

MP Murlidhar Mohol & APMA initiative

Mission NEET 2025

TIME : 3 HRS.

PAPER - II

MARKS: 720

DATE : 17.04.2025

PCB : ENTIRE XI + XII NCERT

Note:

- * Every correct answer (+4 Mark)
- * Every wrong answer (–1 Mark)
- * Not attempted question (0 Mark)

1. A Ge specimen is doped with Al. The concentration of acceptor atom is $\square 10^{21}$ atoms/m³. Given that the intrinsic concentration of electron – hole pairs is $\square 10^{19}$ /m³. The concentration of electrons in the specimen is
 - 1) 10^{17} /m³
 - 2) 10^{15} /m³
 - 3) 10^4 /m³
 - 4) 10^2 /m³
2. A monochromatic beam of light is used for the formation of fringes on the screen by illuminating the two slits in the Young's double slit interference experiment. When a thin film of mica is interposed in the path of one of the interfering beams, then
 - 1) the fringe width increases
 - 2) the fringe width decreases
 - 3) the fringe width remains the same but the pattern shifts
 - 4) the fringe pattern disappears
3. Using mass (M) length (L), time (T) and current (A) as fundamental quantities, the dimensional formula of permittivity is
 - 1) $[ML^{-2} T^2 A]$
 - 2) $[M^{-1} L^{-3} T^4 A^2]$
 - 3) $[MLT^{-2} A]$
 - 4) $[ML^2 T^{-1} A^2]$
4. A bomb of mass 3.0 kg explodes in air into two pieces of masses 2.0 kg and 1.0 kg. The smaller mass goes at a speed of 80 m/s. The total energy imparted to the two fragments is
 - 1) 1.07 kJ
 - 2) 2.14 kJ
 - 3) 2.4 kJ
 - 4) 4.8 kJ
5. Suppose the sun expands so that its radius becomes 100 times its present radius and its surface temperature becomes half of its present value. The total energy emitted by it then will increase by a factor of
 - 1) 10^4
 - 2) 625
 - 3) 256
 - 4) 16

6. A circular coil of radius R carries an electric current. The magnetic field due to the coil at a point on the axis of the coil located at a distance r from the centre of the coil, such that $r \gg R$, varies as
- $1/r$
 - $1/r^{3/2}$
 - $1/r^2$
 - $1/r^3$
7. Equipotential surfaces associated with an electric field which is increasing in magnitude along the x -direction are
- planes parallel to yz -plane
 - planes parallel to xy -plane
 - planes parallel to xz -plane
 - coaxial cylinders of increasing radii around the x -axis
8. A nucleus of mass number A , originally at rest emits an α -particle with speed v . The daughter nucleus recoils with a speed
- $\frac{2v}{A+4}$
 - $\frac{4v}{A+4}$
 - $\frac{4v}{A-4}$
 - $\frac{2v}{A-4}$
9. A ray of light is incident at 50° on the middle of one of the two mirrors arranged at an angle of 60° between them. The ray then touches the second mirror get reflected back to the first mirror making an angle of incidence of
- 50°
 - 60°
 - 70°
 - 80°
10. A photon of energy 4 eV is incident on a metal surface whose work function is 2 eV. The minimum reverse potential to be applied for stopping the emission of electron is
- 2 V
 - 4 V
 - 6 V
 - 8 V
11. A point object is placed at a distance of 30 cm from a convex mirror of focal length 30 cm. The image will form at
- Infinity
 - focus
 - Pole
 - 15 cm behind the mirror
12. If speed (V), acceleration (A) and force (F) are considered as fundamental units, the dimensions of Young's modulus will be
- $V^{-2} A^2 F^2$
 - $V^4 A^2 F$
 - $V^4 A^{-2} F$
 - $V^{-2} A^2 F^{-2}$
13. A car starts from rest and moves with a constant acceleration of 5 m/s^2 for 10 seconds before the driver applies the brake. It then decelerates for 5 seconds coming to rest. The average speed of the car over the entire journey is
- 23 m/s
 - 30 m/s
 - 33 m/s
 - 25 m/s
14. A simple harmonic motion is represented by $y = 5(\sin 3\pi t + \sqrt{3} \cos 3\pi t)$ cm. Find initial velocity initial displacement.
- $30\pi, 5$
 - $15\pi, 5\sqrt{3}$
 - $60\pi, 5$
 - $30\pi, 5\sqrt{3}$

15. A body is projected horizontally from the top of a tall tower with a velocity of 30 ms^{-1} . At time t_1 its horizontal and vertical components of the velocity are equal and at time t_2 , its horizontal and vertical displacements are equal. Then $(t_2 - t_1)$ is ($g = 10 \text{ ms}^{-2}$)
- 1) 1 s 2) 1.5 s
3) 2 s 4) 3 s
16. The minimum force required to move a body up an inclined plane of inclination 30° is found to be three times the minimum force required to prevent it from sliding down the plane. The coefficient of friction between the body and plane is
- 1) $\frac{1}{\sqrt{3}}$ 2) $\frac{1}{2\sqrt{3}}$
3) $\frac{1}{3\sqrt{3}}$ 4) $\frac{1}{4\sqrt{3}}$
17. A body with a mass of 0.6 kg moving on a smooth horizontal floor makes an elastic collision with a stationary body of mass 0.36 kg and continues to move in its original direction with one fourth of its initial velocity. The ratio of their speeds after collision is
- 1) 1:1 2) 1:4
3) 1:5 4) 5:6
18. A uniform rod of 2 mm^2 cross section is heated from 0°C to 20°C . It is prevented from expanding. Energy stored per unit volume is ($\alpha = 12 \times 10^{-6} (\text{ }^\circ\text{C})^{-1}$ & $Y = 10^{11} \text{ N/m}^2$)
- 1) 1240 J/m^3 2) 1440 J/m^3
3) 2880 J/m^3 4) 2480 J/m^3
19. A 10 kg boy is standing on a 40 kg flat boat so that he is 20m from the shore. He walks 8m on the boat towards the shore and stops. Assuming that there is no friction between the boat and water, how far is he from the shore now ?
- 1) 13.6 m 2) 8 m
3) 2 m 4) 4 m
20. A wire of length l and mass ' m ' is bent in the form of a quarter circle. The M.I. of the wire about an axis passing through the centre of the quarter circle and touching to one end of the wire in the plane is (Take $\pi^2 = 10$)
- 1) $0.4ml^2$ 2) $0.6ml^2$
3) $0.2ml^2$ 4) ml^2
21. A linear force of 25 N is applied to the rim of a uniform disc parallel to its plane. If its radius is 20 cm and mass 30 kg, then angular displacement produced in 12s is
- 1) 300 rad 2) 600 rad
3) 1200 rad 4) 1500 rad
22. Two satellites, A and B have masses m and $2m$ respectively. A is in a circular orbit of radius R , and B is in a circular orbit of radius $2R$ around the earth. The ratio of their kinetic energies, T_A / T_B , is:
- 1) 2 2) $\sqrt{\frac{1}{2}}$
3) 1 4) $\frac{1}{2}$

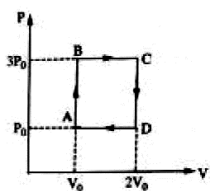
23. A steel tape measures the length of a copper rod as 90.0 cm when both are at 10°C, the calibration temperature, for the tape. What would the tape read for the length of the rod when both are at 30°C ?

Given $\alpha_{\text{steel}} = 1.2 \times 10^{-5} / ^\circ\text{C}$ and

$$\alpha_{\text{Cu}} = 1.7 \times 10^{-5} / ^\circ\text{C}$$

- 1) 89.00 cm 2) 90.21 cm
3) 89.80 cm 4) 90.01 cm
24. An ideal monoatomic gas is carried along the cycle ABCDA as shown in the figure. The total heat absorbed this process is

- 1) $10.5P_0V_0$
2) $7.5P_0V_0$
3) $2.5P_0V_0$
4) $1.5P_0V_0$



25. Match the Column

Given that energy of an electron in ground state of H-atom is $E = -13.6 \text{ eV}$ then for an e^- in 1st excited state of singly ionized Helium atom

A	Total energy	P	$2E$
B	Kinetic energy	Q	$-E$
C	Potential energy	R	E

- 1) A – R; B – Q; C – P
2) A – P; B – Q; C – R
3) A – Q; B – R; C – P
4) A – Q; B – P; C – R

26. A light ray travels in two media A and B with speeds $2 \times 10^8 \text{ m/s}$ and $2.4 \times 10^8 \text{ m/s}$. The critical angle between them is

- 1) $\sin^{-1}\left(\frac{8}{9}\right)$ 2) $\sin^{-1}\left(\frac{5}{6}\right)$
3) $\tan^{-1}\left(\frac{5}{6}\right)$ 4) $\cos^{-1}\left(\frac{8}{9}\right)$

27. An object is placed at a distance of 20cm from a thin plano convex lens of focal length 15 cm and the plane surface is silvered. The image is formed at a distance of

- 1) 60 cm 2) 30 cm
3) 24 cm 4) 12 cm

28. In a Young's double slit experiment with wavelength 5890\AA , there are 60 fringes in the field of vision. How many fringes will be observed in the same field of vision if wavelength used is 5460\AA ?

- 1) 65 2) 60
3) 55 4) 50

29. A cube has a resistance R between any two opposite faces. If the cube is split into 27 identical cubes, then the resistance between opposite faces of small cube, is

- 1) 3R 2) R/3
3) R/27 4) 27R

30. The magnetic susceptibility is negative for

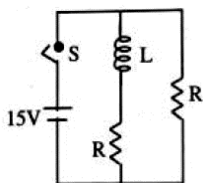
- 1) Paramagnetic material only
2) Ferromagnetic material only
3) Paramagnetic and ferromagnetic materials
4) Diamagnetic material only

31. In an induction coil, the coefficient of mutual inductance is $4H$. If a current of $5A$ in the primary circuit is cut off in $1/500s$, the emf induced in the secondary circuit will be

1) 30 KV 2) 20 KV
 3) 10 KV 4) 5 KV

32. In the figure shown, a circuit contains two identical resistors with resistance $R = 5\Omega$ and inductance with $L = 2mH$. An ideal battery of 15 V is connected in the circuit. What will be the current through the battery long after the switch is closed ?

1) $6A$
 2) 7.5 A
 3) 5.5 A
 4) $3A$



33. A moving coil galvanometer A has 100 turns and resistance 50Ω . Another meter B has 500 turns and 200Ω . The other quantities are same in both the cases. They are separately connected to a battery of 2.5 V of internal resistance 50 ohm . The ratio of deflections of B to A is

1) 5 2) 2
 3) 0.5 4) 0.4

34. An electron jumps from the first excited state to the ground state of hydrogen atom. What will be the percentage change in the speed of electron ?

1) 25% 2) 50%
 3) 100% 4) 200%

35. Voltage and current in an a.c. circuit is given by $V = 20\sin(314t)\text{ V}$ and

$$I = 10 \sin\left(314t + \frac{\pi}{3}\right)\text{ A} . \text{ Wattless current in}$$

the circuit is

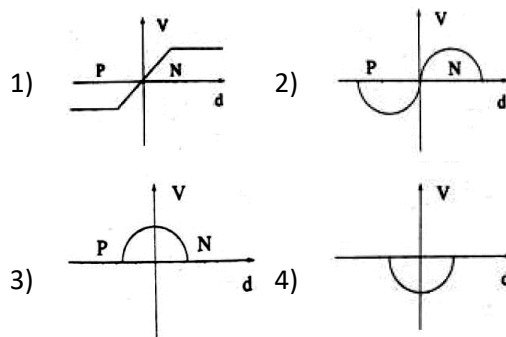
1) 10 A 2) 5 A
 3) $5\sqrt{3}\text{ A}$ 4) $5\sqrt{\frac{3}{2}}\text{ A}$

36. The KE of the photoelectrons is E when the incident wavelength is $\frac{\lambda}{2}$. The KE becomes $2E$

when the incident wavelength is $\frac{\lambda}{3}$. The work function of the metal is

1) $\frac{hc}{\lambda}$ 2) $\frac{2hc}{\lambda}$
 3) $\frac{3hc}{\lambda}$ 4) $\frac{hc}{3\lambda}$

37. The correct curve between potential and distance near P-N junction is

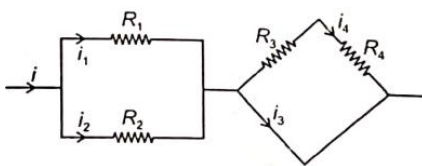


38. A mixture consist of two radioactive materials A_1 and A_2 with half lives of 20s and 10s respectively, initially, the mixture has 40g of A_1 and 160g of A_2 . The amount of the two in the mixture will become equal after

- 1) 60 s 2) 80 s
3) 20 s 4) 40 s

39. Four resistor having finite resistances R_1 , R_2 , R_3 and R_4 are connected as shown in the figure.

The ration $\frac{i_4}{i_2}$ of currents, is



- 1) $\frac{R_1}{R_1 + R_2}$ 2) $\frac{R_4}{R_4 + R_2}$
3) $\frac{R_3}{R_4 + R_3}$ 4) Zero

40. White light is used to illuminate the two slits in Young's double slit experiment. The separation between the slits is d and the distance between the screen and the slits is D ($d \ll D$). At a point on the screen directly in front of one of the slits, certain wavelengths are missing. The missing wavelengths area

- 1) $\lambda = \frac{d^2}{D} (2n + 1)$ 2) $\lambda = \frac{d^2}{D(2n - 1)}$
3) $\lambda = \frac{d^2}{D} n$ 4) $\lambda = \frac{d^2}{Dn}$

41. In Fraunhofer diffraction due to a narrow slit, a screen is placed 2m away from the lens to obtain the diffraction pattern. If the slit-width is 0.2 mm and first minimum lie 5mm on either side of the central maximum, then the wavelength of light used is :

- 1) 4000 Å 2) 5000 Å
3) 6000 Å 4) 7000 Å

42. Plane wave ($\lambda = 6 \times 10^{-5}$ cm) falls normally on a straight slit of width 0.2 mm. The total angular width of the central diffraction maximum is :

- 1) 10^{-3} radian 2) 2×10^{-3} radian
3) 4×10^{-3} radian 4) 6×10^{-3} radian

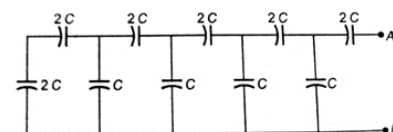
43. Which among the following have negative susceptibility?

- 1) Calcium 2) Aluminium
3) Bismuth 4) Iron

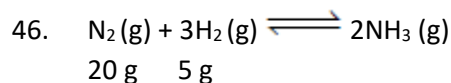
44. n^{th} bright fringe of red light ($\lambda_1 = 7500 \text{ Å}$) coincides with $(n + 1)^{\text{th}}$ bright fringe of green light ($\lambda_2 = 6000 \text{ Å}$). The value of n =?

- 1) 2 2) 3
3) 4 4) 5

45. The equivalent capacitance across AB in the adjoining circuit is :

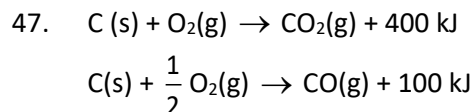


- 1) $\frac{C}{2}$ 2) $\frac{5C}{6}$
3) $\frac{3C}{2}$ 4) C



Consider the above reaction, the limiting reagent of the reaction and number of moles of NH_3 formed respectively are:

- 1) H_2 , 1.42 moles 2) H_2 , 0.71 moles
 3) N_2 , 1.42 moles 4) N_2 , 0.71 moles



When coal of purity 60% is allowed to burn in presence of insufficient oxygen, 60% of carbon is converted into 'CO' and the remaining is converted into ' CO_2 '.

The heat generated when 0.6 kg of coal is burnt is _____.

- 1) 1600 kJ 2) 3200 kJ
 3) 4400 kJ 4) 6600 kJ

48. Which of the following statements are correct?
 (A) The electronic configuration of Cr is $[\text{Ar}] 3d^5 4s^1$.
 (B) The magnetic quantum number may have a negative value.
 (C) In the ground state of an atom, the orbitals are filled in order of their increasing energies.
 (D) The total number of nodes are given by $n - 2$.
 Choose the most appropriate answer from the options given below:

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

49. The electronic configuration of Pt (atomic number 78) is:

- 1) $[\text{Xe}] 4f^{14} 5d^9 6s^1$ 2) $[\text{Kr}] 4f^{14} 5d^{10}$
 3) $[\text{Xe}] 4f^{14} 5d^{10}$ 4) $[\text{Xe}] 4f^{14} 5d^8 6s^2$

50. **Assertion (A):** There is a considerable increase in covalent radius from N to P. However from As to Bi only a small increase in covalent radius is observed.

Reason (R): covalent and ionic radii in a particular oxidation state increases down the group.

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

- 1) (A) is false but (R) is true
 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) Both (A) and (R) are true and (R) is the correct explanation of (A)

51. If IUPAC name of an element is "Unununnium" then the element belongs to nth group of periodic table. The value of n is

- 1) 3 2) 8
 3) 11 4) 12

52. Match List-I with List-II

	List-I		List-II
(A)	BrF_5	(I)	T-shape
(B)	H_2O	(II)	See-saw
(C)	ClF_3	(III)	Bent
(D)	SF_4	(IV)	Square pyramidal

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

53. Given below are two statements:

Statement-I: Since fluorine is more electronegative than nitrogen, the net dipole moment of NF_3 , is greater than NH_3 .

Statement-II: In NH_3 , the orbital dipole due to lone pair and the dipole moment of $\text{N}-\text{H}$ bonds are in opposite direction, but in NF_3 , the orbital dipole due to lone pair and dipole moments of $\text{N}-\text{F}$ bonds are in same direction.

In the light of the above statements. Choose the most appropriate from the options given below,

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

54. During which of the following processes, does entropy decrease?

- A) Freezing of water to ice at 0°C
- B) Freezing of water to ice at -10°C
- C) $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$
- D) Adsorption of $\text{CO}(\text{g})$ and lead surface
- E) Dissolution of NaCl in water

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

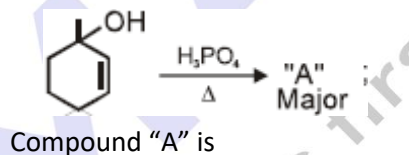
55. Lattice enthalpy and enthalpy of solution of NaCl are 788 kJ mol^{-1} and 4 kJ mol^{-1} , respectively. The hydration enthalpy of NaCl is

- 1) 784 kJ mol^{-1}
- 2) -780 kJ mol^{-1}
- 3) 780 kJ mol^{-1}
- 4) -784 kJ mol^{-1}

56. If enthalpy of atomisation for $\text{Br}_2(\text{l})$ is $x \text{ kJ/mol}$ and bond enthalpy for Br_2 is $y \text{ kJ/mol}$ the relation between them:

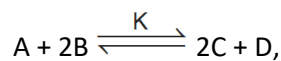
- 1) $x > y$
- 2) $x < y$
- 3) $x = y$
- 4) Relation does not exist

57. In



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

58. In a chemical reaction,



the initial concentration of B was 1.5 times of the concentration of A, but the equilibrium concentrations of A and B were found to be equal. The equilibrium constant (K) for the aforesaid chemical reaction is:

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

59. Two solids dissociate as follows
 $A(s) \rightarrow B(g) + C(g); K_{P_1} = x \text{ atm}^2$
 $D(s) \rightarrow C(g) + E(g); K_{P_2} = y \text{ atm}^2$
 The total pressure when both the solids dissociate simultaneously is:
 1) $\sqrt{x+y} \text{ atm}$ 2) $2(\sqrt{x+y}) \text{ atm}$
 3) $(x+y) \text{ atm}$ 4) $x^2 + y^2 \text{ atm}$
60. The compound that cannot act both as oxidising and reducing agent is:
 1) H_2SO_3 2) HNO_2
 3) H_3PO_4 4) H_2O
61. EAN of central metal in $[\text{PtCl}_6]^{2-}$ is (atomic number of Pt is 78)
 1) 88 2) 85
 3) 87 4) 86
62. An organic compound 'A' is oxidized with Na_2O_2 , followed by boiling with HNO_3 . The resultant solution is then treated with ammonium molybdate to yield a yellow precipitate. Based on above observation, the element present in the given compound is:
 1) Nitrogen 2) Phosphorus
 3) Fluorine 4) Sulphur
63. Two liquids isohexane and 3-methylpentane has boiling point 60°C and 63°C . They can be separated by
 1) Simple distillation and isohexane comes out first.
 2) Fractional distillation and isohexane comes out first.
 3) Simple distillation and 3-Methylpentane comes out first.
 4) Fractional distillation and 3-Methylpentane comes out first.
64. Two isomers 'A' and 'B' with molecular formula C_4H_8 give different products on oxidation with KMnO_4 , in acidic medium. Isomer 'A' on reaction with KMnO_4/H^+ results in effervescence of a gas and gives ketone. The compound 'A' is
 1) But-1-ene 2) cis-But-2-ene
 3) trans-But-2ene 4) 2-methyl propene
65. In Friedel-Crafts alkylation of aniline, one gets:
 1) alkylated product with ortho and para substitution.
 2) secondary amine after acidic treatment.
 3) an amide product.
 4) positively charged nitrogen at benzene ring.
66. pH of a saturated solution of $\text{Ba}(\text{OH})_2$ is 12. The value of solubility product (K_{sp}) of $\text{Ba}(\text{OH})_2$ is
 1) 4.0×10^{-6} 2) 5.0×10^{-6}
 3) 3.3×10^{-7} 4) 5.0×10^{-7}

67. A set of solutions is prepared using 180g of water as a solvent and 10g of different nonvolatile solutes A, B and C. The relative lowering of vapour pressure in the presence of these solutes are in the order
[Given, molar mass of A = 100 g mol⁻¹; B = 200 g mol⁻¹, C = 10,000 g mol⁻¹]
1) A > C > B 2) C > B > A
3) A > B > C 4) B > C > A
68. Boiling point of a 2% aqueous solution of a non-volatile solute A is equal to the boiling point of 8% aqueous solution of a non-volatile solute B. The relation between molecular weights of A and B is.
1) M_A = 4M_B 2) M_B = 4M_A
3) M_A = 8M_B 4) M_B = 8M_A
69. Solute A dimerise in water. When 0.7 g of solute A is dissolved in 42.0 g of water, it depresses the freezing point by 0.2°C. The percentage association of solute A in water, is
[Given: Molar mass of A = 93 g mol⁻¹. Molal depression constant of water is 1.86 K kg mol⁻¹]
1) 50% 2) 60%
3) 70% 4) 80%
70. $E^0_{\text{Cu}^{2+}/\text{Cu}} = 0.34\text{V}$; $E^0_{\text{Cu}^+/\text{Cu}} = 0.522\text{V}$
 $E^0_{\text{Cu}^{2+}/\text{Cu}^+} = ?$
1) 0.158 V 2) - 0.158 V
3) 0.182 V 4) - 0.182 V
71. The reaction $2\text{X} \rightarrow \text{B}$ is a zeroth order reaction. If the initial concentration of X is 0.2 M, the half-life is 6 h. When the initial concentration of X is 0.5 M, the time required to reach its final concentration of 0.2 M will be :
1) 9.0 h 2) 12.0 h
3) 18.0 h 4) 7.2 h
72. In the following reaction: $\text{xA} \rightarrow \text{yB}$
 $\log_{10} \left[-\frac{d[\text{A}]}{dt} \right] = \log_{10} \left[\frac{d[\text{B}]}{dt} \right] + 0.3010$
'A' and 'B' respectively can be:
1) n-Butane and Iso-butane
2) C₂H₅, and C₆H₆
3) C₂H₄, and C₄H₈
4) N₂O₄, and NO₂
73. Which of the following acts as a strong reducing agent? (Atomic number: Ce = 58, Eu = 63, Gd = 64, Lu = 71)
1) Lu³⁺ 2) Gd³⁺
3) Eu²⁺ 4) Ce⁴⁺
74. Aluminium chloride in acidified aqueous solution forms an ion having geometry
1) Octahedral
2) Square Planar
3) Tetrahedral
4) Trigonal bipyramidal
75. The coordination geometry around the manganese in decacarbonyldimanganese(0)
1) Octahedral
2) Trigonal bipyramidal
3) Square pyramidal
4) Square planar

76. Number of complexes which show optical isomerism among the following is _____

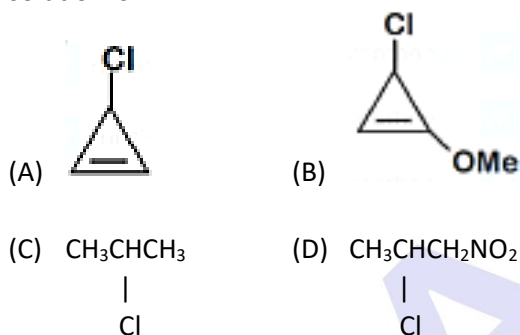
cis – $[\text{Cr}(\text{ox})_2\text{Cl}_2]^{3-}$, $[\text{Co}(\text{en})_3]^{3+}$,
 cis – $[\text{Pt}(\text{en})_2\text{Cl}_2]^{2+}$, cis – $[\text{Co}(\text{en})_2\text{Cl}_2]^+$,
 trans – $[\text{Pt}(\text{en})_2\text{Cl}_2]^{2+}$, trans – $[\text{Cr}(\text{ox})_2\text{Cl}_2]^{3-}$

- 1) 2 2) 3
 3) 4 4) 5

77. 40% aqueous solution of Methanal is called as

- 1) Formalin 2) Salol
 3) Wood spirit 4) Aspirin

78. The decreasing order of reactivity of the following organic molecules towards AgNO_3 solution is



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

79. Given below are two statements.

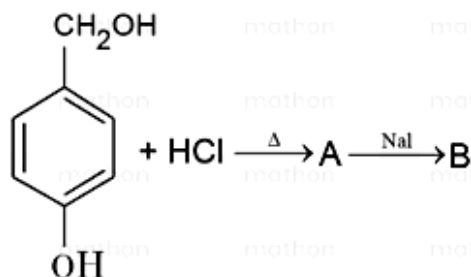
Statement I: Phenols are weakly acidic.

Statement II: Phenols are freely soluble in NaOH solution and are weaker acids than alcohols and water.

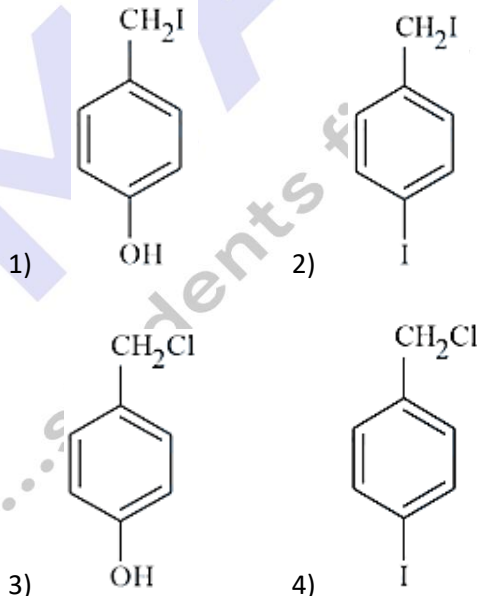
Choose the most appropriate option:

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

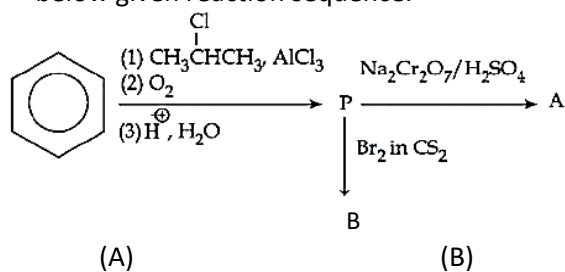
80.



In the above reaction product B is:

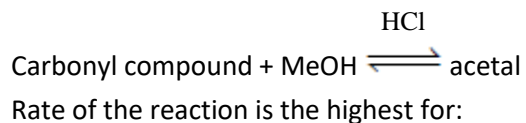


81. Identify the major product A and B for the below given reaction sequence.



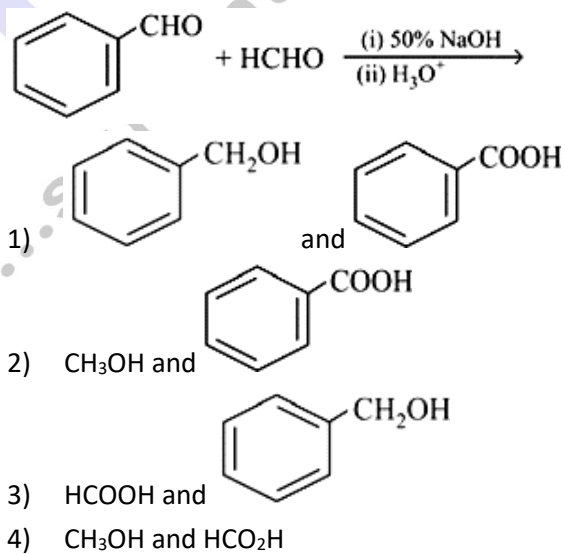
- 1) and
- 2) and
- 3) and
- 4) and

82. In the following reaction



- 1) Acetone as substrate and methanol in excess.
- 2) Propanal as substrate and methanol in stoichiometric amount.
- 3) Propanal as substrate and methanol in excess.
- 4) Acetone as substrate and methanol in stoichiometric amount.

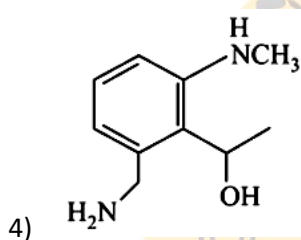
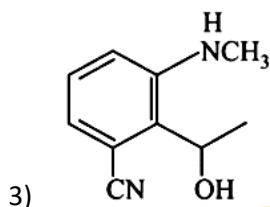
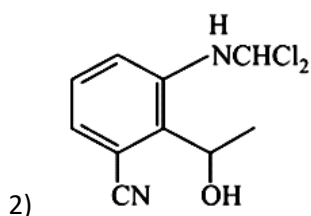
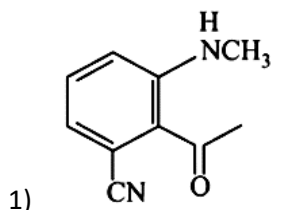
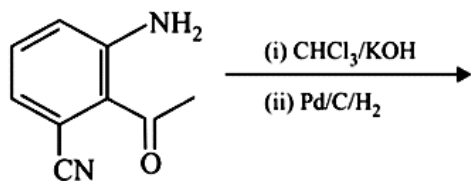
83. Major products of the following reaction are :



84. Which of the following amines can be prepared by Gabriel phthalimide reaction ?

- 1) *n*-butylamine
- 2) triethylamine
- 3) *t*-butylamine
- 4) aniline

85. The major product obtained in the following reaction is:



86. Amylopectin is composed of:

- 1) α -D-glucose, $\text{C}_1 - \text{C}_4$ and $\text{C}_1 - \text{C}_6$ linkages
- 2) β -D-glucose, $\text{C}_1 - \text{C}_4$ and $\text{C}_2 - \text{C}_6$ linkages
- 3) β -D-glucose, $\text{C}_1 - \text{C}_4$ and $\text{C}_1 - \text{C}_6$ linkages
- 4) α -D-glucose, $\text{C}_1 - \text{C}_4$ and $\text{C}_2 - \text{C}_6$ linkages

87. Glucose and Galactose are having identical configuration in all the positions except position.

- 1) C-3
- 2) C-4
- 3) C-2
- 4) C-5

88. **Statement (I):** SiO_2 and GeO_2 are acidic while SnO and PbO are amphoteric in nature.

Statement (II): Allotropic forms of carbon are due to property of catenation and $p\pi - d\pi$ bond formation.

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

89. **Assertion (A):** Melting point of Boron (2453 K) is unusually high in group 13 elements.

Reason (R): Solid Boron has very strong crystalline lattice.

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

90. **Assertion A:** The stability order of +1 oxidation state of Ga, In and Tl is $\text{Ga} < \text{In} < \text{Tl}$.

Reason R: The inert pair effect stabilizes the lower oxidation state down the group.

- 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.

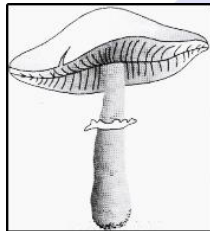
91. Which of the following is correct about the slime mould ?

- I. They are saprophytic prokaryotes
- II. During unfavourable conditions plasmodium differentiates and produces fruiting bodies
- III. Spores do not possess cell wall.
- IV. Spores are dispersed by air currents.
- V. Being extremely resistant, spores survive for many years
- VI. Plasmodium may grow and spread over several feet.

- 1) I, II, IV, V, VI 2) II, IV, V, VI
- 3) I, II, III, VI 4) II, III, VI

92. The given organism belongs to kingdom:

- 1) Phycomycetes
- 2) Ascomycetes
- 3) Basidiomycetes
- 4) Fungi



93. Which of the following statements does not characterize the red algae

- 1) Floridean starch as reserve food
- 2) Both spores and gametes are nonmotile
- 3) Sexual reproduction is isogamous or anisogamous or oogamous
- 4) majority are found in warmer water

94. In mosses, gametophyte has 2 stages. What are these stages?

- 1) 1st stage is foot, seta, capsule phase and 2nd is protonema stage
- 2) 1st stage is protonema and the second stage is leafy stage
- 3) 1st stage is gemmae formation and 2nd one is protonema
- 4) 1st stage is zygote and 2nd one is Spore mother cell

95. Which statement is wrong for viruses

- 1) Viruses are inert outside their specific host
- 2) All the viruses have helical geometric form
- 3) Viruses have ability to replicate
- 4) Viruses are non cellular organisms

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

Assertion (A): Internal structure of plants shows adaptations to diverse environments.

Reason (R): In an organ system, two or more organs perform common function by their physical and / or chemical interaction.

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

97. In palmately compound leaf, the leaflets are attached ____.
- 1) at a common point i.e. at the tip of petiole.
 - 2) at a common point i.e. at the tip of leaf base
 - 3) on a common axis, the rachis
 - 4) on a common axis, the midrib
98. Go through the following statements
- I. In dicotyledonous stem, cambium is present between xylem and phloem.
 - II. When xylem and phloem within a vascular bundle are arranged in an alternate manner, the arrangement is called radial
 - III. Roots of dicots and monocots show radial arrangement of vascular bundles
 - IV. Endodermis, pericycle, vascular bundles and pith constitute stele.
- How many of the above statements is/are wrong
- 1) 1
 - 2) 2
 - 3) 3
 - 4) 4
99. In heterosporous pteridophytes the gametophyte
- 1) May be monoecious or dioecious
 - 2) Is differentiated into male and female gametophytes
 - 3) Produces microspores and megaspores
 - 4) Is a prothallus that bears antheridia and archegonia
100. Which one is false about mitosis?
- 1) Mitosis occurs in both haploid and diploid cells
 - 2) Root tip is the best material for study of mitosis
 - 3) M-phase, the most dramatic period of cell cycle and involves a major reorganisation of all components of the cell
 - 4) Cells at the end of prophase, when viewed under microscope show Golgi bodies, Endoplasmic Reticulum nucleolus, nuclear membrane
101. Plant cells remain connected to each other through middle lamellae which is mainly made up of which of these compounds?
- 1) Calcium oxalate
 - 2) galactans & peptidoglycans
 - 3) mannans & salts of Ca
 - 4) Calcium pectate
102. Meiosis involves ____ of homologous chromosomes and ____ between non sister chromatids of homologous chromosomes.
- 1) interkinesis, pairing
 - 2) pairing, interkinesis
 - 3) pairing, recombination
 - 4) recombination, interkinesis

103. I. Initial CO₂ acceptor
 II. Extent of photorespiration
 III. The first stable product formed after the first CO₂ fixation
 IV. Mechanism of Calvin Cycle
 V. Leaf anatomy
 VI. Process of photophosphorylation

Which of the above points do not differ between a C₃ and a C₄ plant?

- 1) II, V, VI 2) IV, VI
 3) IV only 4) II, IV, VI

104. Match the following column:

	Column I		Column II
A.	C F ₀	I.	Embedded in thylakoid membrane
B.	C F ₁	II.	Forms transmembrane channel
C.		III.	Protrudes on the outer surface that faces stroma

Codes

- 1) A – I, III; B – II
 2) A – I, II; B – III
 3) A – I; B – II, III
 4) A – II; B – I, III

105. If 10 acetyl CoA molecules are fed into the mitochondrial matrix, how many ATP molecules are synthesized through ETS ?

- 1) 122 2) 214
 3) 96 4) 110

106. In alcoholic fermentation, NAD⁺ is produced during the

- 1) Oxidation of glucose
 2) Oxidation of pyruvate to acetyl CoA
 3) Reduction to ethanol
 4) Hydrolysis of ATP to ADP

107. Which of the following is applicable to epidermis of a young dicot stem?

- (A) bears trichomes
 (B) bears a few stomata
 (C) covered with thin layer of suberin
 (D) Parenchymatous cells with small amount of cytoplasm and a large vacuole.

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

108. Auxins promote flowering in ____ and include parthenocarpy in ____.

- 1) Tomatoes, Grapes
 2) Pineapple, Grapes
 3) Tomatoes, Pineapple
 4) Pineapple, Tomatoes

109. While planning for an artificial hybridization programme involving dioecious plants, which of the following steps would not be relevant?

- 1) Bagging of female flower
 2) Dusting of pollen on stigma
 3) Emasculation
 4) Collection of pollen

110. A dioecious flowering plant prevents both:
- 1) Autogamy and geitonogamy
 - 2) Geitonogamy and xenogamy
 - 3) Cleistogamy and xenogamy
 - 4) Autogamy and xenogamy
111. If at the end of meiosis, the 4 daughter cells produced have 40 chromosomes each, how many DNA would have been present in the G_2 phase of the mother cell from which these daughter cells are formed?
- 1) 20
 - 2) 40
 - 3) 80
 - 4) 160
112. It was found that sometimes the F_1 generation - had a phenotype that did not resemble either of the two parents and was in between the two. This is the case of :
- 1) Co-dominance only
 - 2) Incomplete dominance only
 - 3) Codominance or incomplete dominance
 - 4) Pleiotropism
113. Which of the following is correct ?
- 1) When genes are grouped on the same chromosome, some genes are very tightly linked and showed very low recombination
 - 2) When genes are loosely linked show very low recombination
 - 3) When genes are tightly linked show higher recombination
 - 4) When genes are loosely linked, they never show any recombination
114. A homogametic female is found in:
- (A) Human (B) Birds
(C) Drossophila
- 1) A, B only
 - 2) A only
 - 3) A, C only
 - 4) B, C only
115. During the isolation of the DNA from a cell, removal of protein and RNA is carried out by enzymes _____ and _____ respectively.
- 1) peptidyl transferase and ribonuclease
 - 2) protease and RNA primase
 - 3) protease and ribonuclease
 - 4) protease and RNA polymerase
116. In pBR322, 'rop' codes for:
- 1) restriction endonuclease protein
 - 2) protein involved in identification of restriction site
 - 3) protein involved in replication of plasmid
 - 4) protein produced during recombination of plasmid
117. Water splitting complex in light reaction is associated with _(i)_ and located _(ii)_.
- 1) (i) PS II, (ii) on inner side of thylakoid membrane
 - 2) (i) PS I and II, (ii) on inner side of thylakoid membrane
 - 3) (i) PS I, (ii) on inner side of thylakoid membrane
 - 4) (i) PS II, (ii) within thylakoid lumen

118. Match the Column I with Column II :

	Column I (Members of Fabaceae)		Column II (Economic importance)
A.	Gram, sem, moong, soyabean	I.	Medicine
B.	Soyabean, groundnut	II.	Ornamentals
C.	Indigofera	III.	Fodder
D.	Sunhemp	IV.	Fibres
E.	Sesbania, Trifolium	V.	Dye
F.	Lupin, Sweet potato	VI.	Edible oil
G.	Muliathi	VII	Pulses

- 1) A - VII, B - II, C - III, D - IV, E - V, F - VI, G - I
- 2) A - VII, B - VI, C - V, D - IV, E - III, F - II, G - I
- 3) A - II, B - IV, C - VI, D - I, E - III, F - V, G - VII
- 4) A - VII, B - III, C - V, D - I, E - II, F - IV, G - VI.

119. If yellow bodied, white eyed female drosophila is crossed with wild brown bodied, red eyed male drosophila. Then what would be the frequency of recombinants in F_1 generation.

- 1) 100 % 2) 1.3 %
- 3) 98.7 % 4) 0 %

120. What is humus?

- 1) fully decomposed organic matter
- 2) partially decomposed organic matter
- 3) Non colloidal partially decomposed organic matter as a reservoir of nutrients
- 4) precipitated water insoluble inorganic matter

121. Which is incorrect about a small pond ecosystem?

- 1) This is fairly a self-sustainable unit.
- 2) All the four basic components such as productivity, decomposition, energy flow and nutrient cycling of an ecosystem are well exhibited.
- 3) The abiotic component is the water with all the dissolved organic and inorganic substances and the rich soil deposit at the bottom of the pond.
- 4) This ecosystem performs all the functions of any ecosystem but not of the biosphere as a whole.

122. The absence of which of these enzymes will not affect the smooth occurrence of the process of fermentation?

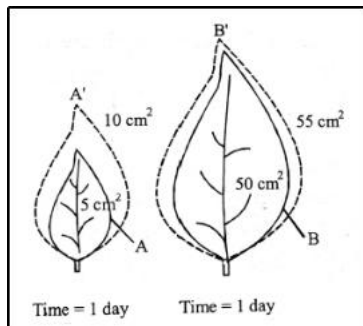
- 1) hexokinase
- 2) alcohol dehydrogenase
- 3) pyruvate decarboxylase
- 4) pyruvate dehydrogenase

123. In glycolysis, glucose ultimately undergoes _____.

- 1) phosphorylation
- 2) decarboxylation
- 3) partial oxidation
- 4) complete oxidation

124. Maximal size in terms of wall thickening and protoplasmic modification are achieved by:
- 1) cells of divisional phase
 - 2) cells of maturation phase
 - 3) cells of elongation phase
 - 4) cells of meristematic tissue
125. Fimbriae are appendages meant for -
- 1) Attachment in bacteria
 - 2) Conjugation
 - 3) Attachment in prokaryotes and eukaryotic cell
 - 4) Protein synthesis
126. Leaf base is swollen to form pulvinus in
- 1) Some leguminous plants
 - 2) Some crucifers
 - 3) Some monocots
 - 4) Some cycads
127. Choose the cell organelle not included in endomembrane system of a cell.
- 1) Mitochondrion
 - 2) lysosome
 - 3) vacuole
 - 4) Golgi complex
128. Which among the following are wrong statements ?
- I. In cymose inflorescence flowers are borne in a basipetal manner
 - II. In rose, flowers are epigymous.
 - III. In Alstonia, the phyllotaxy is whorled.
 - IV. Potato is an underground root for food storage.
- 1) I and II
 - 2) II and III
 - 3) II and IV
 - 4) I and IV
129. Spraying of which of the following PGR leads to early seed production in conifers?
- 1) Absciscic acid
 - 2) Auxins
 - 3) Cytokinins
 - 4) Gibberellic acids
130. Electron microscopic study of which of the following helped scientists to deduce the possible structure of plasma membrane?
- 1) RBCs
 - 2) Mycoplasma
 - 3) nerve cell
 - 4) PPLO
131. Approximate diameter of Pollen grain is:
- 1) 25-50 micrometer
 - 2) 25-50 nanometer
 - 3) 75-100 micrometer
 - 4) 25-35 micrometer
132. Select an enzyme acting on palindromic nucleotide sequences in DNA.
- 1) Exonuclease
 - 2) DNA polymerase II
 - 3) DNA Ligase
 - 4) Restriction endonuclease

133. The given figure shows the comparison of growth rate of two leaves (A and B) over the period of one day. Both the leaves A and B have increased their area in a given time to produce A' and B' leaves respectively. If AGR = absolute growth rate and RGR = relative growth rate, then select the correct option.



	A-Leaf		B-Leaf	
	AGR	RGR	AGR	RGR
1)	1%	1	2%	2
2)	100%	5	10%	5
3)	5	100%	5	10%
4)	0.5	100%	1.5	100%

134. 60% of the angiosperms shed their pollens at the :
- 1) 2-celled stage 2) 3-celled stage
 - 3) 4-celled stage 4) 1-celled stage

135. Study the following and find correct option.

- Tapetum nourishes the developing pollen grain.
- Hilum represents the junction between ovule and funicle.
- In aquatic plants such as water hyacinth and lilly pollination is by water.
- The primary endosperm nucleus is triploid.

- 1) I and II 2) I, II and IV
- 3) II, III and IV 4) II and IV

136. Carnivora includes

- 1) Group of organisms belonging to related genera
- 2) Group of organisms belonging to related species
- 3) Group of organisms belonging to related families
- 4) Group of organisms which are similar in all features

137. I. Extracellular and intracellular digestion
 II. Exclusively marine, radially symmetrical, diploblastic, tissue level of organization
 III. Bisexual, fertilization, external and indirect development
 IV. No asexual reproduction
 The above characters are shown by

- 1) Cnidaria 2) Porifera
- 3) Ctenophora 4) Rotifers

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

Assertion (A): Breast-feeding during the initial period of infant growth is recommended.

Reason (R): During initial few days after delivery, colostrum is produced. Which contains several antibodies that help in bringing up a healthy baby.

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

139. Alary muscles are connected with.....

- 1) circulatory system of cockroach
- 2) circulatory system and spiracles of cockroach
- 3) terga and sterna of cockroach
- 4) Alimentary canal of cockroach

140. The ureters of frog open into:

- 1) Urinary bladder 2) Cloaca
- 3) Bidder's canal 4) Rectum

141. Identify the exceptional biomolecule w.r.t. molecular weight appearing in acid insoluble fraction.

- 1) lipid 2) nucleic acid
- 3) protein 4) disaccharide

142. Identify the correct statement

- 1) India's share of global species diversity is 7.1%
- 2) India is one of the 22 mega diversity countries of world
- 3) According to Robert May's global estimate only 22% of the total species have been recorded so far
- 4) According to Robert May's estimation, more than 3,00,000 plant species yet to be discovered in India.

143. Identify the correct statement with respect to transport of respiratory gases by blood

- 1) 100ml of oxygenated blood can deliver around 4 ml of oxygen.
- 2) Carbonic anhydrase can catalyse conversion of CO_2 and H_2O to H^+ HCO_3^- and reverse too.
- 3) Receptors associated with aortic arch can recognize changes in CO_2 and O_2 .
- 4) Every 100 ml of deoxygenated blood delivers approximately 5 ml of CO_2 to alveoli

144. Regarding competition find out the wrong statement.

- 1) Unrelated species could compete for same resource
- 2) Fitness of one species is lowered in presence of other species
- 3) Abingdon tortoise in Galapagos became extinct within a decade after cows were introduced on the island
- 4) Competitively superior *Balanus* excludes the *Chthamalus* from intertidal area of rocky sea coast of Scotland.

145. Pulmonary circulation in human begins from....

- 1) right ventricle 2) right atrium
- 3) left ventricle 4) left atrium

146. $p\text{CO}_2$ is about 40 mm Hg in (i) and $p\text{O}_2$ is 40 mm Hg in (ii). Select the most appropriate options for (i) and (ii).

	(i)	(ii)
1)	Alveolar air only	Deoxygenated blood only
2)	Oxygenated blood only	Tissues only
3)	Alveolar air and blood pumped by left ventricle	Tissues, blood in systemic veins
4)	Pulmonary artery only	Pulmonary vein only

147. In artificial kidney, _A_ allows passage of molecules based on concentration gradient and after blood is cleared of nitrogenous waste, it is pumped back into the body through _B_ after adding _C_.

	A	B	C
1)	Cellophane membrane,	artery,	heparin
2)	Dialysing unit;	vein,	anti heparin
3)	Cellophane membrane,	artery,	anti heparin
4)	Cellophane membrane,	Vein,	anti heparin

148. In an uncontracted muscle fibre, the head and short arm projecting outwards at regular distance and angle from each other from the surface of polymerized myosin filament is known as :

- 1) Cross arm 2) LMM
- 3) Meromyosin 4) Sarcomere

149. The renal medullary interstitial gradient created by counter current mechanism is mainly created by :

- 1) Na^+ , K^+ , Cl^- and urea.
- 2) NaCl and Urea
- 3) K^+ and urea
- 4) Urea and Uric acid

150. Which of the following statements is not correct about osteoporosis?

- 1) In this disorder bone mass decreases
- 2) It is an age related disorder
- 3) Most common cause is increased level of oestrogen
- 4) There are increased chances of fractures seen in osteoporosis.

151. Action potential is generated on the membrane of axon when:

- 1) Na^+ moves out of axoplasm
- 2) Na^+ moves into axoplasm
- 3) K^+ moves into axoplasm
- 4) Na^+ moves into the axoplasm and K^+ moves out of axoplasm

152. Which of the following are not under the control of limbic lobe?

- 1) memory and communication
- 2) excitement and pleasure
- 3) rage and fear
- 4) motivation and sexual behavior

153. ACTH primarily stimulates synthesis and secretion of :

- 1) Glucocorticoids
- 2) Mineralocorticoids
- 3) Glucocorticoids and Mineralocorticoids
- 4) Corticoids and Catecholamines

154. Several non endocrine tissues secrete hormones called ____ essential for normal growth of tissues and their repairing or regeneration:

- 1) Growth hormone
- 2) lymph
- 3) Growth factors
- 4) Lymph or interstitial fluid

155. __(i)___ receives duct from __(ii)___ and opens into urethra as ejaculatory duct. Identify i and ii.

- 1) (i) Seminal vesicle, (ii) Vas deferens
- 2) (i) Vas deferens, (ii) Seminal vesicle
- 3) (i) Vas deferens, (ii) Prostate gland
- 4) (i) Vas deferens, (ii) bulbourethral gland

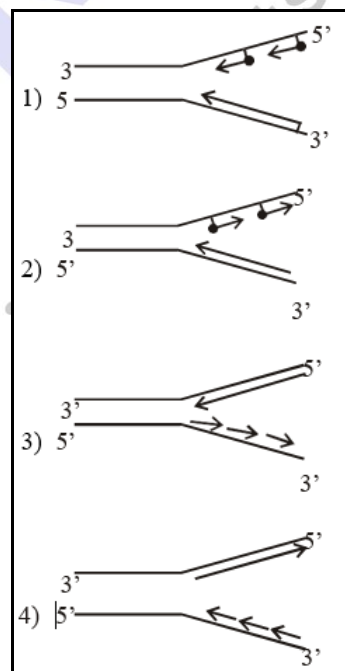
156. The uterus of pregnant female does not show:

- 1) plug of mucus in cervix
- 2) Yolk sac associated with foetus
- 3) Embryo attached through umbilical cord
- 4) Placental villi in myometrium

157. Which of the following is absent in secondary follicle?

- 1) Theca layer
- 2) granulosa cells
- 3) antrum
- 4) primary oocyte

158. Which of the following scheme of replication fork is true.



159. An adapter molecule that would on one hand read the code and on the other hand would bind to specific amino acids is:
- 1) m-RNA 2) r-RNA
 - 3) t-RNA 4) hm-RNA
160. The human genome project was coordinated by:
- (i) U.S. department of energy
 - (ii) National institute of health
 - (iii) Sanger centre
- 1) (i) and (ii) 2) (ii) and (iii)
 - 3) (i) only 4) (ii) only
161. You have discovered an animal having following characters like
Triploblastic, bilateral symmetry coelomate, chitinous exoskeleton, head, + Thorax and abdomen as body parts,
Which of the following feature is also likely to be found in the same specimen?
- 1) Stomochord
 - 2) Statocyst
 - 3) Malpighian body
 - 4) Water vascular system
162. In frog, Buccal cavity
- 1) leads to pharynx through oesophagus
 - 2) leads to oesophogus through pharynx
 - 3) leads to oesophogus through larynx
 - 4) leads to oesphagus through mouth
163. Which of these chemical compounds when added to the medium, the activity of succinate dehydrogenase is inhibited? The inhibition of succinate dehydrogenase proves which of these phenomenon?
- 1) succinate & competitive inhibition
 - 2) malonate & competitive inhibition
 - 3) pyruvate & non competitive inhibition
 - 4) fumarate & non competitive inhibition
164. During inspiration,
- 1) Diaphragm contracts and external intercostals muscles relax
 - 2) Diaphragm relaxes and internal intercostals muscles relax
 - 3) Diaphragm contracts and external intercostals muscles contract
 - 4) Diaphragm contracts and internal intercostals muscles contract
165. Heart rate of human is 72/min. All of the following are true in this reference except
- 1) 72 QRS complex are observed in ECG in one minute
 - 2) 72 Cardiac cycles are repeated in one minute
 - 3) 72 times atrial systole occurs in one minute
 - 4) Number of atrial systoles + number of ventricular systoles = 72

166. Read the following statements carefully:

- a. In cortical nephrons Henle's loop is either highly reduced or absent.
- b. Vasa recta is well developed in cortical nephrons
- c. In cortical nephrons vasa recta is either highly reduced or absent
- d. Glomerulus encloses Bowman's capsule
- e. PCT and DCT are situated in the medulla of kidney

How many statements are incorrect?

- 1) 1 2) 3
- 3) 4 4) 5

167. A pectoral girdle is made up of :

- 1) Two coxal bones
- 2) Two clavicles and two scapulae
- 3) One clavicle and one scapula
- 4) Two clavicles and one scapula

168. ____ are responsible for inter sensory associations.

- 1) Association areas only
- 2) Cerebrum, Limbic system
- 3) Hypothalamus, Limbic system
- 4) Cerebrum, hypothalamus

169. Hyper secretion of Parathyroid hormone will result in

- 1) Decreased reabsorption of calcium by the renal tubules.
- 2) Deposition of calcium in bones
- 3) Decreased absorption of Calcium from digested food
- 4) Weaker bones due to increased demineralization

170. Consider the following statements.

- (a) Contraceptive pills help in preventing pregnancy through lactational amenorrhea.
- (b) Statutory raising of marriageable age of males and females check the population growth rate.

Select the correct option.

- 1) (a) is true, (b) is false
- 2) Both (a) and (b) are true
- 3) (a) is false, (b) is true
- 4) Both (a) and (b) are false

171. Consider the following statements:

- (a) The basic principle of natural method of contraception is to avoid chances of the ovum and sperm meeting
- (b) Coitus interruptus is a Natural method of contraception.

Select the correct option.

- 1) (a) is true, (b) is false
- 2) (a) is false, (b) is true
- 3) Both (a) and (b) are true
- 4) Both (a) and (b) are false

172. A m-RNA also has some additional sequences that are not translated called UTR. The function of UTR is:

- 1) Charging of t-RNA
- 2) Formation of peptide bond
- 3) Helps in efficient translation
- 4) Helps in translocation

173. Change in a single base pair of DNA can be termed as:

- 1) Chromosomal aberrations
- 2) Point mutation
- 3) Genomatrix mutation
- 4) Frame shift mutation

174. Match Column I with Column – II and choose the correct option from the codes given below.

	Column I		Column II
(A)	Colostrum	I.	IgE
(B)	Allergy	II.	IgA
(C)	Graft rejection	III.	Passive immunization
(D)	Preformed antibodies	IV.	Cell-mediated immunity

Codes:

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

175. The genes that cause cancer are called:

- 1) expressor genes
- 2) oncogenes
- 3) regulatory genes
- 4) structural genes

176. Mark the incorrect pair.

- 1) Alkaloid: codeine
- 2) Polymeric substance : diterpenes
- 3) Toxin : Abrin
- 4) Drug : curcumin

177. Which statement is incorrect:

- 1) There is increase in biodiversity from pole to equator
- 2) There is increase in biodiversity from low altitude to high altitude
- 3) There is directly proportional relationship between area and biodiversity.
- 4) Tropics has less seasonal, relatively more constant and predictable environment

178. Which of the following is not true about curd as a microbial product?

- 1) It has increased vitamin B₁₂
- 2) It checks disease causing microbes
- 3) Small amount of curd added to the fresh milk is called inoculum.
- 4) LAB produce acids that coagulate and partially digests milk sugars.

179. Match the column

	Column I		Column II
A.	Bt toxin	I.	Meloidogyne incognita
B.	RNAi	II.	Insecticide
C.	Gene therapy	III.	Routine test for AIDS
D.	PCR	IV.	ADA deficiency

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

180. A typical stirred tank bioreactor has

- a. An agitator system
- b. An oxygen delivery system
- c. A foam control system
- d. A temperature control system
- e. A pH control system
- f. Sampling ports

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