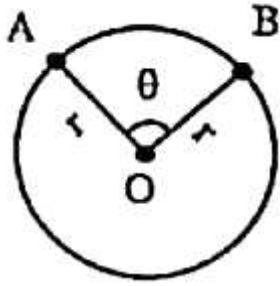


# Physics

- One moving electron when comes closer to other stationary electron, then its kinetic energy and potential energy respectively \_\_\_\_ and \_\_\_\_  
 (a) increases, increases  
 (b) increases, decreases  
 (c) decreases, increases  
 (d) decreases, decreases
- An inclined plane of length 5.60 m making an angle of  $45^\circ$  with the horizontal is placed in an uniform electric field  $E = 100 \text{ Vm}^{-1}$ . A particle of mass 1 kg and charge  $10^{-2} \text{ C}$  is allowed to slide down from rest position from maximum height of slope. If the co-efficient of friction is 0.1, the time taken by the particle to reach the bottom is \_\_\_\_  
 (a) 1 s (b) 1.41 s  
 (c) 2 s (d) None of these
- Charges  $1 \mu\text{C}$  are placed at each of the four corners of a square of side  $2\sqrt{2} \text{ m}$ . The potential at the point of intersection of the diagonals is \_\_\_\_ (  $K = 9 \times 10^9 \text{ SI unit}$  )  
 (a)  $18 \times 10^1 \text{ V}$  (b) 1800 V  
 (c)  $18\sqrt{2} \times 10^3 \text{ V}$  (d) None of these
- A point charge  $q$  is situated at a distance  $r$  on axis from one end of a thin conducting rod of length  $L$  having a charge  $Q$  {Uniformly distributed along its length}. The magnitude of electric force between the two is \_\_\_\_  
 (a)  $\frac{KQq}{r^2}$  (b)  $\frac{2KQ}{r(r+L)}$   
 (c)  $\frac{KQq}{r(r-L)}$  (d)  $\frac{KQq}{r(r+L)}$
- If alpha particle and deuteron move with velocity  $v$  and  $2v$  respectively, the ratio of their de - Broglie wave length will be \_\_\_\_  
 (a) 2: 1 (b)  $1:\sqrt{2}$   
 (c) 1: 1 (d)  $\sqrt{2}: 1$
- de - Broglie wave length of atom at  $TK$  absolute temperature will be  
 (a)  $\frac{h}{\sqrt{3mKT}}$  (b)  $\frac{h}{mKT}$   
 (c)  $\frac{\sqrt{2mKT}}{h}$  (d)  $\sqrt{2mKT}$
- If the wave length of light is  $4000 \text{ \AA}$ , then the number of waves in 1 mm length will be \_\_\_\_ -  $10^{-9} \text{ m}$   
 (a) 2500 (b) 25  
 (c) 250 (d) 25000
- The frequencies of X rays,  $\gamma$  rays and Ultra violet rays are respectively  $p$ ,  $q$  and  $r$  then  
 (a)  $p > q, q > r$  (b)  $p < q, q > r$   
 (c)  $p < q, q < r$  (d)  $p > q, q < r$
- Photons having energy 1 eV and 2.5 eV successively incident on a metal, having work function is 0.5 eV. The ratio of maximum speed of emitted electrons is  
 (a) 1: 2 (b) 3: 1  
 (c) 2: 1 (d) 1: 3
- A and B are two points on a uniform ring of radius  $r$ . The resistance of the ring is  $R$ .  $\angle AOB = \theta$  as shown in the figure. The equivalent resistance between points A & B is. \_\_\_\_



- (a)  $\frac{R(2\pi - \theta)}{4\pi}$  (b)  $\frac{R\theta}{2\pi}$   
(c)  $R\left(1 - \frac{\theta}{2\pi}\right)$  (d)  $\frac{R}{4\pi^2}(2\pi - \theta)\theta$

11. Two wires of equal length and equal diameter and having resistivities  $\rho_1$  and  $\rho_2$  are connected in series. The equivalent resistivity of the combination is \_\_\_\_

- (a)  $\frac{\rho_1 + \rho_2}{2}$  (b)  $(\rho_1 + \rho_2)$   
(c)  $\frac{\rho_1 \rho_2}{\rho_1 + \rho_2}$  (d)  $\sqrt{\rho_1 \rho_2}$

12. Match the following two columns.

| Column I |                        | Column II |                                               |
|----------|------------------------|-----------|-----------------------------------------------|
| (a)      | Electrical resistance  | (p)       | $\text{ML} \cdot \text{T}^{-3} \text{A}^{-2}$ |
| (b)      | Electrical potential   | (q)       | $\text{ML}^{-1} \text{T}^{-1} \text{A}^{-2}$  |
| (c)      | Specific resistance    | (r)       | $\text{ML}^5 \text{T}^{-1} \text{A}^{-1}$     |
| (d)      | Specific conductance . | (s)       | None of these                                 |

- (a) a - q, b - r, c - p, d - s  
(b) a - q, b - s, c - r, d - p  
(c) a - p, b - q, c - s, d - r  
(d) a - p, b - j, c - q, d - s

13. Angle of minimum deviation for a prism of refractive index 1.5 is equal to the angle of prism of given prism. Then the angle of prism is \_\_\_\_ ( $\sin 48^\circ 36' = 0.75$ )

- (a)  $80^\circ$  (b)  $41^\circ 24'$   
(c)  $60^\circ$  (d)  $82^\circ 48'$

14. A ray of light passes from a medium A having refractive index 1.6 to the medium B having refractive index 1.5. The value of critical angle of medium A is \_\_\_\_

- (a)  $\sin^{-1} \sqrt{\frac{16}{15}}$  (b)  $\sin^{-1} \left(\frac{16}{1.5}\right)$   
(c)  $\sin^{-1} \left(\frac{1}{2}\right)$  (d)  $\sin^{-1} \left(\frac{15}{16}\right)$

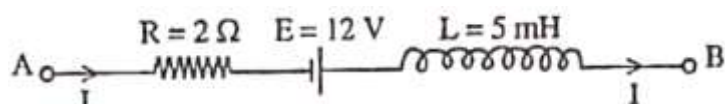
15. The power of plane mirror is \_\_\_\_

- (a) 0 (b)  $\infty$   
(c) 2 D (d) 4 D

16. Light waves travel from optically rarer medium to optically denser medium. Its velocity decreases because of change in \_\_\_\_

- (a) wavelength (b) frequency  
(c) amplitude (d) phase

17. The Network shown in Figure is a part of the circuit. (The battery has negligible resistance)



At a certain instant the current  $I = 2 \text{ A}$  and it is decreasing at the rate of  $10^2 \text{ A s}^{-1}$ . What is the potential difference between the points B and A?

- (a) 8.5 V      (b) 8.0 V  
(c) 10 V      (d) 15 V

18. A rod of 10 cm length is moving perpendicular to uniform magnetic field of intensity  $5 \times 10^{-4} \text{ Wb/m}^2$ . If the acceleration of the rod is  $5 \text{ m/s}^2$ , then the rate of increase of induced emf is \_\_\_\_

- (a)  $25 \times 10^{-4} \text{ Vs}$       (b)  $2.5 \times 10^{-4} \text{ Vs}^{-1}$   
(c)  $20 \times 10^{-1} \text{ Vs}$       (d)  $20 \times 10^{-4} \text{ Vs}^{-1}$

19. A current of  $\frac{25}{\pi} \text{ Hz}$  frequency is passing through an A. C. circuit having series combination of  $R = 100 \Omega$  and  $L = 2 \text{ H}$ , the phase difference between voltage and current is. \_\_\_\_

- (a)  $60^\circ$       (b)  $90^\circ$   
(c)  $30^\circ$       (d)  $45^\circ$

20. In A.C. circuit having only capacitor, the current

- (a) leads the voltage by  $\pi/2$  in phase  
(b) lags behind the voltage by  $\pi/2$  in phase  
(c) leads the voltage by  $\pi$  in phase  
(d) lags behind the voltage by  $\pi$  in phase

21. An alternating voltage given as  $V = 100\sqrt{2}\sin 100t$  is applied to a capacitor of  $1 \mu\text{F}$ . The current reading of the ammeter will be equal to \_\_\_\_ mA.

- (a) 10      (b) 20  
(c) 40      (d) 80

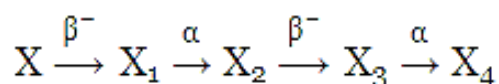
22. The distance of closest approach of an alpha-particle fired towards a nucleus with momentum  $p$  is  $r$ . If the momentum of the alpha-particle is  $2p$ , the corresponding distance of closest approach is:

- (a)  $2r$       (b)  $\frac{2}{r}$   
(c)  $\frac{r}{4}$       (d)  $4r$

23. Number of spectral line in hydrogen atom is

- (a) 8      (b) 6  
(c) 15      (d)  $\alpha$

24. A radioactive element X disintegrates successively as under



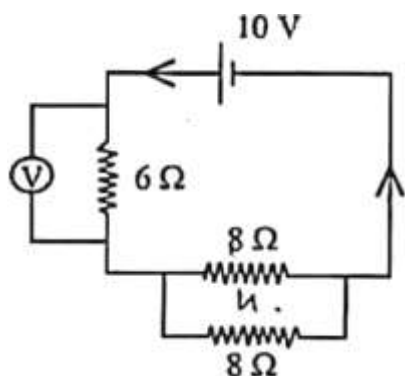
If atomic number and atomic mass number of X are respectively 72 and 180. what are the corresponding values for  $X_4$ ?

- (a) 69, 172      (b) 69, 176  
(c) 71, 176      (d) 70, 172

25. The energy released by the fission of one uranium atom is 200 MeV. The number of fission per second required to produce 6.4 W power is \_\_\_\_

- (a)  $2 \times 10^{11}$       (b)  $10^{11}$   
(c)  $10^{10}$       (d)  $2 \times 10^{10}$

26. If by successive disintegration of  ${}_{92}\text{U}^{238}$ , the final product obtained is  ${}_{82}\text{Pb}^{206}$ . then how many number of  $\alpha$  and  $\beta$  particles are emitted?
- (a) 6 and 8 (b) 8 and 6  
(c) 12 and 6 (d) 8 and 12
27. A change of 0.04 V takes place between the base and the emitter when an input signal is connected to the CE transistor amplifier. As a result,  $20\mu\text{A}$  change take place in the base current and a change of 2 mA takes place in the collector current. Find the input resistance and A.C. current gain.
- (a)  $1\text{k}\Omega$ , 100 (b)  $2\text{k}\Omega$ , 100  
(c)  $2\text{k}\Omega$ , 200 (d)  $1\text{k}\Omega$ , 200
28. A plane polarized light is incident normally on a tourmaline plate. Its  $\vec{E}$  vectors make an angle of  $60^\circ$  with the optic axis of the plate. Find the percentage difference between initial and final intensities.
- (a) 25% (b) 50%  
(c) 75% (d) 90%
29. Light of wave-length  $\lambda$  is incident on a slit of width  $d$ . The resulting diffraction pattern is observed on a screen placed at a distance  $D$ . The linear width of central maximum is equal to the width of the slit, then  $D =$  \_\_\_\_\_
- (a)  $\frac{2\lambda^2}{d}$  (b)  $\frac{d^2}{2\lambda}$   
(c)  $\frac{d}{\lambda}$  (d)  $\frac{2\lambda}{d}$
30. In a N-P-N transistor about  $10^{10}$  electrons enter the emitter in  $2\mu\text{s}$ , when it is connected to a battery. Then  $I_E =$  \_\_\_\_\_  $\mu\text{A}$ .
- (a) 400 (b) 200  
(c) 800 (d) 1600
31. The effective length of a magnet is 31.4 cm and its pole strength is 0.8 Am. The magnetic moment, if it is bent in the form of a semicircle is \_\_\_\_\_  $\text{Am}^2$
- (a) 1.2 (b) 1.6  
(c) 0.16 (d) 0.12
32. Equal currents are passing through two very long and straight parallel wires in the same direction. They will \_\_\_\_\_
- (a) attract each other  
(b) repel each other  
(c) lean towards each other  
(d) neither attract nor repel each other
33. A voltmeter of a very high resistance is joined in the circuit as shown in figure. The voltage shown by this voltmeter will be \_\_\_\_\_





44. Which of the following mixture is called Aquaregia?

- (a) Three parts of dil. HCl and 1 part of conc. HNO<sub>3</sub>
- (b) Two parts of conc. HCl and two parts of conc. HNO<sub>3</sub>
- (c) Three parts of conc. HCl and 1 part of dil. HNO<sub>3</sub>
- (d) Three parts of conc. HCl and 1 part of conc. HNO<sub>3</sub>

45. Which of the following is allylic halide?

- (a) (1 - bromo ethyl) benzene
- (b) Benzyl chloride
- (c) 1 - bromo benzene
- (d) 3 - chloro cyclo hex-1-ene

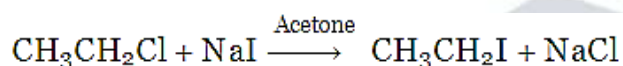
46. 50% of the reagent is used for dehydrohalogenation of 6.45gmCH<sub>3</sub>CH<sub>2</sub>Cl.

What will be the weight of the main product obtained?

[At. mass of H, C and Cl are 1, 12 & 35.5gm/ mole<sup>-1</sup> respectively]

- (a) 1.4 gm (b) 0.7 gm
- (c) 2.8 gm (d) 5.6 gm

47. Name the following reaction:



- (a) Finkelstein reaction
- (b) Swartz reaction
- (c) Wurtz reaction
- (d) Hell-Volhard-Zelinsky reaction

48. Which reagent is used for bromination of methyl phenyl ether?

- (a) Br<sub>2</sub>/CH<sub>3</sub>COOH (b) Br<sub>2</sub>/Red P
- (c) Br<sub>2</sub>/FeBr<sub>3</sub> (d) HBr/Δ

49. Which of the following acid does not have -COOH group?

- (a) Picric acid (b) Ethanoic acid
- (c) Benzoic acid (d) Salicylic acid

50. Which of the following statement is not correct?

- (a) Phenol is neutralised by sodium carbonate
- (b) Phenol is used to prepare analgesic drugs
- (c) Solubility of phenol in water is more than that of chlorobenzene:
- (d) Boiling point of o-nitrophenol is lower than that of p-nitrophenol

51. Total order of reaction  $\text{X} + \text{Y} \rightarrow \text{XY}$  is 3.

The order of reaction with respect to X is 2. State the differential rate equation for the reaction.

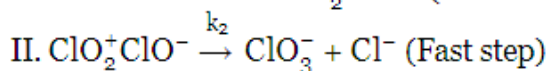
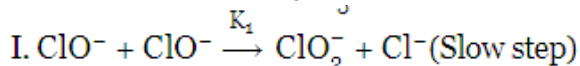
- (a)  $-\frac{d[\text{X}]}{dt} = k[\text{X}]^2[\text{Y}]^3$  (b)  $-\frac{d[\text{X}]}{dt} = k[\text{X}]^3[\text{Y}]^0$
- (c)  $-\frac{d[\text{X}]}{dt} = k[\text{X}]^2[\text{Y}]$  (d)  $-\frac{d[\text{X}]}{dt} = k[\text{X}][\text{Y}]^2$

52.

$\text{X} \xrightarrow{\text{Step I}} \text{Y} \xrightarrow{\text{Step II}} \text{Z}$  is a complex reaction. Total order of reaction is: 2 and Step - II is slow step. What is molecularity of Step-II?

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

53. Reaction,  $3\text{ClO}^- \rightarrow \text{ClO}_3^- + 2\text{Cl}^-$  occurs in following two steps.



Then, the rate of given reaction is:

- (a)  $k_1[\text{ClO}^-]$  (b)  $k_1[\text{ClO}^-]^2$   
(c)  $k_2[\text{ClO}_2^-][\text{ClO}^-]$  (d)  $k_2[\text{ClO}^-]^3$

54. At given temperature and pressure, adsorption of which gas of the following will take place the most?

- (a) Dioxygen (b) Dihydrogen  
(c) Ammonia (d) Carbon dioxide

55. Which type of colloid is the dissolution of sulphur ( $\text{S}_8$ ) ?

- (a) Micelle  
(b) Associated colloid  
(c) Multimolecular colloid  
(d) Macromolecular colloid

56. For Adsorption phenomenon:

- (a)  $\Delta H = +ve, \Delta S = +ve$   
(b)  $\Delta H = +ve, \Delta S = -ve$   
(c)  $\Delta H = -ve, \Delta S = +ve$   
(d)  $\Delta H = -ve, \Delta S = -ve$

57. Which of the following statement is incorrect for  $\text{KMnO}_4$  ?

- (a) It is used as antiseptic.  
(b) It is an oxidising agent.  
(c) It is used as bleaching agent in textile industries.  
(d) It is dark purple coloured amorphous substance.

58. Which of the following ion has the maximum theoretical magnetic moment?

- (a)  $\text{Cr}^{3+}$  (b)  $\text{Fe}^{3+}$   
(c)  $\text{Ti}^{3+}$  (d)  $\text{Co}^{3+}$

59. Which of the following oxide has the maximum basicity?

- (a)  $\text{Pr}_2\text{O}_3$  (b)  $\text{La}_2\text{O}_3$   
(c)  $\text{Sm}_2\text{O}_3$  (d)  $\text{Gd}_2\text{O}_3$

60. Which of the following spectrochemical series is true?

- (a)  $\text{SCN}^- < \text{F}^- < \text{NH}_3 < \text{en} < \text{CO}$   
(b)  $\text{SCN}^- < \text{NH}_3 < \text{F}^- < \text{en} < \text{CO}^0$   
(c)  $\text{SCN}^- < \text{F}^- < \text{en} < \text{NH}_3 < \text{CO}$   
(d)  $\text{SCN}^- < \text{F}^- < \text{en} < \text{CO} < \text{NH}_3$

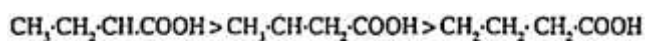
61. Which of the following complex is paramagnetic?

- (a)  $[\text{Co}(\text{NH}_3)_6]^{3+}$  (b)  $[\text{Ni}(\text{CN})_4]^{2-}$   
(c)  $[\text{NiCl}_4]^{2-}$  (d)  $[\text{Ni}(\text{CO})_4]$

62. Both  $[\text{Ni}(\text{CO})_4]$  and  $[\text{Ni}(\text{CN})_4]^{2-}$  are diamagnetic. The types of hybridisation of Ni in these complexes are \_\_\_\_\_ & \_\_\_\_\_ respectively.

- (a)  $\text{sp}^3, \text{dsp}^2$  (b)  $\text{sp}^3, \text{sp}^3$   
(c)  $\text{dsp}^2, \text{sp}^3$  (d)  $\text{dsp}^2, \text{dsp}^2$

63. Which of the following order of acidic strength is not correct?



- (a)  $\text{CH}_3\text{CH}_2\text{CH}(\text{Cl})\text{COOH} > \text{CH}_3\text{CH}(\text{Cl})\text{CH}_2\text{COOH} > \text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$

- (b)  $\text{Cl}_3 \cdot \text{C} \cdot \text{COOH} > \text{Cl}_2 \cdot \text{CH} \cdot \text{COOH} > \text{Cl} \cdot \text{CH}_2 \cdot \text{COOH}$   
 (c)  $\text{H} \cdot \text{COOH} > \text{CH}_3\text{COOH} > \text{C}_6\text{H}_5\text{COOH}$   
 (d)  $\text{CH}_3\text{COOH} > \text{CH}_3 \cdot \text{CH}_2 \cdot \text{COOH} > (\text{CH}_3)_2 \cdot \text{CH} \cdot \text{COOH}$

64. What is the formula of Acrolcin?

- (a)  $\text{CH}_2 = \text{CH} - \text{CN}$   
 (b)  $\text{CH}_2 = \text{CH} - \text{CHO}$   
 (c)  $\text{CH}_2 = \text{CH} - \text{COOH}$   
 (d)  $\text{CH}_2 = \text{CH} - \text{CONH}_2$

65. What is IUPAC name for isophthalic acid?

- (a) Benzene - 1,2 dicarboxylic acid  
 (b) Benzene - 1,3 dicarboxylic acid  
 (c) Benzene - 1,4 dicarboxylic acid  
 (d) Benzene - 1,5 dicarboxylic acid

66. What is the name for red azo dye?

- (a)  $\beta$ -naphthyl azo benzene  
 (b) p-hydroxy azo benzene  
 (c) p-amino azo benzene  
 (d) p - N,N dimethyl amino azo benzene

67. Which of the following is not formed by Sandmeyer reaction?

- (a)  $\text{C}_6\text{H}_5\text{Cl}$  (b)  $\text{C}_6\text{H}_5\text{I}$   
 (c)  $\text{C}_6\text{H}_5\text{CN}$  (d)  $\text{C}_6\text{H}_5\text{Br}$

68. For which vitamin liver is not the source?

- (a) Vitamin - B<sub>2</sub> (b) Vitamin - H  
 (c) Vitamin - B<sub>1</sub> (d) Vitamin - B<sub>12</sub>

69. In which of the following compound, all the monosaccharide units are not joined by  $\text{C}_1 - \text{O} - \text{C}_4$  chain.

- (a) Lactose (b) Maltose  
 (c) Cellulose (d) Amylopectin

70. Which of the following polymer is formed by cationic addition polymerisation reaction?

- (a) Poly styrene (b) Butyl rubber  
 (c) Teflon (d) PVC

71. Which of the following polymer is used in pigment?

- (a) Neoprene (b) Buna - S  
 (c) Teflon (d) Orlon

72. To prevent food from spoilage by microorganism, which substance is used?

- (a) Ameto (b) Aspartame  
 (c) Salt of sorbic acid (d) Tetrazine

73. Which of the following defect is seen in FeO ?

- (a) Metal deficiency defect  
 (b) Metal excess defect  
 (c) Displacement defect  
 (d) Impurity defect

74. Which of the following substance possess antiferromagnetic property?

- (a)  $\text{CrO}_2$  (b)  $\text{Fe}_3\text{O}_4$   
 (c)  $\text{H}_2\text{O}$  (d)  $\text{MnO}$

75. The boiling points for aqueous solutions of sucrose and urea are same at constant temperature. If 3 gm of urea is dissolved in its 1 litre solution, what is the weight of sucrose dissolved in its 1 litre solution?

[Urea - 60gm/mole, sucrose = 342gm/molc ]

- (a) 17.1 gram (b) 3.0 gram  
(c) 6.0 gram (d) 34.2 gram

76. Which option is inconsistent for Raoult's law?

- (a) The change in heat of dilution for solution = 0  
(b) Volume of liquid solvent + volume of liquid solute = volume of solution.  
(c) Solute does not undergo association in solution  
(d) Solute undergoes dissociation in solution

77. Which colligative property is more useful to determine the molecular weight of the substances like proteins and polymers?

- (a) Elevation in boiling point  
(b) Lowering of vapour pressure  
(c) Depression of freezing point  
(d) Osmotic pressure

78. The resulting solution obtained at the end of electrolysis of concentrated aqueous solution of NaCl \_\_\_\_\_

- (a) turns blue litmus into red  
(b) turns red litmus into blue  
(c) remains colourless with phenolphthalein  
(d) the colour of red or blue litmus does not change

79. The value of  $E_{\text{red}}^{\circ}$  for metal A, B and C are 0.34 V, -0.80 V and -0.46 V respectively. State the correct order for their ability to act as reducing agent.

- (a)  $B > C > A$  (b)  $C < B > A$   
(c)  $C < A > B$  (d)  $A < B > C$

80. Two electrolytic cells containing molten solutions of nickel chloride and aluminium chloride are connected in series. If same amount of electric current is passed through them, what will be the weight of nickel obtained when 18 g of aluminium is obtained?

[Al = 27 g/mol, Ni = 58.5 g/mol<sup>-1</sup>]

- (a) 29.25 g (b) 5.85 g  
(c) 117 g (d) 58.5 g

### Biology

81. In which field application of biotechnology occurs?

- (a) Bio-medicine. (b) Agriculture.  
(c) Environmental field. (d). All of the above

82. \_\_\_\_\_ show anti allergic and anti-inflammatory effect

- (a) Mineralocorticoids (b) Sex corticoids  
(c) Glucocorticoids (d) Noradrenaline

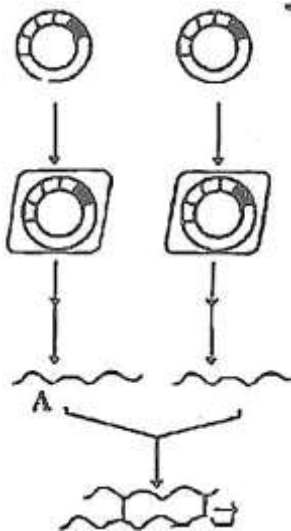
83. During the process of decomposition in which stage complex organic matter convert into inorganic ions and salts by fungi?

- (a) Mineralization (b) Catabolism  
(c) Fragmentation (d) All of the above

84. How much amount of volume of air is in lungs FRC?

- (a) 2100 ml to 2500 ml (b) 1500 ml to 1600 ml  
(c) 2500 ml to 3000 ml (d) 1600 ml to 2100 ml

85. What indicated " A " in given figure?



- (a) Glycosidic bond      (b) Peptide bond  
(c) Disulphide bond      (d) Hydrophobic bond

86. What is total diastolic time of ventricle in cardiac cycle?

- (a) 0.40 second      (b) 0.30 second  
(c) 0.50 second      (d) 0.10 second

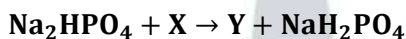
87. Which amino acid determines by four genetic codes

- (a) Leucine (Leu)      (b) Proline (Pro)  
(c) Serine (Ser)      (d) Tyrosine (Tyr)

88. Which is the inhibitory hormone of GH?

- (a) Parathormone      (b) Insulin  
(c) Somatostatin      (d) Testosterone

89. Complete and balance the following reaction.



- (a)  $\text{X} = \text{H}_2\text{CO}_3$ ,  $\text{Y} = \text{NaHCO}_3$   
(b)  $\text{X} = \text{H}_2\text{CO}_3$ ,  $\text{Y} = \text{NaH}_2\text{CO}_3$   
(c)  $\text{X} = \text{NaHCO}_3$ ,  $\text{Y} = \text{H}_2\text{CO}_3$   
(d)  $\text{X} = \text{NaHCO}_3$ ,  $\text{Y} = \text{NaCl}$

90. How many molecules of ATP and NADPH are required in formation of two molecules of glucose? How many Calvin cycles are required

- (a) 18 ATP, 12 NADPH, 6 Calvin cycles  
(b) 36 ATP, 24 NADPH, 12 Calvin cycles  
(c) 36. ATP, 24 NADPH, 6 Calvin cycles  
(d) 24 ATP, 36 NADPH, 12 Calvin cycles

91. A - The DNA fingerprint is the same for every cell, tissue and organ of a person.

R - DNA fingerprint is used for treatment of inherited disorders like Huntington's disease, Alzheimer's and Sickle cell anemia.

- (a) A and R both are correct but R is not explanation of A  
(b) A and R both are correct. R is explanation of A  
(c) A is correct and R is wrong  
(d) A is wrong and R is correct

92. Which part is not included in Cochlear duct?

- (a) Macula of Utricle (b) Reissner's membrane  
(c) Scala Media (d) Tectorial membrane

93. Which is Gynandromorph type or animal?

- (a) Drossophilla (b) Beetles  
(c) Silk worms (d) All of the above

94. DNA polymerase enzyme is isolated from which bacteria?

- (a) Thermus aquaticus (b) E. Coli  
(c) Bacillus thrunegenesis (d) Agro bacterium

95. Match the column I II and III

| Column 1           | Column II                  | Column III                                        |
|--------------------|----------------------------|---------------------------------------------------|
| (P) Trichomoniasis | (i) Herpes Simplex         | (x) Pain in lower abdomen                         |
| (Q) Syphilis       | (ii) Neisseria gonorrhoeac | (y) Inflammation and itching in and around vagina |
| (R) Gonorrhoea     | iii) Treponema Pallidium   | (z) Patchy hair loss                              |
| (S) Genital herpes | (iv) Trichomonas vaginalis | (w) Peeling of uneasiness                         |

- (a) (P – iv – y)(Q – i – z)(R – ii – x)(S – iii – w)  
(b) (P-iv- y) (Q – iii – z)(R – ii – x)(S – i – w)  
(c) (P – iv – x)(Q – j – w)(R – ii – y)(S – jii – z)  
(d) (P – i – z)(Q – ii – y)(R – iv – w)(S – iii – x)

96. What is the height and weight of twelve weeks old human embryo?

- (a) 7.5 cm, 14gram (b) 7.5 cm, 6.50 ) gram  
(c) 42 cm, 1800gram (d) 32 cm, 650 grimm

97. Assertion A : Restriction endonuclease recognize short palindromic sequence and cut at specific sites

Reason - R: When a restriction endonuclease acts on Palindrome, it cleaves both the strands ULDNA molecule.

- (a) A and R are both correct but R is not explanation of A  
(b) A and R are both correct. R is explanation of A  
(c) A is correct and R is wrong  
(d) A is wrong and R is correct

98. Write proper option by matching column I, II and III

|       | <b>Column I<br/>(Name)</b> | <b>Column II<br/>(enzyme)</b>    | <b>Column III<br/>(Function)</b>                        |
|-------|----------------------------|----------------------------------|---------------------------------------------------------|
| (i)   | <b>Gastric Juice</b>       | <b>P) Chymo-<br/>trypsinogen</b> | <b>A) Dipeptide convert into<br/>amino acid</b>         |
| (ii)  | <b>Intestinal Juice</b>    | <b>Q) Trypsin</b>                | <b>B) Proteases convert into<br/>small polypeptides</b> |
| (iii) | <b>Saliva</b>              | <b>(R) Renin</b>                 | <b>C) Casein convert into<br/>paracasein</b>            |
| (v)   | <b>Pancreatic juice</b>    | <b>S) Erepsin</b>                | <b>D) Conversion of starch<br/>into maltose</b>         |

- (a) (i - R - C) (ii - S - A) (iii - Q - ID) (iv - P - B)  
 (b) (i - R - C) (ii - S - A) (iii - Q - Q) (iv - P - D)  
 (c) (i - S - D) (ii - R - C) (iii - P - I3) (iv - Q - A)  
 (d) (i - Q - λ) (ii - P - C) (iii - R - B) (iv - S - D)

**99. Write the correct sequence of genetic diversity.**

- (a) Population → Species → Chromosomes → Genes → Nuclcotides  
 (b) Kingdom → Population → Specics → Genes → Chromosome → Nuclcotides  
 (c) Species → Genes → Population → Chromosomes → Nucleotides  
 (d) Kingdom → Species → Chromosomes → Genes → Nucleorides

**100. Match the column I and II and select the correct option.**

| <b>Column I</b> |                       | <b>Column II (concentration of DDT' in PPm)</b> |                  |
|-----------------|-----------------------|-------------------------------------------------|------------------|
| <b>(A)</b>      | <b>Zooto Plankton</b> | <b>(P)</b>                                      | <b>0.003 PPM</b> |
| <b>(B)</b>      | <b>Small fishes</b>   | <b>(Q)</b>                                      | <b>2pm</b>       |
| <b>(C)</b>      | <b>Water</b>          | <b>(K)</b>                                      | <b>25 ppm</b>    |

|     |                    |     |          |
|-----|--------------------|-----|----------|
| (D) | Fish enting, birds | (S) | 0.04 ppm |
| (E) | Big fishes         | (T) | 0.5 ppm  |

A B C D E

(a) S T P Q R

(b) S T P R Q

(c) S T R Q P

(d) Q P S T R

101. Which of the following disease shows the blockage of kidney tubules and causes severe back pain?

- (a) Kidney failure (b) Renal calculi  
(c) Uremia (d) Nephritis

102. During photorespiration which compounds are formed having 2 C and 3 C respectively in peroxisome?

- (a) Glycine, glycerate  
(b) Phosphoglycerate, glycolate  
(c) Serine, glycine  
(d) Glycolate, glycine

103. During rainy season wooden doors and windows are not properly closed. Why?

- (a) Diffusion (b) Plasmolysis  
(c) Osmosis (d) Imbibition

104. Match the column I, II and III

| Column I                |       | Column II                                     |     | Column III                                      |
|-------------------------|-------|-----------------------------------------------|-----|-------------------------------------------------|
| (A) Sickle Cell Anaemia | (i)   | Due to recessive PP genes                     | (P) | Arrangement of Valine in place of Glutamic acid |
| (B) Phenyl Ketonuria    | (ii)  | Due to absence of homogentisic oxidase enzyme | (Q) | Inborn error or. metabolism                     |
| (C) Alkaptonuria        | (iii) | Follows Mendelian Principles                  | (R) | Urine turns black when exposed to air           |

|                  |      |                                                 |     |                                                       |
|------------------|------|-------------------------------------------------|-----|-------------------------------------------------------|
| (D) Thalassaemia | (iv) | Characters caused by homozygous recessive genes | (S) | The required hemoglobin is not generated in the blood |
|------------------|------|-------------------------------------------------|-----|-------------------------------------------------------|

(a)  $(A - i \vee \cdot P)(B - i \cdot Q)(C - ii - R)(D - iii - S)$

(b)  $(A - ii - S)(B - iii - R)(C - i - Q)(D - iv - P)$

(c)  $(A - iv - P)(B - iii - R)(C - i - S)(D - ii - R)$

(d)  $(A - iji - R)(B - i - Q)(C - iv - P)(D - ii - S)$

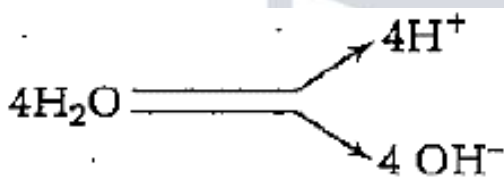
105. Which of the following is the symptom of ulcerative colities?

- (a) Eyes turn yellow
- (b) Loss of appetite
- (c) Watery stools containing blood and mucus
- (d) Difficulty in swallowing

106. Which of the following is not a cranial bone?

- (a) Frontal (b) Temporal
- (c) Zygomatic (d) Sphenoid

107. In this process which of the following play important role?



- (a) Chlorophyll (b) Light energy
- (c)  $Ca^{2+}$ ,  $Mn^{2+}$ ,  $Cl^-$  (d) All of the above

108. Which of the following is correct trend of succession in Hydroseric succession?

- (a) Phytoplankton → Reed swiminp → Ruoled submerged → Sedge meadow
- (b) Phytoplankton → Rooted subunerged → Reed swamp → Sedge meadow
- (c) Phytoplankton → Sedge meduw → Reed swamp → Root submerged
- (d) Rooted submerged → Phytoplankiton → Reed swamp → Scdgc meadow

109. On which surface of cell Donnan equilibrium occur?

- (a) Tonoplast (b) Cell wall
- (c) Plasma membrane (d) Nuclear membrane

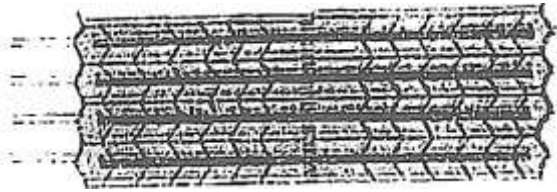
110. Which type of gene regulate sex-determination in spinach plant?

- (a) Homozygous genes (b) Heterozygous genes
- (c) Single gene (d) Multiple genes

111. When the respiratory substances are more than one then which respiratory substrates are not used?

- (a) Pure protein (b) Lipid
- (c) Carbohydrate (d) Both (a) and (b)

112. State the condition of muscle contraction in following diagram

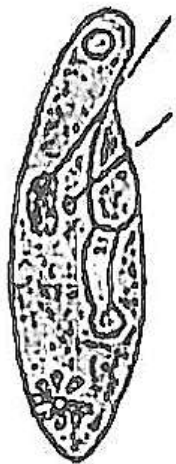


- (a) Resting potential (b) Contraction  
(c) Maximally contracted (d) None

113. How many years are considered in one minute in Geological clock??

- (a) 1.87. 500.000 year (b) 52000 years  
(c) 3,25,000 years (d) 1,90,000 years

114. Which structure is formed at the time of exchange of gamete nuclei in given animal during sexual reproduction?



- (a) Cytoplasmic filaments (b) Plasmodesmata  
(c) Internal. Rubule (d) Cytoplasmic bridge

115. Name the plant shows adventive embryonic cells.

- (a) Citrus and Mango.  
(b) Sunflower and Mango  
(d) Lemon and Maize  
(d) Lemon and Palms

116. During respiration \_\_\_\_\_

- (a) 2 PGAL during glycolysis and 4 Pyruvic acid are produced in Kreb's cycle  
(b) 2 PGAL during glycolysis and none of the PGAL produced in Kreb's cycle  
(c) 2 PGAL during glycolysis and 2 Pyruvic acid are produced in Kreb's cycle  
(d) PGAL is not produced during respiratory events

117. Which of the following function is performed by collecting tubule of kidney?

- (a) In the maintenance of pH and ionic balance of blood by the secretion of H and K<sup>+</sup> ions  
(b) Maintenance of pH of blood and removal of Na<sup>+</sup> and K ions  
(c) Absorption of glucose and ammonia from the blood  
(d) None of above

118. A - Nerve fibre can become excited through touch, smell, pressure and chemical changes and there is a change in polarity.

R - It is called active potential.

- (a) A and R both are correct but A is not correct explanation of R.

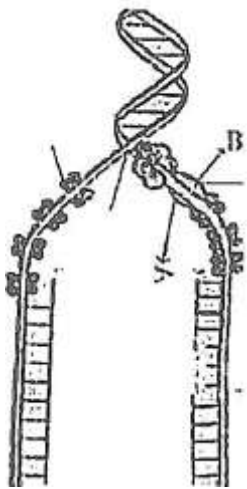
- (b) A and R both are correct and A is correct explanation of R.  
 (c) A is correct and R is wrong  
 (d) A is wrong and R is correct

119. Select proper option, by matching column I, II and III.

| Column 1<br>(Common Name) | Column 2<br>(Roman Numerical Designation) | Column 3<br>(Activation product) |
|---------------------------|-------------------------------------------|----------------------------------|
| P- Prothrombin            | x- I                                      | I- Convertin                     |
| Q- Proconvertin           | y- V                                      | II- Fibrin                       |
| R- Fibrinogen             | z- II                                     | III- Thrombin                    |
| S- Proaccelerin           | w- VII                                    | IV- Accelerin                    |

- (a) (P - z - III), (Q-w-I), (R - y - II), (S - x - IV )  
 (b) (P - w-II), (Q-z-III), (R - y - IV), (S - x-I)  
 (c) (P-z-III), (Q-w-II), (R - x - IV), (S - y - I)  
 (d) (P-z-III), (Q-w-I), (R-x-II), (S-y-IV)

120. What is " A " and " B " in given diagram



- (a) A = RNA Primer  
 B = DNA Helicase  
 (b) A = RNA Primer  
 B = RNA Helicase  
 (c) A = Single strand Binding protein  
 B = DNA Helicase -  
 (d) A = Lagging strand  
 B = Movement of Helicase