25.6} \times 10^5\, m/s$. The radius is $x \times 10^{-9}\, m$. Find x.

(A) 4

(B) 3

(C) 2

(D) 1

---

41. A car travels on a circular racetrack of radius 50 m, which is banked at an angle θ. If the car travels at a speed $10\ \text{ms}^{-1}$, then the wear and tear on its tyres is minimum. Taking the acceleration due to gravity to be $10\ \text{ms}^{-2}$, the value of θ is:

(A) $\tan^{-1}(1/5)$

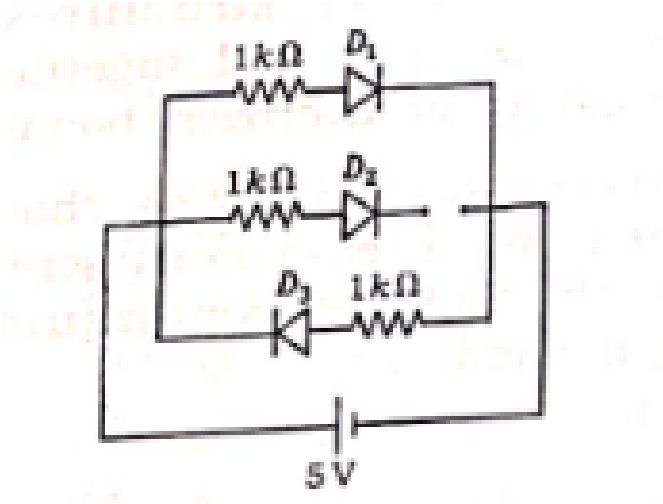
(B) $\tan^{-1}(2/5)$

(C) $\tan^{-1}(\sqrt{3}/2)$

(D) $\tan^{-1}(2\sqrt{3})$

---

42. Three identical p-n junction diodes D_1, D_2, D_3 are connected across a battery as shown in the figure. If the width of the depletion regions of D_1, D_2 and D_3 are W_1, W_2, W_3, respectively, then the correct option is:



(A) $W_1 > W_2 > W_3$

(B) $W_3 = W_1 > W_2$

(C) $W_3 > W_2 > W_1$

(D) $W_2 > W_1 = W_3$

---

43. The following table presents parts of the electromagnetic spectrum and their corresponding applications. The correct option is:

Part of the electromagnetic spectrum		Applications	
P	Microwave	I	For purifying the water
Q	UV rays	II	For warming the food
R	Gamma rays	III	For AM and FM communication systems
S	Radio wave	IV	For treating the Cancer cells

(A) P-I, Q-II, R-III, S-IV

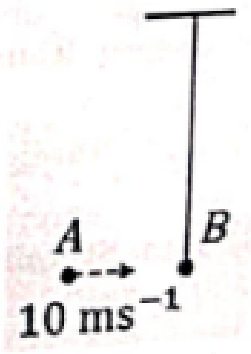
(B) P-I, Q-IV, R-II, S-III

(C) P-II, Q-I, R-IV, S-III

(D) P-II, Q-IV, R-III, S-I

---

44. Bob B of mass m at rest is hanging vertically from the ceiling via a massless string of length 10 m. A point mass A of mass m travelling horizontally with speed $10\ \text{ms}^{-1}$ hits bob B elastically. The bob B rises by height h after collision. The value of h is:



(A) 8

(B) 7

(C) 5

(D) 2.5

---

45. An ideal gas is made of polyatomic molecules. Each of the molecules has three translational, three rotational and f number of vibrational modes. If the ratio of heat capacities C_P/C_V of the

gas is $8/7$, then the value of f is :

(A) 4

(B) 3

(C) 2

(D) 1

Chemistry

46. For the following reaction sequence, choose the correct option:

(A) If **P** is the sodium salt of a carboxylic acid, **Q** is a primary alcohol.

(B) **P** and **Q** are aromatic compounds.

(C) If **P** gives a carboxylic acid on acidification, **Q** gives a poisonous gas on exposure to air and light.

(D) Both **P** and **Q** are carbonyl compounds.

---

47. Given below are two statements:

Statement-I : $[Fe(ox)_3]^{3-}$ is chiral.

Statement-II : $trans-[Cr(H_2O)_2(ox)_2]^-$ is chiral.

(Given : $oxH_2 = HOOC-COOH$**)**

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

(A) Both Statement-I and Statement-II are correct.

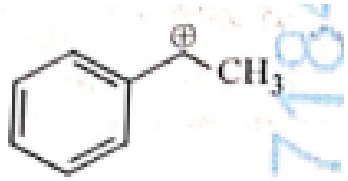
(B) Both Statement-I and Statement-II are incorrect.

(C) Statement-I is correct but Statement-II is incorrect.

(D) Statement-I is incorrect but Statement-II is correct.

---

48. The following carbocation is stabilized by the interaction of the empty p orbital with:



(A) filled σ and filled π orbitals

(B) empty σ and empty π^* orbitals

(C) empty σ^* and filled π orbitals

(D) empty σ^* and empty π^* orbitals

---

49. In potash alum, the ratio of K^+ and SO_4^{2-} ions is:

(A) 1:2

(B) 2:1

(C) 2:3

(D) 3:2

---

50. The correct statement about peptides and proteins is:

(A) Tertiary structure of proteins has two or more polypeptide subunits.

(B) Only the proteins having a quaternary structure are biologically active.

(C) In β-pleated sheet structures, peptide chains are held together by intermolecular hydrogen bonds.

(D) In α-helices, the polypeptide chain is twisted into a left-handed screw (helix) through intramolecular hydrogen bonds.

---

51. The numbers 17.0145 and 21.0235 were rounded to three figures after the decimal point. The resulting numbers, respectively, are:

(A) 17.014 and 21.023

(B) 17.015 and 21.023

(C) 17.014 and 21.024

(D) 17.015 and 21.024

---

52. The correct order of solubility of the given salts in water at 298 K is:

Salt	K_{sp} at 298 K
AgBr	5.0×10^{-13}
$Zn(OH)_2$	1.0×10^{-15}
Hg_2Cl_2	1.3×10^{-18}

(A) $Hg_2Cl_2 > Zn(OH)_2 > AgBr$

(B) $AgBr > Zn(OH)_2 > Hg_2Cl_2$

(C) $Hg_2Cl_2 > AgBr > Zn(OH)_2$

(D) $Zn(OH)_2 > AgBr > Hg_2Cl_2$

---

53. Among the following options, the correct trend in the electron gain enthalpy is:

(A) F > Cl > Br > I

(B) Br > Cl > F > I

(C) Cl > F > Br > I

(D) I > Br > Cl > F

---

54. Assertion A: For an ideal solution formed by mixing liquids P and Q, $\Delta_{mix}H = 0$ and $\Delta_{mix}V = 0$.

Reason R: No interactions occur between P and Q.

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

(A) Both **A** and **R** are correct and **R** is the correct explanation of **A**

(B) Both **A** and **R** are correct but **R** is **NOT** the correct explanation of **A**

(C) **A** is correct but **R** is not correct

(D) **A** is not correct but **R** is correct

---

55. The amino acid that gives a red-blood colour on treating its sodium fusion extract with sodium nitroprusside is:

(A) leucine

(B) threonine

(C) methionine

(D) serine

---

56. The standard electrode potential (E°) for the half-cell reaction $Fe^{3+} + e^- \rightarrow Fe^{2+}$ at 298 K is:

(Given: $E^\circ(Fe^{3+}/Fe) = -0.04$ V and $E^\circ(Fe^{2+}/Fe) = -0.44$ V at 298 K)

(A) +0.40 V

(B) +0.76 V

(C) -0.48 V

(D) $+0.92$ V

---

57. In an acidic medium, 10 mL of 0.25 M oxalic acid is titrated with $KMnO_4$ solution. If the volume of $KMnO_4$ solution required to reach end point is 10 mL, the strength of the $KMnO_4$ solution is:

(A) 0.10 M

(B) 0.20 M

(C) 0.25 M

(D) 0.15 M

---

58. According to crystal field theory, the correct order of ligands with respect to their decreasing order of field strength is:

(A) $CO > NH_3 > H_2O > Cl^-$

(B) $CO > H_2O > NH_3 > Cl^-$

(C) $Cl^- > H_2O > NH_3 > CO$

(D) $Cl^- > NH_3 > H_2O > CO$

---

59. Two moles of an ideal gas undergo free expansion from 10 L to 100 L at 300 K. The values of ΔS_{system} and $\Delta S_{\text{surroundings}}$ are:
(R is universal gas constant)

(A) $\Delta S_{\text{system}} = 0$; $\Delta S_{\text{surroundings}} = 0$

(B) $\Delta S_{\text{system}} = -4.606R$; $\Delta S_{\text{surroundings}} = -4.606R$

(C) $\Delta S_{\text{system}} = 0$; $\Delta S_{\text{surroundings}} = 4.606R$

(D) $\Delta S_{\text{system}} = 4.606R$; $\Delta S_{\text{surroundings}} = 0$

---

60. $2A \xrightarrow{k} B$ is a zero-order reaction, where $k = 1.0\ \text{mol} \cdot \text{L}^{-1} \cdot \text{min}^{-1}$. If the initial concentration of A is 2 M, then the time taken to complete 75% of the reaction will be:

(A) 1.5 min

(B) 0.75 min

(C) 1.0 min

(D) 2.0 min

61. Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: Generally, $3d$ transition metals have high melting points.

Reason R: Involvement of $3d$-electrons in addition to $4s$-electrons in the interatomic metallic bonding.

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

(A) Both **A** and **R** are correct and **R** is the correct explanation of **A**

(B) Both **A** and **R** are correct but **R** is **NOT** the correct explanation of **A**

(C) **A** is correct but **R** is not correct

(D) **A** is not correct but **R** is correct

---

62. For a salt XY, which is a strong electrolyte, the plot of Λ_m versus $\sqrt{c}$ has a slope of -90.0 S cm^2 mol$^{-3/2}$ L$^{1/2}$ at 298 K. At 0.01 M concentration of XY, the value of Λ_m is 145.0 S cm^2 mol^{-1}. The limiting molar conductivity of Y^- ion ($\lambda^\circ_{Y^-}$, in S cm^2 mol^{-1}) at 298 K will be (Given: $\lambda^\circ_{X^+} = 74.0$ S cm^2 mol^{-1}):

(A) 80.0

(B) 100.0

(C) 90.0

(D) 76.0

---

63. The amount of carbon dioxide evolved upon complete combustion of 116 g of n-butane is (Given: atomic mass in amu H $= 1$, C $= 12$ and O $= 16$):

(A) 352 g

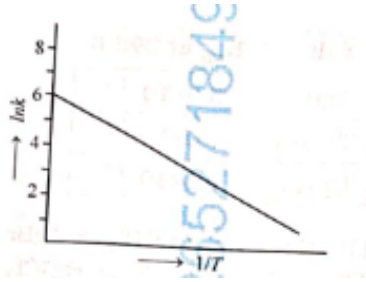
(B) 322 g

(C) 176 g

(D) 362 g

---

64. For an elementary chemical reaction, the Arrhenius plot is given below.



If the energy of activation is 6.64 k J mol^{-1} and R = 8.3 J K^{-1} mol^{-1}, the temperature at which the rate constant becomes e^2 min^{-1}, is:

(A) 125 K

(B) 150 K

(C) 200 K

(D) 250 K

---

65. Given below are two statements:

Statement-I : Heating NaCl with concentrated H_2SO_4 and MnO_2 results in oxidation of Mn.

Statement-II : Heating NaI with concentrated H_2SO_4 and MnO_2 results in reduction of Mn.

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

(A) Both Statement-I and Statement-II are correct.

(B) Both Statement-I and Statement-II are incorrect.

(C) Statement-I is correct but Statement-II is incorrect.

(D) Statement-I is incorrect but Statement-II is correct.

---

63. 66. Among the species given below, the spin-only magnetic moment is highest for (Given: Atomic number of Ti = 22, Mn = 25, Fe = 26 and Co = 27):

(A) $[Mn(CN)_6]^{3-}$

(B) $[Fe(CN)_6]^{3-}$

(C) $[Co(NH_3)_6]^{3+}$

(D) $[Ti(H_2O)_6]^{3+}$

---

67. The lanthanide ion having four unpaired electrons is (Given: Atomic numbers of Ce = 58, Nd = 60, Tb = 65 and Ho = 67):

(A) Nd^{3+}

(B) Ce^{3+}

(C) Tb^{3+}

(D) Ho^{3+}

---

68. The formula of tetraammineaquachloridocobalt(III) chloride is:

(A) $[Co(NH_3)_4Cl_2] \times H_2O$

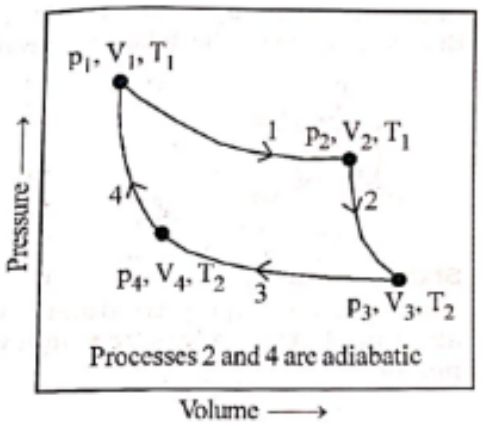
(B) $[Co(NH_3)_4]Cl_3 \times H_2O$

(C) $[Co(NH_3)_4(H_2O)Cl]Cl$

(D) $[Co(NH_3)_4(H_2O)Cl]Cl_2$

---

69. Consider the reversible processes for 1.0 mol of an ideal gas as shown in the figure.



Processes 2 and 4 are adiabatic. w_1, w_2, w_3 and w_4 represent work done (in calories) in the processes 1, 2, 3 and 4, respectively; ΔU_2 and ΔU_4 are changes in the internal energy for the processes 2 and 4, respectively. [use R = 2 cal K^{-1} mol^{-1}]. The correct option is:

(A) $w_1 + w_3 = -2T_1 \ln \frac{V_2}{V_1} - 2T_2 \ln \frac{V_4}{V_3}$

(B) $w_2 + w_4 = \Delta U_2 - \Delta U_4$

(C) $w_1 + w_2 = 2T_1 \ln \frac{V_2}{V_1}$

(D) $w_1 + w_2 + w_3 + w_4 = 0$

---

70. Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: The first ionization enthalpy of O is lower than that of N and F.

Reason R: The loss of an electron from O leads to a stable half-filled p orbital.

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

(A) Both **A** and **R** are correct and **R** is the correct explanation of **A**

(B) Both **A** and **R** are correct but **R** is **NOT** the correct explanation of **A**

(C) **A** is correct but **R** is not correct

(D) **A** is not correct but **R** is correct

---

71. Consider the following statements about the solutions formed by mixing two liquids:

A. An ideal solution thus formed obeys Raoult's law throughout the composition range.

B. Mixture of chloroform and acetone shows negative deviation from Raoult's law.

C. Mixture of aniline and phenol shows positive deviation from Raoult's law.

The correct option is:

(A) A and B only

(B) B and C only

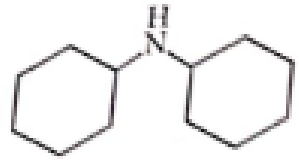
(C) A only

(D) A and C only

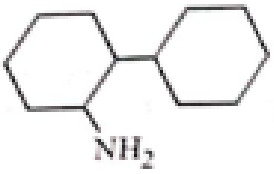
---

72. One of the products formed in the following reaction is

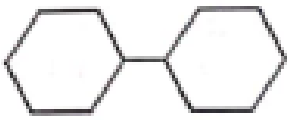
(1)



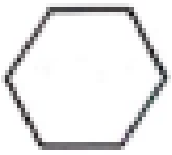
(2)



(3)



(4)



(A) figA

(B) figB

(C) figC

(D) figD

---

73. The correct statement is (A) Boron has a maximum covalency of four.

(B) Beryllium has three valence orbitals.

(C) Magnesium has a maximum covalency of four.

(D) Aluminium has five valence orbitals.

---

74. A protein undergoes reversible thermal denaturation from its initial state N to denatured state D according to N $\rightleftharpoons$ D. At 60 °C, the concentrations of both N and D are equal at equilibrium, and the standard enthalpy change of denaturation is 666 kJ mol^{-1}. The standard entropy change (ΔS° in kJ K^{-1}mol^{-1}) of the protein upon denaturation at 60 °C is closest to

(A) 2.0

(B) 2000.0

(C) 333.0

(D) 11.1

---

75. Match the species in List I with their geometry in List II

	List I	List II
A.	PCl_5	I. Tetrahedral
B.	BrF_5	II. Square Planar
C.	BF_4^-	III. Trigonal bipyramidal
D.	$[Ni(CN)_4]^{2-}$	IV. Square pyramidal

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

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

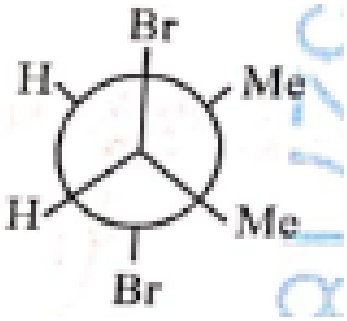
(C) A-III, B-I, C-II, D-IV

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

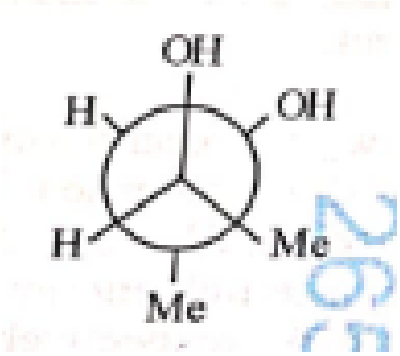
---

76. Given below are two statements :

Statement I : *trans*-But-2-ene upon treatment with Br_2 in CCl_4 gives the following product:



Statement II : *cis*-But-2-ene upon treatment with alkaline $KMnO_4$ gives the following product:



In the light of the above statements, choose the most appropriate answer from the options given below. (A) Both Statement I and Statement II are correct

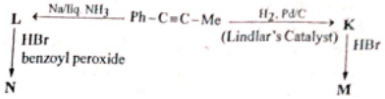
(B) Both Statement I and Statement II are incorrect

(C) Statement I is correct but Statement II is incorrect

(D) Statement I is incorrect but Statement II is correct

---

77. Consider the following reaction sequences and choose the correct option.



(A) **K** and **L** are geometrical isomers

(B) **K** and **L** are enantiomers

(C) **M** and **N** are geometrical isomers

(D) **M** and **N** are stereoisomers

---

78. The complex which has facial and meridional isomers is

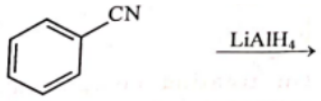
(Given : py = pyridine and en = $H_2N\text{-}CH_2CH_2NH_2$) (A) $[Cr(py)_3Cl_3]$

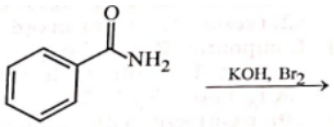
(B) $[Cr(H_2O)_6]^{3+}$

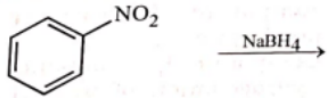
(C) $[Co(NH_3)_4(H_2O)_2]^{3+}$

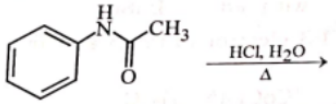
(D) $[Ni(en)_2(H_2O)_2]^{2+}$

79. Identify the reactions which give aniline as the major product.

A. 

B. 

C. 

D. 

Choose the correct answer from the options given below. (A) A and B only

(B) B and D only

(C) A and C only

(D) C and D only

---

80. Match the vitamins in List I with their sources in List II

List I	List II
A. vitamin A	I. meat
B. vitamin B_{12}	II. sunflower oil
C. vitamin E	III. green leafy vegetables
D. vitamin K	IV. carrots

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

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

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

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

---

81. The correct decreasing order of oxidation state of the underlined atom in each molecule is

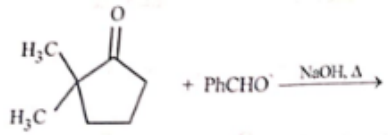
(A) $P_4O_{10} > SO_3 > H_2O$

(B) $N_2O_5 > Al_2O_3 > H_2S$

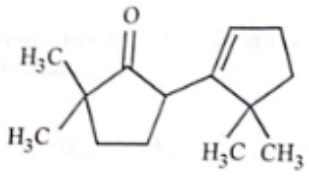
(C) $PbO_2 > N_2O_3 > SO_3$

(D) $P_4O_6 > Cl_2O_7 > AlH_3$

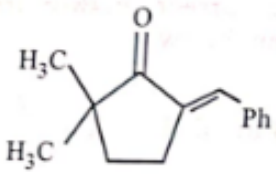
82. The compound that CANNOT be obtained from the aldol condensation reaction shown below, is



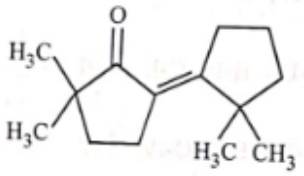
(1)



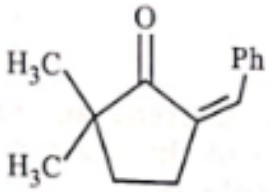
(2)



(3)



(4)



(A) figA

(B) figB

(C) figC

(D) figD

---

83. Among the following, the compound having conjugated double bonds is (A) hepta-1,3-diene

(B) hepta-1,4-diene

(C) hepta-1,5-diene

(D) hepta-1,6-diene

---

84. Given below are two statements:

Statement-I: Oxidation of *p*-nitrotoluene with acidic $KMnO_4$ gives an acid that is stronger than benzoic acid.

Statement-II: Reduction of *p*-nitrotoluene with Sn/HCl followed by neutralization gives an amine that is more basic than aniline.

In light of the above statements, choose the most appropriate answer from the options given below. (A) Both Statement-I and Statement-II are correct.

(B) Both Statement-I and Statement-II are incorrect.

(C) Statement-I is correct but Statement-II is incorrect.

(D) Statement-I is incorrect but Statement-II is correct.

---

85. The green paramagnetic species formed by heating $KMnO_4$ at 513 K is (A) K_2MnO_4

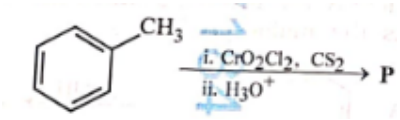
(B) Mn_3O_4

(C) MnO

(D) KO_2

---

86. Consider the following reaction, and choose the correct option.



(A) On treating compound **P** with saturated $NaHCO_3$ solution, brisk effervescence is observed.

(B) Compound **P** can be prepared by treating benzene with anhydrous $AlCl_3$ and CH_3COCl.

(C) On treatment with bromine water, compound **P** gives a white precipitate.

(D) Compound **P** is obtained by the hydrogenation of benzoyl chloride with Pd on $BaSO_4$.

---

87. A 1:3 electrolyte in an aqueous solution is (A) $[CoCl_2(NH_3)_4]Cl$

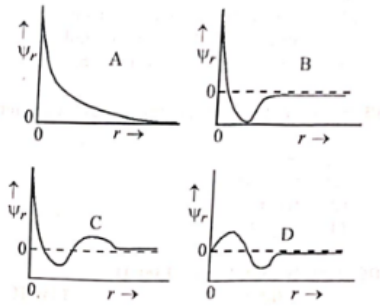
(B) $[CoCl(NH_3)_5]Cl_2$

(C) $[Co(NH_3)_6]Cl_3$

(D) $[Co(NH_3)_3(NO_2)_3]$

---

88. Consider the following schematic plots of orbital wavefunction (ψ_r) against distance (r) from the nucleus.



The figure representing two radial nodes in the orbital is (A) A

(B) B

(C) C

(D) D

---

89. Arrange the following compounds in the increasing order of polarity

A. $CH_3CH_2OCH_2CH_3$ (Ether)

B. CH_3CH_2OH (Alcohol)

C. CH_3COCH_3 (Ketone)

D. CH_3COOH (Carboxylic acid)

Choose the correct answer from the options given below. (A) A < B < C < D

(B) C < A < D < B

(C) C < A < B < D

(D) A < C < B < D

---

90. The highest occupied molecular orbital for Ne_2 is

(A) π_{2p}

(B) σ_{2p}

(C) π^*_{2p}

(D) σ^*_{2p}

Botany

91. The number of vertebrae in a human is _____.

(A) 7

(B) 12

(C) 26

(D) 206

---

92. Symbiotic association between fungi and algae are called _____.

(A) lichens

(B) sponges

(C) mycorrhiza

(D) chrysophytes

---

93. Cell theory was formulated by _____.

(A) Schleiden and Schwann

(B) Robert Brown

(C) Singer and Nicolson

(D) Antonie Von Leeuwenhoek

---

94. Which of the following are characteristics of prokaryotic cells?

(a) Ribosomes are made of 50S and 30S subunits

(b) They can have plasmids

(c) They contain mesosome

(d) They have peroxisomes

Choose the correct answer from the options given below:

(A) (b) and (c) only

(B) (a) and (c) only

(C) (a), (c) and (d) only

(D) (a), (b) and (c) only

---

95. Which of the following is not a part of human central neural system?

(A) Arachnoid

(B) Dura mater

(C) Pia mater

(D) Pericardium

---

96. Mitochondrial inner membrane encloses_____.

(A) matrix

(B) cytosol

(C) mucus

(D) aqueous humor

---

97. Match List-I with List-II.

List-I	List-II
A. Cristae	I. Flat membrane sacs in stroma of chloroplast
B. Cisternae	II. Infoldings in mitochondria
C. Thylakoids	III. Cell membrane
D. Phospholipid	IV. Disc shaped sacs in the Golgi apparatus

Choose the correct answer from the options given below:

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

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

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

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

---

98. The plastid that stores xanthophyll is known as _____.

(A) chloroplast

(B) chromoplast

(C) aleuroplast

(D) amyloplast

---

99. Which of the following statements related to pituitary gland are correct?

(a) It is divided anatomically into adenohypophysis and neurohypophysis

(b) It secretes follicle stimulating hormone

(c) It secretes melanocyte stimulating hormone

(d) It does not secrete prolactin

Choose the correct answer from the options given below:

(A) (a) and (b) only

(B) (a), (b) and (c) only

(C) (c) and (d) only

(D) (b) and (c) only

---

100. Photorespiration reaction catalyzed by RuBPCo is shown below:

RuBP + O_2 → 3-Phosphoglycerate + X

Identify "X" from the given options:

(A) Phosphoenolpyruvate

(B) 2-Phosphoglycolate

(C) Oxaloacetate

(D) Malate

---

101. Mad cow disease is caused by _____.

(A) prions

(B) viroids

(C) Aspergillus sp.

(D) Mycoplasma sp.

---

102. Which pigment has absorption peak at 700 nm in the photosynthetic reaction centre PS I (P700)?

(A) Chlorophyll b

(B) Chlorophyll a

(C) Xanthophylls

(D) Carotenoids

---

103. In water, frogs respire using _____.

(A) skin

(B) buccal cavity

(C) lungs

(D) trachea

---

104. Which of the following represents the correct sequence of arrangement of bones in the lower limb of humans?

(A) Femur-tibia-patella-tarsal

(B) Patella-femur-tibia-tarsal

(C) Femur-patella-tibia-tarsal

(D) Femur-tarsal-patella-tibia

---

105. Phyllotaxy is the pattern of arrangement of _____

(A) leaves

(B) flowers

(C) fruits

(D) sepals

---

106. Match List-I with List-II.

List-I	List-II
A. Starch	I. Fights infection
B. Antibody	II. Energy storage
C. Concanavalin A	III. Glucose transport
D. Glut-4	IV. Lectin

Choose the correct answer from the options given below:

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

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

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

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

---

107. Given below are two statements:

Statement I: When any plane passing through the central axis of the body divides the organism into two identical halves, it is called radial symmetry.

Statement II: In phylum Echinodermata, both adults and larvae are radially symmetrical.

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

(A) Both Statement I and Statement II are correct

(B) Both Statement I and Statement II are incorrect

(C) Statement I is correct but Statement II is incorrect

(D) Statement I is incorrect but Statement II is correct

---

108. Endomembrane system includes _____

(A) endoplasmic reticulum, Golgi complex, lysosomes and vacuole

(B) endoplasmic reticulum, chloroplast, peroxisomes and vacuole

(C) mitochondria, chloroplast, peroxisomes and vacuole

(D) Golgi complex, chloroplast, peroxisomes and vacuole

---

109. How many molecules of pyruvic acid are produced at the end of glycolysis from 206 molecules of glucose?

(A) 206

(B) 309

(C) 103

(D) 412

---

110. Which of the following plant growth regulators is used as herbicide?

(A) 2,4-D

(B) Kinetin

(C) Abscisic acid

(D) Gibberellin

---

111. Given below are two statements:

Statement I: In gymnosperms, the male and female gametophytes remain within the sporangia.

Statement II: In gymnosperms, seeds are not covered.

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

(A) Both Statement I and Statement II are correct

(B) Both Statement I and Statement II are incorrect

(C) Statement I is correct but Statement II is incorrect

(D) Statement I is incorrect but Statement II is correct

---

112. Match List-I with List-II.

List-I	List-II
A. Spherical	I. Vibrio
B. Rod	II. Cocci
C. Comma	III. Spirilla
D. Spirillum	IV. Bacilli

Choose the correct answer from the options given below:

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

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

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

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

---

113. Which of the following are characteristic features of Solanaceae family?

(a) Flowers are bisexual and actinomorphic

(b) Calyx have five sepals and are united

(c) Androecium have five stamens and are epipetalous

(d) Ovary is inferior

Choose the correct answer from the options given below:

(A) (a), (b) and (c) only

(B) (d) only

(C) (a) and (b) only

(D) (b), (c) and (d) only

---

114. Select the correct sequence of experiments that led to a gradual understanding of photosynthesis in green plants.

(A) Absorption spectra of chlorophyll a and b → production of glucose → release of oxygen → role of air

(B) Role of air → release of oxygen → production of glucose → absorption spectra of chlorophyll a and b

(C) Release of oxygen → production of glucose → absorption spectra of chlorophyll a and b → role of air

(D) Production of glucose → role of air → release of oxygen → absorption spectra of chlorophyll a and b

---

115. The number of action potentials generated by sino-arterial node (SAN) in a healthy human is _____ per minute.

(A) 28 - 30

(B) 70 - 75

(C) 100 - 110

(D) 120 - 140

---

116. How many turns of Calvin cycle are required for the formation of three molecules of glucose?

(A) 6

(B) 3

(C) 1

(D) 18

---

117. Which of the following statements is incorrect?

(A) Blood coagulates in response to an injury

(B) Blood clot consists of fibrins

(C) Fibrin is produced from fibrinogen

(D) Fibrinogen is produced from fibrin

---

118. Match List-I with List-II.

List-I	List-II
A. Family	I. Sapindales
B. Genus	II. Dicotyledonae
C. Class	III. Anacardiaceae
D. Phylum	IV. Angiospermae
E. Order	V. Mangifera

Choose the correct answer from the options given below:

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

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

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

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

---

119. Arrange the following taxonomic categories in ascending order.

(a) Genus (b) Class (c) Order (d) Phylum

(e) Family (f) Kingdom (g) Species

Choose the correct answer from the options given below:

(A) (g), (a), (e), (c), (b), (d), (f)

(B) (a), (c), (d), (g), (f), (b), (e)

(C) (g), (c), (d), (b), (e), (a), (f)

(D) (f), (c), (b), (g), (d), (e), (a)

---

120. Match List-I with List-II.

List-I	List-II
A. Marginal placentation	I. Argemone
B. Axile placentation	II. Tomato
C. Parietal placentation	III. Primrose
D. Free central placentation	IV. Pea

Choose the correct answer from the options given below:

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

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

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

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

---

121. Sphenopsida class belongs to _____

(A) bryophytes

(B) angiosperms

(C) gymnosperms

(D) pteridophytes

---

122. Which of the following statements regarding photorespiration are correct?

(a) Do not occur in C_3 plants

(b) CO_2 is consumed and O_2 is generated

(c) Phosphoglycolate is formed

(d) No synthesis of ATP and NADPH

Choose the correct answer from the options given below:

(A) (a) and (d) only

(B) (c) and (d) only

(C) (b) and (d) only

(D) (a) and (b) only

---

123. Smooth endoplasmic reticulum _____

(A) has ribosomes attached to its surface

(B) is the major site for the synthesis of lipids

(C) is actively involved in protein synthesis

(D) is a site for the synthesis of carbohydrates

---

124. Which one of the following statements is incorrect?

(A) α-cells of pancreas secrete glucagon

(B) α-cells of pancreas secrete insulin

(C) Glucagon stimulates glycogenolysis

(D) β-cells of pancreas secrete insulin

---

125. Genus represents _____

(A) an individual plant or animal

(B) a population of plants and animals

(C) a group of closely related species

(D) a group of closely related families

---

126. Which of the following is not a prokaryote?

(A) Bacteria

(B) Blue green algae

(C) Mycoplasma

(D) Fungi

---

127. Which of the following plant growth regulators promotes internode elongation prior to flowering in cabbage?

(A) Abscisic acid

(B) Gibberellin

(C) Indole butyric acid

(D) Ethephon

---

128. The correct sequence of adult cell cycle phases is _____

(A) G1-G2-S-M

(B) G1-M-G2-S

(C) G1-S-G2-M

(D) S-M-G2-G1

---

129. Match List-I with List-II.

List-I	List-II
A. Fusion of protoplasms between gametes	I. Meiosis
B. Fusion of two nuclei	II. Plasmogamy
C. Generation of haploid spores	III. Karyogamy

Choose the correct answer from the options given below:

(A) A-II, B-III, C-I

(B) A-II, B-I, C-III

(C) A-III, B-II, C-I

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

---

130. Given below are two statements:

Statement I: The class name Reptilia refers to creeping or crawling mode of locomotion.

Statement II: All organisms belonging to Reptilia have three chambered heart.

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

(A) Both Statement I and Statement II are correct

(B) Both Statement I and Statement II are incorrect

(C) Statement I is correct but Statement II is incorrect

(D) Statement I is incorrect but Statement II is correct

---

131. Given below are two statements:

Statement I: Chromosomes are fully condensed at the end of prophase I.

Statement II: Meiosis II resembles mitosis.

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

(A) Both Statement I and Statement II are true

(B) Both Statement I and Statement II are false

(C) Statement I is correct, but Statement II is false

(D) Statement I is incorrect, but Statement II is true

---

132. Which of the following is not a characteristic of chordates?

(A) Presence of notochord

(B) Central nervous system is dorsal

(C) Absence of gills

(D) Presence of post anal tail (tail)

---

133. Length of the stem at time 0 is 20 cm. The arithmetic growth rate is 30 cm per day. What is the length of the stem at the end of the 7th day?

(A) 50 cm

(B) 170 cm

(C) 230 cm

(D) 460 cm

---

134. Arrange the following elements in descending order of their contribution to percentage weight of the human body.

(a) Oxygen (b) Carbon (c) Hydrogen (d) Nitrogen

Choose the correct answer from the options given below:

(A) (a), (b), (c), (d)

(B) (c), (a), (b), (d)

(C) (b), (c), (d), (a)

(D) (b), (a), (c), (d)

---

135. In frogs, the number of pairs of cranial nerves arising from the brain are _____

(A) 6

(B) 9

(C) 10

(D) 12

Zoology

136. Which of the following is used as a clot buster ?

(A) Streptokinase

(B) Penicillin

(C) Cyclosporin A

(D) Statins

---

137. The inactive form of Bt toxin is converted to the active form in the insect gut

(A) due to alkaline pH

(B) due to acidic pH

(C) by proteases

(D) by nucleases

---

138. Given below are two statements :

Statement I : Down's syndrome is caused by the absence of one of the X-chromosomes.

Statement II : Turner's syndrome is caused by the presence of an additional copy of the chromosomes.

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

(A) Both Statement I and Statement II are correct

(B) Both Statement I and Statement II are incorrect

(C) Statement I is correct but Statement II is incorrect

(D) Statement I is incorrect but Statement II is correct

---

139. Which of the following disease is not sexually transmitted ?

(A) Syphilis

(B) Tuberculosis

(C) Gonorrhoea

(D) Genital warts

---

140. Sperm motility is due to

(A) flagellar movement

(B) ciliary movement

(C) amoeboid movement

(D) muscular movement

---

141. Natural selection can lead to

(a) stabilisation

(b) genetic drift

(c) directional change

(d) disruption

Choose the correct answer from the options given below :

(A) (a) only

(B) (a), (c) and (d) only

(C) (a), (b), (c) and (d)

(D) (a) and (c) only

---

142. The method of directly injecting a sperm into ovum in assisted reproductive technology is called :

(A) Gamete intra fallopian transfer (GIFT)

(B) Zygote intra fallopian transfer (ZIFT)

(C) Intra cytoplasmic sperm injection (ICSI)

(D) Embryo transfer (ET)

---

143. Which of the following structure is not a part of the male reproductive system ?

(A) Rete testis

(B) Epididymis

(C) Vasa efferentia

(D) Infundibulum

---

144. Arrange the following in descending order of number of species in the Amazonian rain forest.

(a) Plants

(b) Birds

(c) Fishes

(d) Invertebrates

(e) Mammals

Choose the correct answer from the options given below :

(A) (c) > (b) > (d) > (e) > (a)

(B) (d) > (a) > (c) > (b) > (e)

(C) (e) > (b) > (a) > (c) > (d)

(D) (b) > (a) > (d) > (c) > (e)

---

145. Given below are two statements :

Statement I : Ovulation is caused by LH surge leading to rupture of Graafian follicles.

Statement II : Graafian follicle remaining after ovulation transform into corpus luteum and secretes large amount of estrogen.

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

(A) Both Statement I and Statement II are correct

(B) Both Statement I and Statement II are incorrect

(C) Statement I is correct but Statement II is incorrect

(D) Statement I is incorrect but Statement II is correct

---

146. Which of the following are primary consumers in a food chain ?

(A) Parasites

(B) Predators

(C) Herbivores

(D) Carnivores

---

147. A population of diploid organisms is at Hardy-Weinberg equilibrium. If the frequency of allele A is 0.1, the frequency of AA is

(A) 0.01

(B) 0.02

(C) 0.10

(D) 0.99

---

148. Match List-I with List-II.

List-I	List-II
A. Excess growth hormone	I. Reabsorption of water and electrolytes in kidney
B. Luteinizing hormone	II. Contraction of uterus during child birth
C. Vasopressin	III. Acromegaly
D. Oxytocin	IV. Ovulation

Choose the correct answer from the options given below :

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

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

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

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

---

149. The opening between the right atrium and the right ventricle is guarded by

(A) bicuspid valve

(B) tricuspid valve

(C) semilunar valve

(D) sino-atrial node

---

150. Sponges exchange O_2 with CO_2 by

(A) simple diffusion over their entire body surfaces

(B) moist cuticle

(C) tracheal tubes

(D) gills

151. How many theca are present in each lobe of a typical bilobed angiosperm anther ?

(A) 2

(B) 6

(C) 8

(D) 12

---

152. Muscle contraction is initiated by a signal sent by the central nervous system by the release of

(A) acetyl choline

(B) acetyl coenzyme A

(C) cyclic guanine monophosphate

(D) cyclic adenine monophosphate

---

153. Which of the following statements about lac-operon is correct ?

(A) Gene i is constitutively expressed

(B) Lactose activates repressor to bind to the operator

(C) Genes i, z, y and a share single common promoter

(D) Galactose can act as an inducer of lac operon

---

154. Which of the following in female gametophyte of an angiosperm helps in guiding the pollen tube for fertilizing the eggs ?

(A) Antipodals

(B) Synergids

(C) Central cells

(D) Polar nucleus

---

155. Which of the following plant produces non-albuminous seeds ?

(A) Wheat

(B) Maize

(C) Barley

(D) Pea

156. If the diploid chromosome number of typical angiosperm is 36, what would be the chromosome number in its endosperm ?

(A) 18

(B) 36

(C) 54

(D) 72

---

157. Which of the following statements about the reabsorption process in Henle's loop are correct ?

(a) The descending limb of Henle's loop is permeable to water but almost impermeable to electrolytes.

(b) Urine gets concentrated in Henle's loop.

(c) Reabsorption of Na^+ and water takes place in Henle's loop.

(d) Active or passive transport of electrolytes occurs in the ascending limb of Henle's loop.

Choose the correct answer from the options given below :

(A) (a) and (b) only

(B) (b), (c) and (d) only

(C) (a), (b) and (c) only

(D) (a), (b) and (d) only

---

158. Which of the following is the correct order of arrangement of vertebrate column from the head to toe ?

(A) Cervical vertebra, thoracic vertebra, sacrum, lumbar vertebra

(B) Sacrum, lumbar vertebra, thoracic vertebra, cervical vertebra

(C) Cervical vertebra, lumbar vertebra, thoracic vertebra, sacrum

(D) Cervical vertebra, thoracic vertebra, lumbar vertebra, sacrum

---

159. Which of the following is not evidence for evolution ?

(A) Convergent evolution of traits like wings of birds and butterflies

(B) Paleontological evidence from fossil records

(C) Embryological support for evolution as proposed by Ernst Haeckel

(D) Divergent evolution of anatomical structures such as forelimbs

---

160. Given below are two statements :

Statement I : Modern *Homo sapiens* arose in Africa and moved across continents.

Statement II : *Homo sapiens* arose around 75000 to 10000 years ago.

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

(A) Both Statement I and Statement II are correct

(B) Both Statement I and Statement II are incorrect

(C) Statement I is correct but Statement II is incorrect

(D) Statement I is incorrect but Statement II is correct

---

161. Consider a population of 10 million cells. Given the per-capita birth rate of 0.002 (per unit time) and the per-capita death rate of 0.002 (per unit time), the expected number of cells after 10 generations is

(A) 1 million

(B) 5 million

(C) 10 million

(D) 100 million

---

162. During PCR, primers bind to the DNA strands in the _____ step.

(A) denaturation

(B) extension

(C) annealing

(D) ligation

---

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

Assertion A : The logistic growth model of populations is considered more realistic than the exponential growth model.

Reason R : Resources are finite.

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

given below :

(A) Both A and R are correct and R is the correct explanation of A

(B) Both A and R are correct but R is not the correct explanation of A

(C) A is correct but R is not correct

(D) A is not correct but R is correct

---

164. Adaptive radiation in placental mammals and Australian Marsupials leading to similarity between distant species is an example of

(A) divergent evolution

(B) convergent evolution

(C) founder effect

(D) genetic drift

---

165. Which of the following are secondary lymphoid organs ?

(a) Bone marrow (b) Tonsils

(c) Spleen (d) Thymus

Choose the correct answer from the options given below :

(A) (a) and (b) only

(B) (b) and (c) only

(C) (b) and (d) only

(D) (a) and (d) only

---

166. Which of the following hormone is not secreted by human placenta ?

(A) hCG

(B) Estrogen

(C) Progesterone

(D) LH

---

167. Which of the following enzymes synthesizes precursor mRNA ?

(A) RNA polymerase I

(B) RNA polymerase II

(C) RNA polymerase III

(D) DNA polymerase

---

168. Given below are two statements :

Statement I : Plasmids are autonomously replicating DNA.

Statement II : Plasmids are extrachromosomal DNA.

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

(A) Both Statement I and Statement II are correct

(B) Both Statement I and Statement II are incorrect

(C) Statement I is correct but Statement II is incorrect

(D) Statement I is incorrect but Statement II is correct

---

169. For a person with blood group 'O', which of the following is not a possible combination of parents' blood group genotypes ?

(A) Father : I^Ai and Mother : I^Ai

(B) Father : I^Bi and Mother : I^Bi

(C) Father : I^AI^B and Mother : I^Ai

(D) Father : I^Ai and Mother : I^Bi

---

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

Assertion A : Forelimbs of human and bats are homologous.

Reason R : Forelimbs of humans and bats have similar anatomical structure.

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

(A) Both A and R are correct and R is the correct explanation of A

(B) Both A and R are correct but R is not the correct explanation of A

(C) A is true but R is false

(D) A is false but R is true

---

171. Colostrum, secreted by mother during initial days of lactation, is abundant in

(A) IgG

(B) IgM

(C) IgA

(D) IgD

---

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

Assertion A : Abingdon tortoise in Galapagos islands became extinct within a decade after goats were introduced.

Reason R : Goats were more efficient at browsing than Abingdon tortoise.

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

(A) Both A and R are correct and R is the correct explanation of A

(B) Both A and R are correct but R is not the correct explanation of A

(C) A is correct but R is not correct

(D) A is not correct but R is correct

---

173. The covering of ovum at ovulation is

(A) endometrium

(B) zona radiata

(C) zona pellucida

(D) chorion

---

174. Match List-I with List-II.

List-I	**List-II**
A. Both species are harmed	I. Predation
B. One species is harmed and the other is benefited	II. Mutualism
C. Both species are benefited	III. Competition
D. One is benefited while the other has no effect	IV. Commensalism

Choose the correct answer from the options given below :

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

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

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

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

---

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

Assertion A : In an experiment, Mendel observed that the F1 progeny plants are all tall and none are dwarf.

Reason R : Stem height is a contrasting trait, with tall being dominant and dwarf being recessive.

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

(A) Both A and R are correct and R is the correct explanation of A

(B) Both A and R are correct but R is not the correct explanation of A

(C) A is correct but R is not correct

(D) A is not correct but R is correct

---

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

Assertion A : In recombinant DNA technology, lysozyme is used for disrupting bacterial cells while cellulase is used for plant cells.

Reason R : Isolation of genetic material needs disruption of cells.

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

(A) Both A and R are correct and R is the correct explanation of A

(B) Both A and R are correct but R is not the correct explanation of A

(C) A is correct but R is not correct

(D) A is not correct but R is correct

---

177. Which of the following is used as an effective sedative and painkiller for treating post-surgery patients ?

(A) Interferon

(B) Antibiotics

(C) Morphine

(D) Anti-retroviral drugs

178. Which of the following statements are correct ?

(a) Energy flow from producers to consumers is unidirectional

(b) Energy pyramid can never be inverted

(c) Transfer of energy follows the 1% law

Choose the correct answer from the options given below :

(A) (a), (b) and (c)

(B) (a) and (b) only

(C) (a) and (c) only

(D) (b) and (c) only

---

179. Which of the following statements is correct about *Plasmodium* ?

(A) Reproduces sexually in liver cells

(B) Reproduces sexually in RBCs

(C) Gametocytes develop in mosquito gut

(D) Fertilization takes place in mosquito gut

---

180. Match List-I with List-II.

List-I	**List-II**
A. Transformation	I. Restriction enzyme
B. Cloning site	II. Transfer DNA to host bacteria
C. Selection	III. Replication
D. Ori	IV. Antibiotic

Choose the correct answer from the options given below :

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

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

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

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