Physics

1. **A current of $25/\pi$Hz frequency is passing through an A.C. circuit having series combination or $R = 100\Omega$ and $L = 2H$, the phase difference between voltage and current is ___**
   (a) 45° (b) 60°
   (c) 30° (d) 90°
2. **In A.C. circuit having only capacitor the current ___**
   (a) lags behind the voltage by π in phase
   (b) leads the voltage by $\pi/2$ in phase
   (c) leads the voltage by π in phase
   (d) lags behind the voltage by $\pi/2$ in phase
3. **An alternating voltage given as $V = 100\sqrt{2}\sin 100t$ volt is applied to a capacitor of 1μF. The current reading of the ammeter will be equal to____ mA**

(a) 80 (b) 20

(c) 40 (d) 10

4. **The distance of the closest approach of an alpha particle fired at a nucleus with kinetic energy K is r_0. The distance of the closest approach when the α particle is fired at the same nucleus with kinetic energy 2 K will be**
   (a) $2r_0$ (b) $4r_0$
   (c) $\frac{r_0}{4}$ (d) $\frac{r_0}{2}$
5. **Number of spectral line in hydrogen atom is**
   (a) α (b) 8
   (c) 15 (d) 6
6. **A radioactive element X disintegrates successively as under:**

$$X \xrightarrow{\alpha} X_1 \xrightarrow{\beta} X_2 \xrightarrow{\alpha} X_3 \xrightarrow{\gamma} X_4$$

If the atomic number and atomic mass. Number of X are 72 and 180. What are the corresponding values for X_4.
(a) 69,176 (b) 69,172
(c) 71,172 (d) 71,176

7. **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) 10^{10} (b) 2×10^{11}
   (c) 2×10^{10} (d) 10^{11}
8. **If by successive disintegration of $_{92}U^{238}$, the final product obtained is $_{82}Pb^{206}$ then how many number of α and β particles are emitted?**
   (a) 8 and 6 (b) 6 and 8
   (c) 12 and 6 (d) 8 and 12
9. **A change of 0.04 V takes place between the base and the emitter when as input signal is connected to the CE transistor amplifier. As a result, 20μA 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) 2kΩ, 100 (b) 1kΩ, 100
   (c) 2kΩ, 200 (d) 1kΩ, 200
10. **A plane polarized light is incident normally on a tourmaline plate. Its $\vec{E}$ vectors make an angle of 60° with the optic axis of the plate. Find the percentage difference between initial and final intensities.**

(a) 25% (b) 50%
(c) 75% (d) 90%

11. Light of wave length λ is incident on slit of width d. The resulting diffraction pattern is observed on a screen placed at distance D. The linear width of central maximum is equal to width of the slit, then D =

(a) $\frac{2\lambda}{d}$ (b) $\frac{2\lambda^2}{d}$
(c) $\frac{d}{\lambda}$ (d) $\frac{d^2}{2\lambda}$

12. In a N-P-N transistor about 10^{10} electrons enter the emitter in $2\mu s$, when it is connected to a battery. Then I_E =_____ μA

(a) 1600 (b) 200
(c) 800 (d) 400

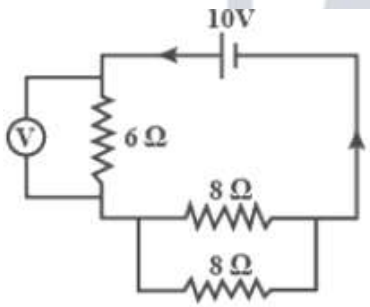
13. The effective length of a magnet is 31.4 cm and its pole strength is 0.8 Am. The magnetic moment, if it is bent in the form of a semicircle is _____ Am^2.

(a) 1.2 (b) 0.12
(c) 0.16 (d) 1.6

14. Equal current 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

15. A voltmeter of a very high resistance is joined in the circuit as shown in figure. The voltage shown by this voltmeter will be



(a) 6 V (b) 2.5 V
(c) 5 V (d) 3 V

16. A galvanometer of resistance 50Ω is connected to a battery of 8 V along with a resistance of 3950Ω in series. A full-scale deflection of 30 div is obtained in the galvanometer. In order to reduce this deflection to 15 division, the resistance in series should be ____ Ω

(a) 7950 (b). 2000
(c) 1950 (d) 7900

17. At a place on Earth, the vertical component of Earth's magnetic field $\sqrt{3}$ times its horizontal component. The angle of dip at this place is ____

(a) 0° (b) 60°
(c) 45° (d) 30°

18. Which gate can be obtained by shorting both the input terminals of a NOR gate.

(a) NAND (b) NOT
(c) AND (d) OR?

19. An optical fiber can offer a band width of ___

(a) 250 MHz (b) 100 GHz
(c) 750 MHz (d) 100 MHz

20. To transmit a signal of 3 KHz frequency, the minimum length of antenna is____ km

(a) 75 (b) 25

(c) 50 (d) 20

21. 27 identical drops of mercury are charged simultaneously with the same potential of 10 Volt. Assuming the drop to be spherical, if all the charged drops are made to combine to form one large drop, then its potential will be ___ Volt.

(a) 10 (b) 40

(c) 160 (d) 90

22. When 10^{19} electrons are removed from a neutral metal plate through some process, the charge on it becomes ____

(a) 10^{-19}C (b) +1.6 C

(c) 10^{19}C (d) -1.6 C

23. One moving electron when comes closer to other stationary electron, then its kinetic energy and potential energy respectively____ and _____

(a) decreases, decreases

(b) increases, increases

(c) decreases, increases

(d) increases, decreases

24. An inclined plane of length 5.60 m making an angle of $45°$ with the horizontal is placed in an uniform electric field $E = 100\ V\ m^{-1}$. A particle of mass 1 kg and charge 10^{-2}C is allowed to slide down from rest position from maximum height of slope. If the coefficient of friction is 0.1 , the time taken by the particle to reach the bottom is

(a) 1 S (b) 1.41 s

(c) None of these (d) 2 s

25. Charges 1μC are placed at each of the four corners of a square of side $2\sqrt{2}$ m. The potential at the point of intersection of the diagonals is ___ ($K = 9 \times 10^9$ SI unit).

(a) 18×10^3 V (b) None of these

(c) $18\sqrt{2} \times 10^3$ V (d) 1800 V

26. 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) $\frac{KQq}{r(r+L)}$

27. If alpha particle and deutron move with velocity v and 2v respectively, the ratio of their de - Broglie wave length will be____

(a) $\sqrt{2}:1$ (b) $1:1$

(c) $2:1$ (d) $1:\sqrt{2}$

28. de - Broglie wave length of atom at TK absolute temperature will be

(a) $\sqrt{2mKT}$ (b) $\frac{h}{\sqrt{3mKT}}$

(c) $\frac{\sqrt{2mKT}}{h}$ (d) $\frac{h}{mKT}$

29. If the wave length of light is 4000 A°, then the number of waves in 1 mm length will be ____

(a) 25000 (b) 250

(c) 2500 (d) 25

30. The frequencies of X rays, γ rays and Ultra violet rays are respectively p, q and r then

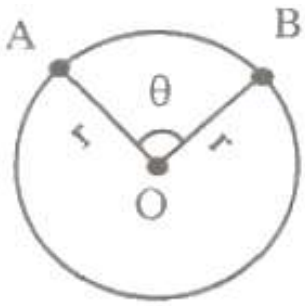
(a) $p > q, q < r$ (b) $p > q, q > r$

(c) $p < q, q < r$ (d) $p < q, q > r$

31. 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: 3 (b) 3: 1
(c) 2: 1 (d) 1: 2

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

33. Two wires of equal length and equal diameter and having resistivities ρ_1 and ρ_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) $\sqrt{\rho_1\rho_2}$

34. Match the following two columns.

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

(a) a − q, b − s, c − r, d − p
(b) a − p, b − q, c − s, d − r
(c) a − p, b − r, c − q, d − s
(d) a − q, b − r, c − p, d − s

35. Angle of minimum deviation for a prism of refractive index 1.5 s equal to the angle of prism of given prism. Then the angle of prism is_____ $(\sin 48°36' = 0.75)$

(a) 82°48′ (b) 60°
(c) 80° (d) 41°24′

36. 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) $\sin^{-1}\left(\frac{1}{2}\right)$
(c) $\sin^{-1}\left(\frac{16}{15}\right)$ (d) $\sin^{-1}\left(\frac{15}{16}\right)$

37. The power of plane mirror is ____

(a) 4 D (b) 0

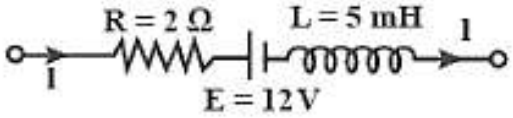
(c) 2 D (d) ∞

38. Light waves travel from optically rarer medium to optically denser medium. Its velocity decreases because of change in ___

(a) phase (b) wavelength

(c) amplitude (d) frequency

39. The network shown in figure is a part of the circuit. (the battery has negligible resistance). At a certain instant, the current $I = 2$ A and it is decreasing at the rate of $10^2 As^{-1}$. 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

40. A rod of 10 cm length is moving perpendicular to uniform magnetic field of intensity 5×10^{-4} Wb/m^2. If the acceleration of the rod is 5 m/s^2, then the rate of increase of induced emf is ____

(a) 2.5×10^{-4} V s^{-1} (b) 25×10^{-4} V s^{-1}

(c) 2.0×10^{-4} V s^{-1} (d) 20×10^{-4} V s^{-1}

Chemistry

41. What is IUPAC name for isophthalic acid?

(a) Benzene - 1, 5 dicarboxylic acid

(b) Benzene - 1, 2 dicarboxylic acid

(c) Benzene - 1, 4 dicarboxylic acid

(d) Benzene - 1, 3 dicarboxylic acid

42. What is the name for red azo dye?

(a) p- N, N dimethyl amino azo benzene

(b) β - napthyl azo benzene

(c) p - amino azo benzene

(d) p - hydroxy azo benzene

43. Which of the following is not formed by Sandmayer reaction?

(a) C_6H_5CN (b) C_6H_5I

(c) C_6H_5Br (d) C_6H_5Cl

44. For which vitamin liver is not the source?

(a) vitamin – H (b) Vitamin - B_2

(c) Vitamin - B_{12} (d) Vitamin - B_1

45. In which of the following compound, all the monosaccharide units are not joined by $C_1 - O - C_4$ chain.

(a) Amylopectin (b) Lactose

(c) Cellulose (d) Maltose

46. Which of the following polymer is formed by cationic addition polymerization reaction?

(a) Butyl rubber (b) Poly styrene

(c) Teflon (d) PVC

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

(a) Orlon (c) Neoprene).

(c) Teflon (d) Buna - S

48. To prevent food from spoilage by microorganism, which substance is used?
(a) Aspartame (b) Arneto
(c) Salt of sorbic acid (d) Tetrazine

49. Which of the following defect is seen in FeO ?
(a) Impurity defect
(b) Metal deficiency defect
(c) Displacement defect
(d) Metal excess defect

50. Which of the following substance possess antiferromagnetic property?
(a) MnO (b)CrO_2
(c) H_2O (d) Fe_3O_4

51. The boiling points for aqueous solutions of sucrose an 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/mole]
(a) 34.2 gram (b) 17.1 gram
(c) 6.0 gram (d) 3.0 gram

52. Which option is inconsistent for Raoult's law?
(a) Solute undergoes dissociation in solution
(b) The change in heat of dilution for solution = 0
(c) Solute does not undergo association in solution
(d) Volume of liquid solvent + volume of liquid solute = volume of solution.

53. Which colligative property is more useful to determine the molecular weight of the substances like proteins and polymers?
(a) Osmotic pressure
(b) Elevation in boiling point
(c) Depression of freezing point
(d) Lowering of vapour pressure

54. 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) Colour of red or blue litmus does not change

55. The value of E^0_{red} 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) $A < B > C$

56. 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?

$[Al = 27\ g/mol, Ni = 58.5\ g/mol^{-1}]$

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

57. Which method is used to get very pure germanium used in semiconductor?
(a) zone – refining (b) vapour - phase refining
(c) liquation (d) electrolysis

58. Which product will obtained in the following reaction?
Reaction: $P_{4(a)} + 3NaOH_{(aq)} + 3H_2O_{(l)} \rightarrow$

(a) $PH_{3(a)} + 3Na_2HPO_{2(aq)}$
(b) $PH_{3(a)} + 3NaH_2PO_{2(aq)}$
(c) $2PH_{3(a)} + 3Na_2HPO_{2(aq)}$
(d) $2PH_{3(a)} + 3NaH_2PO_{2(aq)}$

59. The molecular formulae for phosgene and tear gas are ___ and _____ respectively.
(a) $COCl_2$ and CCl_3NO_2
(b) $SOCl_2$ and CCl_3NO_2
(c) $COCl_2$ and CCI_2NO_2
(d) $SOCl_2$ and CCI_3NO_2

60. Which of the following mixture is called Aguaregia?
(a) Three parts of conc. HCl and 1 part of conc. HNO_3
(b) Three parts of dil. HCl and 1 part of conc. HNO_3
(c) Three parts of conc. HCl and 1 part of dil. HNO_3
(d) Two parts of conc. HCl and two parts of conc. HNO_3

61. Which of the following is allylic halide?
(a) 3 -chloro cyclo hex-1-ene
(b) (1 - bromo ethyl) benzene
(c) 1 - bromo benzene
(d) Benzyl chloride

62. 50% of the reagent is used for dehydrohalogenation of 6.45 gCH_3CH_2Cl. What will be the weight of the main product obtained?
[Atomic mass of H, C, and Cl are 1,12 and 35.5gmol^{-1} respectively]
(a) 2.8 g (b) 5.6 g
(c) 0.7 g (d) 1.4 g

63. Name the following reaction:

$$CH_3CH_2Cl + NaI \xrightarrow{\text{Acetone}} CH_3CH_2I + NaCl$$

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

64. Which reagent is used for bromination of methyl phenyl ether?
(a) Br_2/ Red (b) Br_2/CH_3COOH
(c) HBr/Δ (d) $Br_2/FeBr_3$

65. Which of the following acid does not have -COOH group?
(a) Salicylic acid (b) Picric acid
(c) Benzoic acid (d) Ethanoic acid

66. Which of the following statement is not correct?
(a) Boiling point of o-nitrophenol is lower than that of p -nitrophenol
(b) Phenol is neutralized by sodium carbonate
(c) Solubility of phenol in water is more than that of chlorobenzene
(d) Phenol is used to prepare analgesic drugs

67. Total order of reaction X + Y → XY is 3. The order of reaction with respect to X is 2. State the differential rate equation for the reaction.
(a) $-\frac{d[X]}{dt} = K[X][Y]^2$ (b) $-\frac{d[X]}{dt} = K[X]^0[Y]^3$
(c) $-\frac{d[X]}{dt} = K[X]^2[Y]$ (d) $-\frac{d[X]}{dt} = K[X]^3[Y]^0$

68. $X \xrightarrow{\text{step I}} Y \xrightarrow{\text{step II}} Z$ **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) 4 (d) 3

69. Reaction $3ClO^- \rightarrow ClO_3^- + 2Cl^-$ **occurs in following two steps.**

I. $ClO^- + ClO^- \xrightarrow{K_1} ClO_2^- + Cl^-$ (Slow step)

II. $ClO_2^+ ClO^- \xrightarrow{k_2} ClO_3^- + Cl^-$ (Fast step)

then the rate of given reaction =

(a) $K_2[ClO^-]^3$ (b) $K_1[ClO^-]$

(c) $K_2[ClO_2^-][ClO^-]$ (d) $K_1[ClO^-]^2$

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

(a) Dihydrogen (b) Dioxygen

(c) Ammonia (d) Dinitrogen

71. Which type of colloid is the dissolution of sulphur (S_8) **?**

(a) Macromolecular colloid

(b) Micelle

(c) Multimoleceular colloid

(d) Associated colloid

72. For Adsorption phenomenon,

(a) $\Delta H = +ve, \Delta S = +ve$

(b) $\Delta H = -ve, \Delta S = +vc$

(c) $\Delta H = -ve, \Delta S = -ve$

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

73. Which of the following statement is incorrect for $KMnO_4$ **?**

(a) It is dark purple coloured amorphous substance.

(b) It is used as antiseptic.

(c) It is used as bleaching agent in textile industries.

(d) It is an oxidising agent.

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

(a) Fe^{3+} (b) Cr^{3+}

(c) Ti^{3+} (d) Co^{3+}

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

(a) Gd_2O_3 (b) Pr_2O_3

(c) Sm_2O_3 (d) La_2O_3

76. Which of the following spectrochemical series is true?

(a) $SCN^- < F^- < en < CO < NH_3$

(b) $SCN^- < F^- < NH_3 < en < CO$

(c) $SCN^- < F^- < en < NH_3 < CO$

(d) $SCN^- < NH_3 < F^- < en < CO$

77. Which of the following complex is paramagnetic?

(a) $[Co(NH_3)_6]^{3+}$ (b) $[Ni(CN)_4]^{2-}$

(c) $[NiCl_4]^{2-}$ (d) $[Ni(CO)_4]$

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

(A) $CH_3{-}\underset{\displaystyle Cl}{\underset{|}{CH}}{-}COOH > CH_3{-}\underset{\displaystyle Cl}{\underset{|}{CH}}{-}CH_2{-}COOH > CH_2{-}\underset{\displaystyle Cl}{\underset{|}{CH_2}}{-}CH_2{-}COOH$

B. $Cl_3C - COOH > Cl_2 - CH - COOH > Cl - CH_2 - COOH$
C. $H - COOH > CH_3COOH > C_6H_5COOH$
D. $CH_3COOH > CH_3 - CH_2 - COOH > (CH_3)_2 - CH - COOH$

79. What is the formula of Acrolein?
(a) $CH_2 = CH - CONH_2$
(b) $CH_2 = CH - CN$
(c) $CH_2 = CH - COOH$
(d) $CH_2 = CH - CHO$

80. Both $([Ni(CO)_4]$ and $([Ni_i(CN)_4)^{2-}$ are diamagnetic. The types of hybridisation of Ni in these complexes are ___ & ____ respectively.
(a) dsp^2, dsp^2 (b) sp^3, dsp^2
(c) dsp^2, sp^3 (d) sp^3, sp^3

Biology

81. Choose the correct option for statement P. Q and R in relevance to grass.

Statement P - Flower possess attractive colour and fragrance

Statement Q – Pollen grains are small, dry and light in weight

Statement R - Grass is air pollinated plant.

(a) Both P and Q are true. R is correct explanation of Q

(b) P is true and Q is false. R is correct explanation of P.

(c) P is false and Q is true. R is the correct explanation of Q

(d) Both P and Q are false. R has no relation with P and Q.

82. Which is the correct option for the maintenance of the conc. of urine?

(a) Counter current produced in two limbs of Henle's loop

(b) Counter current produced in two limbs of Vasa recta

(c) Ascending limb of Henle's loop

(d) Counter current produced by Henle's loop and Vasa recta

83. Function of ADH -

(a) Water absorption from the latero-posterior parts of the tubules.

(b) Facilitates water re-absorption from posterior parts of the tubules.

(c) Facilitates water absorption from the distal parts of the tubules.

(d) All the above

84. How many facial bones are present in pair?
(a) 5 (b) 6
(c) 14 (d) 7

85. Prolong activation of striated muscle causes it to fatigue. What is the reason?

(a) Breakdown of glycogen into lactic acid in muscle during aerobic respiration.

(b) Breakdown of glycogen into lactic acid in muscle during anaerobic respiration

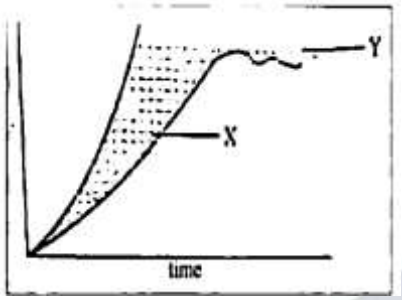
(c) Breakdown of lactic acid into glycogen during anaerobic respiration

(d) Produce ethanol in muscles

86. In deep freshwater ponds, different layers of water with different temperatures are noticed. This is known as

(a) Thermal stratification
(b) Surface tension
(c) Water equilibrium
(d) Thermal equilibrium

87. What indicates ' X ' and ' Y ' in the given figure?



(a) X-Potential natality, Y-Carrying capacity

(b) X-Environmental resistance, Y-Potential natality

(c) X-Carrying capacity, Y-Environmental resistance

(d) X-Environmental resistance, Y-Carrying capacity

88. Statement A: The flow of energy is unidirectional in Ecosystcm

Reason R: Consumers utilize the chemical energy as food and it is released into the atmosphere in the form of heat energy. It cannot be reused

(a) A and R both are true and R is the reason for A

(b) A and R both are false R is not the reason for A

(c) A is true but R is false

(d) A is false but R is true

89. Where more than half of the species on the earth live?

(a) Tropical zone
(b) Temperate zone
(c) Dry tropical forests
(d) Moist tropical forest.

90. Match the Column -1 and II. Choose the correct option.

Column-1		Column -II	
P	e-waste	i)	Waste clothing
Q	Biodegradable waste	ii)	Dirt

R	**Inert waste**	**iii)**	**Green waste**
S	**Composite waste**	**iv)**	**Irreparable waste**

(a) (P - i) (Q - ii) (R – iv) (S – iii)
(b) (P – iv) (Q - iii) (R – ii) (S – i)
(c) (P - iii) (Q – iv)(R – i)(S – ii)
(d) (P – iv) (Q - iii) (R – i)(S – ii)

91. What are called micelles during absorption?
(a) small glycerol molecules
(b) small droplets of fatty acids
(c) very small fat droplets
(d) large fat molecules

92. In _____ both dominant and recessive alleles lack their dominant and recessive relationships.
(a) Incomplete dominance
(b) Polygenic inheritance
(c) Multiple alleles
(d) Co-dominance

93. Match the following. Choose the correct option.

Disease	Symptoms
P - Gonorrhoea	(i) loss of appetites, pain upper right abdomen
Q - Trichomoniasis	(ii) white patches on the tongue or roof of buccal cavity
R - Hepatitis B	(iii) pain while passing urine
S - Syphilis	(iv) itching in and around vagina

(a) (P - i) (Q - iv) (R - ii) (S - iii)
(b) (P - iv) (Q - iii) (R - ii) (S - i)
(c) (P - iii) (Q – iv)(R – i)(S – ii)
(d) (P - iii) (Q – i)(R – ii)(S – iv)

94. Mendel's law of segregation is also known as -
(a) Law of separation
(b) Law of dominance
(c) Law of purity of gametes
(d) Law of independent assortment

95. Transgenic animals mean

(a) Genes of these animals are introduced into other animals

(b) All the genes are from the same animal

(c) These animals are used as vector

(d) The introduction of exogenous DNA into the genome of an animal to create and maintain a stable heritable character.

96. Which type of movement is observed in Drocera?
(a) Thigmotropism (b) Hydrotropism
(c) Hydronasty (d) Thigmonasty

97. In which phase of menstrual cycle progesterone level rises?
(a) Menstrual phase
(b) Proliferative phase
(c) Secretory phase
(d) Maturation phase

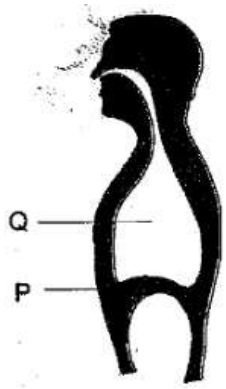
98. in which of the following cry protein is synthesized?
(a) Simple cotton
(b) Bt Cotton only
(c) bacillus thuringiensis only
(d) Bt cotton and Bacillus thuringiensis

99. In Recombinant DNA technology which technique is used to separate fragments of DNA?
(a) Electroporation
(b) Particle bombardment
(c) Agarose gel electrophoresis
(d) Electrolysis

100. Which of the following is not included into anthropoids?
(a) Gibbon (b) Chimpanzee
(c) Lemur (d) Human

101. What is fused with maize for the manufacturing of genetically modified (G.M.) sugar in America?
(a) Brazzein (b) Basmati
(c) Cane sugar (d) Zeamin

102. Identify P and Q in the figure and mention the process takes place.



(a) P - Diaphragm relax, Q - Thoracic cavity increases Inhalation

(b) P - Diaphragm contract, Q - Thoracic cavity decreases Exhalation

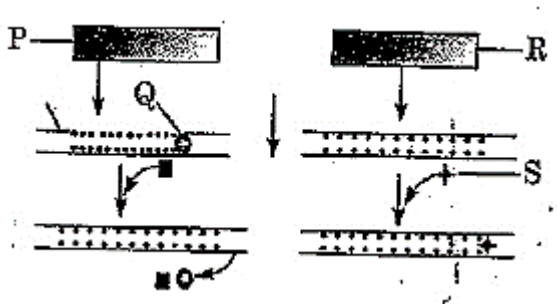
(c) P - Diaphragm relax, Q - Thoracic cavity reduces Exhalation

(d) P - Diaphragm contract, Q - Thoracic cavity increases Exhalation

103. Mostly bread is in the semisweet taste due to
(a) Yeast (b) Remnants of alcohol
(c) Sugar (d) Acetic acid

104. What is the time gap when atria and ventricle both undergoes diastole?
(a) 0.10 sec (b) 0.50 sec
(c) 0.40 sec (d) 0.30 sec

105. Identify P, Q, R, S in the given figure



(a) P - Negative Regulation, Q - Inhibitor, R - Effector molecule, S - Positive Regulation

(b) P - Positive Regulation, Q - Effector molecule, R - Inhibitor, S - Negative Regulation

(c) P - Negative Regulation, Q - Inhibitor, R - Positive Regulation, S - Effector molecule

(d) P- Positive Regulation, Q - Effector Molecule, R - Negative Regulation, S - Inhibitor

106. Pathogenic which is responsible for the production of tumor in most of dicot plants.

(a) Retrovirus (b) Bacteriophage
(c) Ti plasmid (d) Vector

107. Which Genetic codon has dual functions?

(a) AGU (b) ACG
(c) A ∪ A (d) AUG

108. Match the Column - I and II and choose the correct option.

Column -1	Column -II	
(P) Pepsin	**(i)**	**Casein → Paracasein**
(Q) Erepsin	**(ii)**	**Polypeptides → Peptides and amino acids**
(R) Carboxypeptidase	**(iii)**	**Proteins → Proteoses + Peptones**
(S) Renin	**(iv)**	**Dipeptide → amino acids**

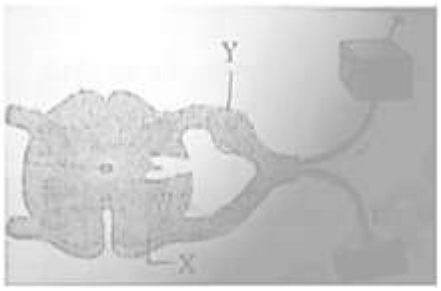
(a) (P-iii) (Q-iv) (R-i) (S-ii)

(b) (P-iii) (Q-iv) (R – ii)(S – i)

(c) (P-iv) (Q-ii) (R-iii) (S-i)

(d) (P-i) (Q-iii) (R-iv) (S-ii)

109. Identify ' X ' and ' Y ' in the given diagram



(a) X-Inter neuron, Y-Cell body of motor neuron

(b) X-Cell body of motor neuron, Y-Dorsal root ganglion

(c) X-Inter neuron, Y -Sensory neuron

(d) X -Inter neuron, Y -Dorsal root ganglion

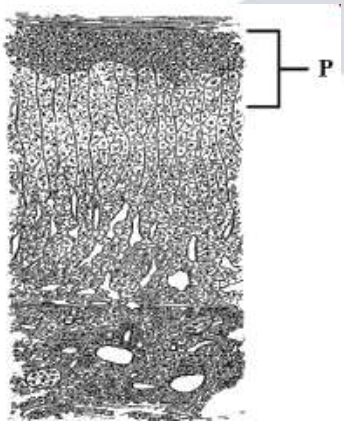
110. Activities like running, talking and typing are controlled by

(a) Cerebellum (b) pons
(c) Medulla oblongata (d) Mid brain

111. How many endocrine glands are located in human brain?

(a) 02 (b) 04
(c) 02 (d) 09

112. What is the function of ' P ' in the given figure?



(a) Regulate carbohydrate, protein and fat metabolism

(b) Regulate the mineral metabolism

(c) Development of female sexual characters

(d) Antiallergic and anti-inflamatory effects

113. 32 chromosomes are present in the green leaf of onion. When meiosis takes place to produce gametes after fertilization, how many chromosomes will be there in triploid nucleus?

(a) 32 (b) 16
(c) 48 (d) 08

114. "Pollengrains are protected by a mucilaginous covering and having specific gravity". This is the characteristic of which type of pollination?

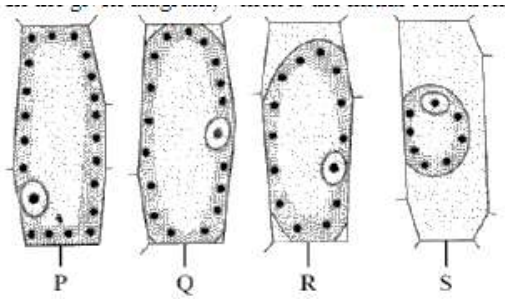
(a) Anemophily (b) Entomophily
(c) Hydrophily (d) Zoophily

115. The movement of water and minerals in xylem and the movement of phloem sap in phloem is respectively.

(a) Unidirectional, bidirectional
(b) Bidirectional, bidirectional

(c) Bidirectional, unidirectional
(d) Unidirectional, unidirectional

116. In the given figure, which'is the initial condition of plasmolysis?



(a) P (b) Q
(c) R (d) S

117. Which of the following group belongs to macronutrient elements?

(a) B, N (b) Ca, P
(c) Ni, Na (d) K, Co

118. What are the names of free living aerobic and anaerobic nitrogen fixation bacteria respectively?

(a) Rhizobium - Clostridium
(b) Azotobacter - Clostridium
(c) Azotobacter - Agrobacterium
(d) Agrobacterium - Clostridium

119. Choose the correct option for the chloroplast of bundle sheath from the following.

(a) They show grana organization

(b) They do not show grana organization

(c) They do not possess thylakoid

(d) They possess thylakoid and grana organization

120. In glycolysis process during which reaction water molecule is released?

(a) 2 phosphoglyceric acid → phosphoenol pyruvic acid

(b) PGAL → BPGA

(c) 1,3 biphosphoglyceric acid → phosphoglyceric acid

(d) phosphoenol pyruvic acid → pyruvic acid