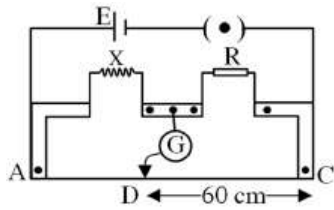
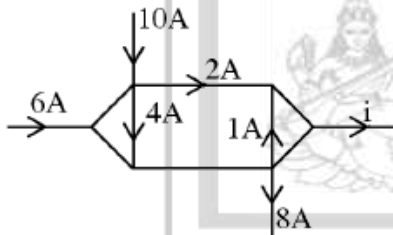


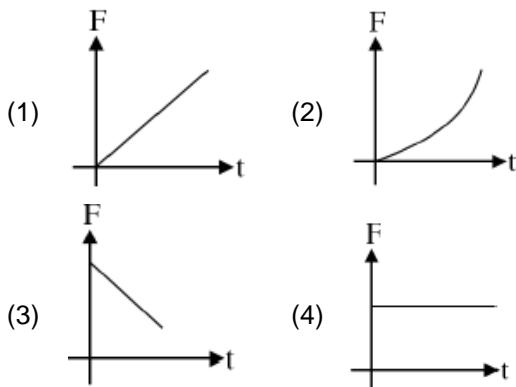
- A light body 'A' and a heavy body 'B' have equal kinetic energies of translation. Then,
 - A has larger momentum than B
 - B has larger momentum than A
 - A and B both have same momentum
 - Nothing can be said about their momentum relationship unless actual masses are known
- In a meter bridge experiment for measuring unknown resistance X, the null point is obtained at a distance 60 cm from right side as shown at point D. If R is 2.4KΩ, then value of unknown resistance X is given by :



- 1.2 KΩ
 - 1.6 KΩ
 - 1.8 KΩ
 - 2.2 KΩ
- In the given circuit, current i is :

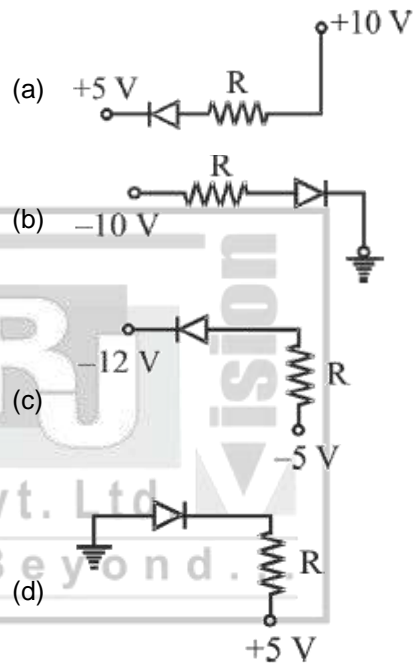


- 4A
 - 5A
 - 6A
 - 8A
- Block moves with a velocity depending on time as $v = kt^3$, where k is constant. The force-time graph will be :

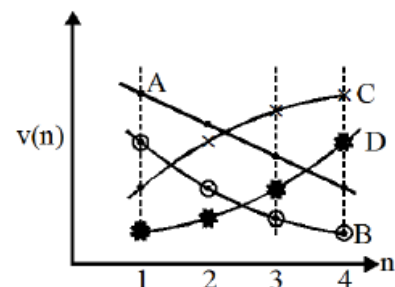


- Two trains A & B move in parallel tracks. Train A moves due north with 20 m/s & train B moves due south with 10 m/s. If total length of both trains is 900 m, then crossing time is :

- 20 s
 - 10 s
 - 30 s
 - 40 s
- From Laplace correction, formula for speed of sound in gaseous medium at constant temperature is $v = \sqrt{\frac{\gamma P}{\rho}}$, where γ is adiabatic constant, P is pressure and ρ is density. If speed of sound in gas is v at pressure P, then speed of sound when pressure becomes 4P at same temperature is :
 - 2v
 - $\sqrt{2} v$
 - v
 - 4v
- In the following figure, the diodes which are forward biased, are :-

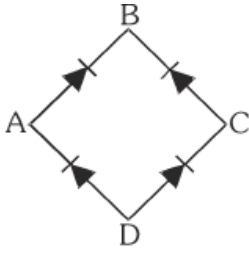


- (a), (b) and (d)
 - (c) only
 - (a) and (c)
 - (b) and (d)
- Which of the curves shown in the figure represents variation of speed (v) of the electron in a hydrogen atom as a function of the principal quantum number (n)?

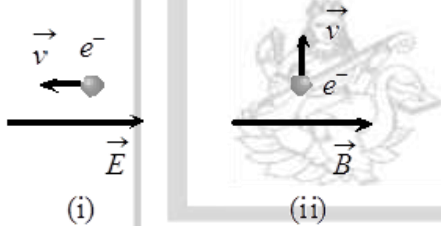


- A
 - B
 - C
 - D

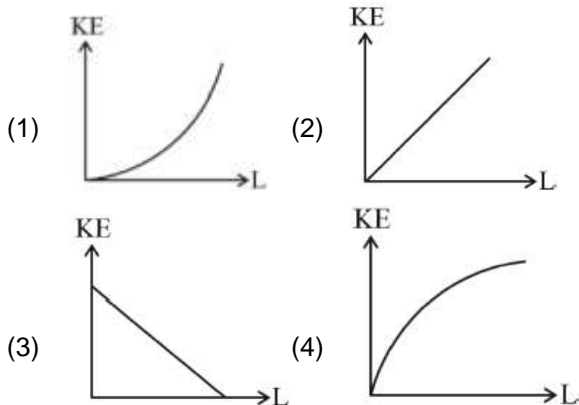
9. In the figure, if input AC signal is applied across A and C and output is taken across B and D, then the output is :



- (1) zero (2) same as input
 (3) full wave rectified (4) half wave rectified
10. A black body at 1227°C emits radiations with maximum intensity at a wavelength of 5000 Å. If the temperature of the body is increased by 1000°C, the maximum intensity will be observed at
- (1) 3000 Å (2) 5000 Å
 (3) 6000 Å (4) 4000 Å
11. An electron is moving through a field. It is moving (i) opposite to an electric field (ii) perpendicular to a magnetic field as shown in the figure. For each situation the de-Broglie wavelength of electron :-



- (1) Increasing, increasing
 (2) Increasing, decreasing
 (3) Decreasing, remain same
 (4) Remain Same, Remain Same
12. If axis of rotation is fixed for a rigid body, then the graph between rotational kinetic energy (KE) and angular momentum (L) will be.



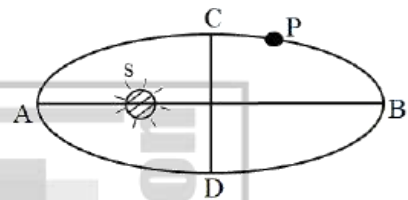
13. For an EM-wave, at a certain point and instance, the direction of electric field and magnetic field are respectively along +y and -z. What will be the direction of wave propagation?

- (1) \hat{k} (2) $-\hat{k}$
 (3) \hat{i} (4) $-\hat{i}$

14. A long solenoid carrying current produces a magnetic field B along its axis. If the current is doubled and the number of turns per cm is halved, the new value of magnetic field :-

- (1) 4B (2) B
 (3) B/2 (4) 2B

15. Figure shows the orbit of planet P moving around the sun S. AB & CD are the major and minor axis respectively. If U is the P.E. and K is the K.E., then $|U| > |K|$ at



- (1) Only at A
 (2) Only at B
 (3) At both A & B
 (4) Neither at A, nor at B

16. The magnitude of the gravitational field at distance r_1 & r_2 from the centre of a uniform sphere of mass M and radius R are F_1 & F_2 respectively.

Then, choose the incorrect option :-

- (1) $F_1 \propto \frac{1}{r_1^2}$ ($r_1 < R$)
 (2) $F_1 \propto r_1$ ($r_1 < R$)
 (3) $F_2 \propto \frac{1}{r_2^2}$ ($r_2 > R$)
 (4) $F_2 \propto r_2$ ($r_2 < R$)

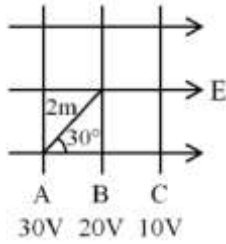
17. Two temperature scales X and Y are related by $\frac{X - 42^\circ}{110^\circ} = \frac{Y - 72^\circ}{220^\circ}$. The two scales will have the same numerical reading:

- (1) -42° (2) -72°
 (3) $+12^\circ$ (4) -40°

18. The mass of an H_2 molecule is 3.32×10^{-27} Kg. If 10^{23} molecules strike elastically per second to a fixed wall of area 2 cm^2 with speed of 10^3 m/s at an angle of 45° to the normal and rebound, then the pressure on the wall (in N/m^2) is nearly:-

- (1) 2.35×10^3 (2) 4.70×10^3
 (3) 2.35×10^2 (4) 4.7×10^2

19. Find the magnitude of uniform electric field in given diagram.



- (1) $10\sqrt{3} \text{ N/C}$ (2) $5\sqrt{5} \text{ N/C}$
 (3) $\frac{10}{\sqrt{3}} \text{ N/C}$ (4) $\frac{5}{\sqrt{3}} \text{ N/C}$

20. A conducting sphere of radius 'R' is uniformly charged. Electric field at 'R' distance from the surface of sphere is 'E'. Find the electric field at $\frac{R}{3}$ distance inside, from the surface :

- (1) Zero (2) E N/C
 (3) $2E \text{ N/C}$ (4) $\frac{E}{2} \text{ N/C}$

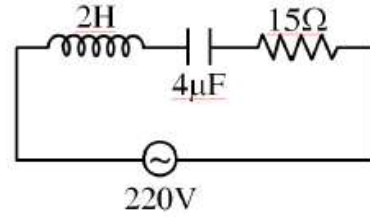
21. Two sources of light of wavelength 5000 \AA and 7500 \AA are used in Young's double slit experiment simultaneously. Which of the following orders of bright fringe of two wavelength pattern coincide?

- (1) 3rd order of 1st source and 5th order of the 2nd source
 (2) 2nd order of 1st source and 3rd order of the 2nd source
 (3) 3rd order of 1st source and 2nd order of the 2nd source
 (4) 5th order of 1st source and 3rd order of the 2nd source

22. When the angle of refraction of a light beam in the medium is 30° and the reflected ray is completely polarised, unpolarised light is incident on a surface of transparent medium at angle of :-

- (1) 30° (2) 45°
 (3) 60° (4) 90°

23. The value of effective currents flowing in the circuit at frequencies $f = 0$ and $f = \infty$ will be respectively –



- (1) 10A, 0A (2) 0A, 10A
 (3) 5A, 0A (4) 0A, 0A

24. Which of the following combinations of three different physical quantities P, Q, R can never be a meaningful quantity?

- (1) $PQ - R$ (2) $\frac{PQ}{R}$
 (3) $\frac{(P-Q)}{R}$ (4) $\frac{(PR-Q^2)}{QR}$

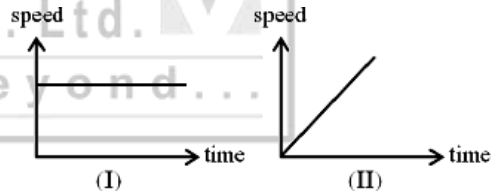
25. Find the maximum possible percentage error in Z, if

$$Z = \frac{A^2}{B^3} \sqrt{\frac{C}{D}}$$

(Given that percentage error in measurement of A, B, C & D is 2%, 1%, 4% and 2% respectively)

- (1) 2% (2) 10%
 (3) 8% (4) 4%

26. Based on the information provided in the graph shown below, identify the type of circular motion.



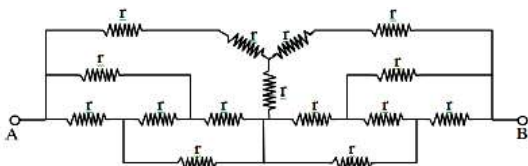
- (1) I-Uniform circular motion, II-Non-uniform circular motion
 (2) I-Non-uniform circular motion, II-Uniform circular motion
 (3) I-Uniform circular motion, II-Uniform circular motion
 (4) I-Non-uniform circular motion, I-Non-uniform circular motion

27. An object is placed transversely on the axis of a convex lens, its real image is formed at 80 cm from the object, the magnification is 3. The focal length of the lens is :

- (1) 15 cm (2) 20 cm
 (3) 40 cm (4) 45 cm

28. When a telescope is in normal adjustment, the distance of the objective from the eye piece is 100 cm and the magnifying power is 24. The focal length of the lenses are :
- (1) 96 cm, 4 cm
 - (2) 90 cm, 10 cm
 - (3) 72 cm, 3 cm
 - (4) 80 cm, 20 cm
29. The isotopic mass of ${}^7_3\text{Li}$ is 7.016005 u and those of H-atom and neutron are respectively, 1.007825 u and 1.008665 u. Then, the binding energy of the Li-nucleus is -
- (1) 5.6 MeV
 - (2) 39.2 MeV
 - (3) 0.042 MeV
 - (4) 8.8 MeV
30. Two capacitor each having a capacitance $4\mu\text{F}$ and breakdown voltage 10 V are joined in series. The effective capacitance and maximum working voltage of the combination is :-
- (1) $4\mu\text{F}$, 10 V
 - (2) $8\mu\text{F}$, 10 V
 - (3) $8\mu\text{F}$, 20 V
 - (4) $2\mu\text{F}$, 20 V
31. A student measured the length of a rod and wrote it as 3.50 cm. Which instrument did he use to measure it?
- (1) A screw gauge having 100 divisions in the circular scale and pitch as 1 mm.
 - (2) A screw gauge having 50 divisions in the circular scale and pitch as 1 mm.
 - (3) A meter scale.
 - (4) A vernier callipers, where the 10 divisions in vernier scale matches with 9 division in main scale and main scale has 10 divisions in 1 cm.

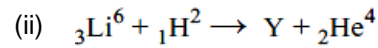
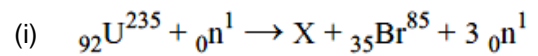
32. Equivalent resistance between A and B is



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

33. When a monochromatic point source of light is at a distance of 0.2 m from a photo-electric cell, the stopping potential and the saturation current are respectively 0.6 volt and 18.0 mA. If the same source is placed 0.6 m away from the photoelectric cell, then :-
- (a) The stopping potential will be 0.2 volt
 - (b) The stopping potential will be 0.6 volt
 - (c) The saturation current will be 6.0 mA
 - (d) The saturation current will be 2.0 mA
- (1) a, c
 - (2) a, d
 - (3) b, c
 - (4) b, d

34. Consider the following two reactions, then atomic number and mass number of nucleus X and Y :-



- (1) (i) 57, 148 (ii) 2, 4
- (2) (i) 57, 151 (ii) 4, 4
- (3) (i) 60, 148 (ii) 4, 2
- (4) (i) 60, 15 (ii) 3, 4

35. Select the correct alternatives :

In pure rolling motion,

- (I) Static frictional force may be zero.
- (II) Direction of static frictional force may be forward or backward.
- (III) On smooth horizontal surface, pure rolling motion is possible.
- (IV) Work done by static friction is zero on fixed horizontal surface.

- (1) Only I
- (2) Both I & II
- (3) Both II & IV
- (4) I, II, III & IV

36. **Statement I:** When a girl sitting on a swing, stands up, the time period of swing will increase.

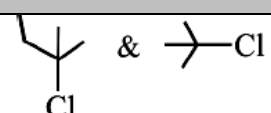
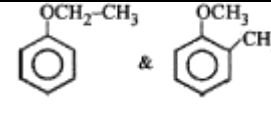
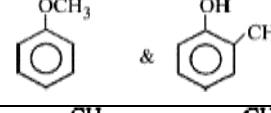
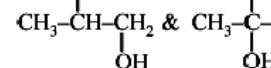
Statement II: In standing position, the effective length of swing decreases.

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

37. A straight magnetic strip has a magnetic moment of 44 Am . If the strip is bent in a semicircular shape its magnetic moment (in Am) will be :-

- (1) 8
- (2) 16
- (3) 28
- (4) 56

46. Match the column I with column II.

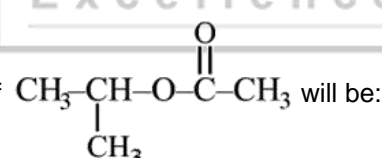
	Column-I (Compounds)		Column-II (Relation)
(i)		(P)	Homologues
(ii)		(Q)	Functional group isomers
(iii)		(R)	Metamers
(iv)		(S)	Position isomers

- (1) (i) → R; (ii) → S; (iii) → Q; (iv) → P
 (2) (i) → P; (ii) → Q; (iii) → R; (iv) → S
 (3) (i) → P; (ii) → R; (iii) → Q; (iv) → S
 (4) (i) → S; (ii) → R; (iii) → Q; (iv) → P

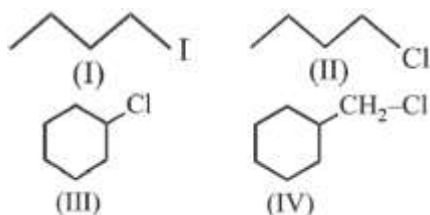
47. **Statement I:** Silica gel and alumina are used as adsorbent for adsorption chromatography.**Statement II:** Paper chromatography is a type of partition chromatography.

In the light of above statements, select the correct option.

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

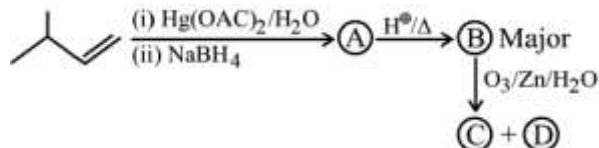
48. Common name of  will be:-

- (1) Methyl propionate
 (2) Isopropyl acetate
 (3) Isopropyl acetic acid
 (4) Isopropyl ethanoate

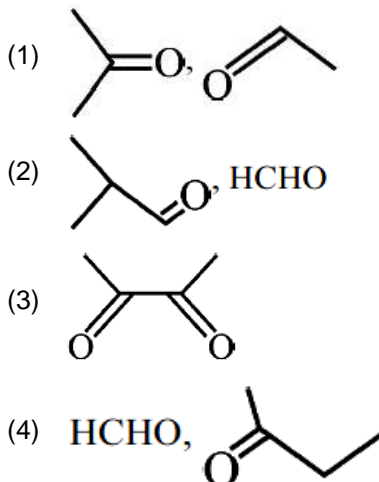
49. Which of the following haloalkanes will undergo S_N2 reaction at fastest rate.

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

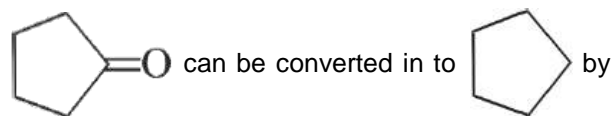
50.



C and D are :-



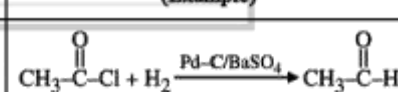
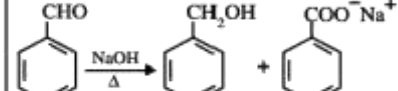

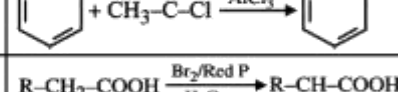
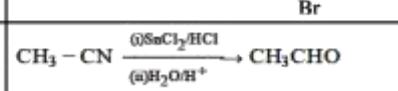
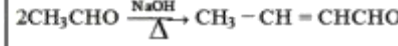
51.



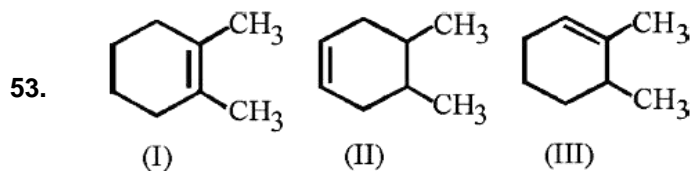
:-

- (1) Red P + HI
 (2) Wolff Kishner reduction
 (3) Clemmensen reduction
 (4) All

52. Match the complete given in Column I with the name of the reaction in Column II and find which is/are correct match

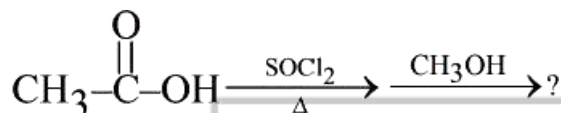
	Column I (Example)	Column II (Reaction)
(a)		Stephen's reaction
(b)		Cannizzaro's reaction
(c)		Friedel Crafts alkylation
(d)		HVZ reaction
(e)		Rosenmund's reduction
(f)		Aldol condensation

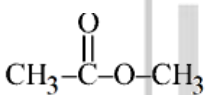
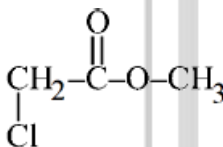
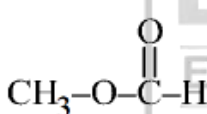
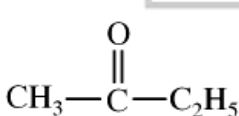
- (1) b, c, d, f (2) b, d, f
 (3) a, b, d, f (4) b, c, d, e, f



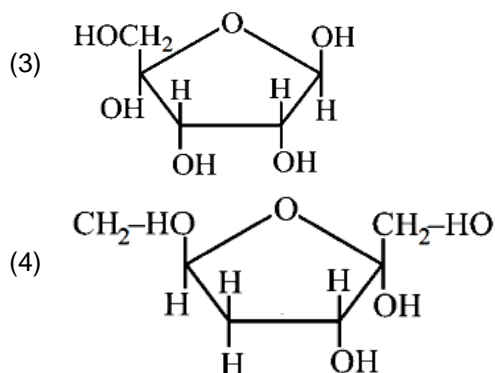
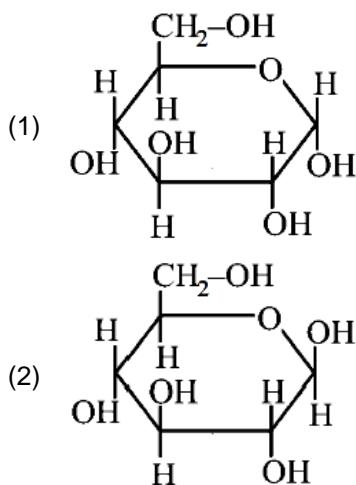
Which of the following orders is correct for heat of hydrogenation of these compounds?

- (1) I > II > III (2) III > II > I
 (3) II > III > I (4) III > I > II
54. α H containing aldehyde and ketone reacts with dil NaOH and gives β -hydroxy aldehyde or ketone, is called -
- (1) Aldol condensation
 (2) Aldol reaction
 (3) Canizzaro reaction
 (4) HVZ reaction
55. What is the major organic product obtained from the following sequence of reactions?

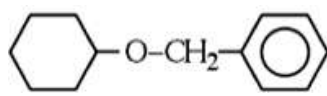


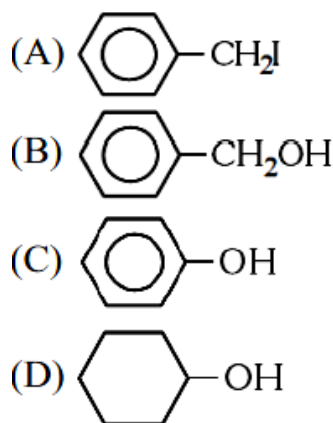
- (1) 
- (2) 
- (3) 
- (4) 

56. Which of the following is structure of β -D-Glucopyranose?



57. Methylamine on treatment with chloroform and ethanolic caustic alkali gives foul smelling compound, the compound is
- (1) CH_3NCO (2) CH_3CNO
 (3) CH_3CN (4) CH_3NC
58. Which of the following compounds are arranged in order of decreasing reactivity towards electrophilic substitution
- (1) Fluorobenzene > chlorobenzene > bromobenzene
 (2) Phenol > n-propyl benzene > benzoic acid
 (3) Chlorotoluene > nitrobenzene > Benzene
 (4) Benzoic acid > phenol > n-propyl benzene
59. Consider the following methods :-
 I : Hydration of olefins
 II : Hydrolysis of alkyl halide
 III : Reduction of carbonyl compounds
 Which of these can be used to prepare alcohols?
- (1) I, II and III (2) I and II
 (3) II and III (4) I and III

60. The ether  when treated with HI produces :-



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

61. Which of the following is incorrect statement about PCl_5 .
- (1) P – Cl (Bond Length) = axial > equatorial.
 - (2) PCl_5 is $\text{sp}^3 \text{d}$ hybrid molecule.
 - (3) Axial P - Cl bonds are weaker than that of equatorial P – Cl bonds.
 - (4) PCl_5 is non reactive molecule.

62. Which of the following is incorrect statement :-
- (1) ICl is ionic compound.
 - (2) Cl-Cl bond is stronger than Br-Br bond.
 - (3) ICl is polar covalent molecule while Br is non polar
 - (4) Ionisation energy of Iodine is less than that of Br.

63. Match the following :

	Pair of species		Identical property
A.	B_2 & O_2	P.	Bond order = 2.5
B.	Be_2 & H_2^{2-}	Q.	Paramagnetic nature
C.	N_2^+ & N_2^-	R.	Diamagnetic nature
D.	O_2^+ & O_2^-	S.	Doesn't exist

- (1) (A) – (Q), (B) – (S), (C) – (P, Q), (D) – (Q)
 - (2) (A) – (P, Q), (B) – (Q), (C) – (R, S), (D) – (Q)
 - (3) (A) – (R, S), (B) – (P, Q), (C) – (Q, R), (D) – (P)
 - (4) (A) – (S), (B) – (Q), (C) – (R), (D) – (P, R)
64. Which of the following species is not stable?

- (1) $[\text{Sn}(\text{OH})_6]^{2-}$
- (2) $[\text{SiCl}_6]^{2-}$
- (3) $[\text{SiF}_6]^{2-}$
- (4) $[\text{GeCl}_6]^{2-}$

65. Match the column

List-I		List-II	
Elements		colour imparted to the flame	
A.	K	I.	Brick Red
B.	Ca	II.	Violet
C.	Sr	III.	Apple Green
D.	Ba	IV.	Crimson Red

Choose the correct answer from the options given below

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

66. Given below are certain cations. Using inorganic qualitative analysis, arrange them in increasing group number from 0 to VI.

- Al^{3+}
- Cu^{2+}
- Ba^{2+}
- Co^{2+}
- Mg^{2+}

Choose the correct answer from the options given below:

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

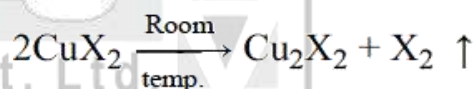
67. The gas which turn lime water milky is :

- (1) CO_2
- (2) SO_2
- (3) NO_2
- (4) Both (1) and (2)

68. Highest stable Mn fluoride is MnF_4 where as highest Mn oxide is Mn_2O_7 due to–

- (1) O atom is smaller the F.
- (2) Oxygen has ability to form multiple bonds
- (3) Mn^{7+} does not exist
- (4) F can not-stabilise higher oxidation states.

69. Consider the following transformation



Then X^- can be :

- (1) F^- , I^-
- (2) Cl^- , Br^-
- (3) CN^- , I^-
- (4) Cl^- , F^- , Cl , F

70. Select incorrect statement about lanthanides.

- (1) All the lanthanides are non-radioactive (except Pm)
- (2) All the lanthanides have $6s^2$ configuration in outermost shell
- (3) Most stable oxidation number is +3
- (4) Lanthanum has $[\text{Xe}]4f^1 6s^2$ configuration

71. Which of the following complex is not a chelate complex?

- (1) bis(dimethylglyoximato)nickel(II)
- (2) potassium ethylenediaminetetrathiocyanato chromate (III)
- (3) tetraminediazidocobalt(III) nitrate
- (4) trans-diglycinatoplatinum(II)

72. Which gives only one mole of AgCl, when reacts with excess AgNO₃ :-
- (1) One mole PtCl₄ .4NH₃
 - (2) One mole PtCl₄ .5NH₃
 - (3) One mole PtCl₄ .2NH₃
 - (4) One mole PtCl₄ .3NH₃
73. Which one is a Homoleptic complex?
- (1) Wilkinson catalyst
 - (2) Prussian blue
 - (3) Brown ring complex
 - (4) cis-platin
74. **Assertion:** There is large difference between the melting and boiling point of O & S.
Reason: It can be explained on the basis of their atomicity in O and S molecules.
- (1) Both (A) and (R) are correct and (R) is the correct explanation of (A).
 - (2) (A) is correct but (R) is incorrect.
 - (3) (A) is incorrect but (R) is correct.
 - (4) Both (A) and (R) are correct but (R) is not the correct explanation of (A).
75. Which of following statement is incorrect :
- (1) Lithium and Magnesium exhibit diagonal relationship
 - (2) Elements of groups 1, 2, 13, 14, 15, 16 and 17 are known as representative elements
 - (3) In 5th period, the subshells 5s, 4f, 4d, 5p would be filled
 - (4) General configuration of f-Block elements is $(n-2)f^{1-14} (n-1)d^{0-1} ns^2$
76. Rate constant varies with temperature by the equation $\log k = 5 - \frac{2000}{T}$. We can conclude that $(R = 8.314 \text{ J mol}^{-1} \text{ K}^{-1})$:-
- (1) Pre exponential factor A is 5
 - (2) E_a is 4 kcal/mol
 - (3) Pre exponential factor A is 10⁵
 - (4) E_a is 19.212 kcal/mol
77. For the reaction $3A + 2B \rightarrow C$, which statement is correct :-
- (1) Rate of formation of C is three times of rate of disappearance of A
 - (2) Rate of disappearance of B is 3/2 times of rate of disappearance of A
 - (3) Rate of disappearance of A is 3/2 times of rate of disappearance of B
 - (4) Rate of disappearance of B is half of the rate of formation of C
78. Resistance of a decimolar solution between two electrodes 0.02 meter apart and 0.0004 m² in area was found to be 50 ohm. Specific conductance (k) is :-
- (1) 0.1 S m⁻¹
 - (2) 1 S m⁻¹
 - (3) 10 S m⁻¹
 - (4) 4 × 10⁻⁴ S m⁻¹
79. Calculate the emf of the cell :
Cr | Cr³⁺ (0.1 M) || Fe²⁺ (0.01 M) | Fe
Given :
 $E_{\text{Cr}^{3+}/\text{Cr}}^0 = -0.75\text{V}$; $E_{\text{Fe}^{2+}/\text{Fe}}^0 = -0.45\text{V}$
Cell reaction :
 $2\text{Cr}(s) + 3\text{Fe}^{2+}(\text{aq.}) \rightarrow 2\text{Cr}^{3+}(\text{aq.}) + 3\text{Fe}(s)$
- (1) 0.2606 V
 - (2) 0.5212 V
 - (3) 0.1303 V
 - (4) Zero
80. What will be the products obtained at Cathode and anode respectively, on electrolysis of aqueous solution of AgNO₃ with platinum cathode and silver anode :-
- (1) O₂, Ag
 - (2) A[⊕] g, Ag
 - (3) A[⊕] g, H₂
 - (4) Ag, A[⊕] g
81. V₁ c.c. of solution having molarity M₁ is diluted to have molarity M₂. The volume of water required to be added will be :-
- (1) $\left(\frac{M_2 - M_1}{M_1}\right)V_1$
 - (2) $\left(\frac{M_1 - M_2}{M_2}\right)V_1$
 - (3) $\left(\frac{M_1}{M_2 - M_1}\right)V_1$
 - (4) $\left(\frac{M_2}{M_2 - M_1}\right)V_1$
82. If two substances A and B have PA° : PA° = 1 : 2 and have mole fraction in solution in the ratio 1 : 2 then mole fraction of A in vapour phase :-
- (1) 0.33
 - (2) 0.25
 - (3) 0.20
 - (4) 0.52
83. NH₃ is produced according to the following reaction
 $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$. In an experiment 0.25 mol of NH₃ is formed when 0.5 mol of N₂ is reacted with 0.5 mol of H₂. What is % yield?
- (1) 75%
 - (2) 55%
 - (3) 33%
 - (4) 25%

84. The energy of separation of an electron in a Hydrogen atom in excited state is 3.4 eV. The de-Broglie wavelength (in Å) associated with the above electron is, if radius of first orbit of H-atom is 0.53Å
- (1) 3.33
 - (2) 6.66
 - (3) 13.31
 - (4) 4.2
85. At 200°C, nitric oxide reacts with oxygen to form nitrogen dioxide as follows :
- $$2\text{NO} + \text{O}_2 \rightleftharpoons 2\text{NO}_2, K_C = 3 \times 10^6$$
- In a mixture of the three species at equilibrium, we can accurately predict that
- (1) The concentration of both NO and O₂ will be much larger than the concentration of NO₂
 - (2) The concentrations of both NO and O₂ will be equal to concentration of NO.
 - (3) The concentrations of either NO or O₂ (or possibly both) will be much smaller than the concentration of NO₂
 - (4) The concentration of O₂ will be exactly one half the concentration of NO
86. Ionization constants for CH₃COOH and HCN are respectively 1.8×10^{-5} and 7.2×10^{-10} . The degree of hydrolysis of 0.1 M KCN(h₁) and 0.1 M CH₃COOK (h₂) follows the order :
- (1) h₁ = h₂
 - (2) h₁ < h₂
 - (3) h₁ > h₂
 - (4) None of these
87. In the following reaction
- $$\text{HCO}_3^- + \text{H}_2\text{O} \rightleftharpoons \text{CO}_3^{2-} + \text{H}_3\text{O}^+$$
- Which two substances are Bronsted bases?
- (1) CO₃²⁻ and H₃O⁺
 - (2) HCO₃⁻ and H₃O⁺
 - (3) HCO₃⁻ and CO₃²⁻
 - (4) CO₃²⁻ and H₂O
88. For the ionic reaction :
- $$X \text{BrO}_3^- + Y \text{Cr}^{+3} + Z \text{H}_2\text{O} \rightarrow p\text{Br}_2 + q\text{HCrO}_4^- + r\text{H}^+$$
- (1) X = 6, Y = 10, Z = 20
 - (2) X = 6, Y = 10, Z = 11
 - (3) X = 6, Y = 10, Z = 22
 - (4) X = 6, Y = 8, Z = 22
89. The value of ΔH_{transition} of C (graphite) → C (diamond) is 1.9 kJ/mol at 25°C. Entropy of graphite is higher than entropy of diamond. This implies that which of the following is incorrect :-
- (1) C(diamond) is thermodynamically more stable than C (graphite) at 25°C
 - (2) Thermal conductivity of diamond is greater than graphite
 - (3) diamond will provide more heat on complete combustion at 25°C
 - (4) ΔG_{transition} of C (diamond) → C (graphite) is -ve at low temperature
90. A gas is allowed to expand in a insulated container against a constant external pressure of 10 atm from an initial volume 4.2 L to 5.2 L. The change in internal energy ΔE of the gas will be :-
- (1) +1013 J
 - (2) +10 atm. L
 - (3) -1013 atm. L
 - (4) -1013 J

91. In some cereals such as Rice and wheat, pollen grains lose viability within _____ of their release.

- (1) 30 minutes (2) 60 minutes
(3) 1 Month (4) 1 year

92. In *Zostera* pollination takes place through _____

- (1) Wind (2) Water
(3) Animals (4) Insects

93. Male honey bee produce sperms by __a__. Morgan coined the term __b__ to describe the physical association of genes on a chromosome.

- (1) a-meiosis, b-recombination
(2) a-meiosis, b-linkage
(3) a-mitosis, b-linkage
(4) a-mitosis, b-recombination

94. Which of the following is incorrect regarding human skin colour?

- (1) AABBCC genotype - Darkest skin colour
(2) AaBbCc genotype - Darkest skin colour
(3) aabbcc genotype - Lightest skin colour
(4) AaBbCc genotype - Intermediate skin colour

95. **Statement-I:** Besides the involvement of multiple genes polygenic inheritance also takes into account the influence of environment.

Statement-II: Mendelian disorders are caused due to absence or excess or abnormal arrangement of one or more chromosomes.

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

96. Fill in blanks (A) and (B).

The presence of __A__ is reminiscent of antiquity and the process of splicing represents the dominance of __B__.

- (1) A - Introns, B - DNA world
(2) A - Introns, B - RNA world
(3) A - Exons, B - RNA world
(4) A - Exons, B - DNA world

97. Match the Column-I and Column-II choose the correct options given.

Column-I		Column-II	
a	1° Producer	i.	Grasshopper
b	1° Consumer	ii.	Wolf
c	2° Consumer	iii.	Man
d	3° Consumer	iv.	Phytoplankton

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

98. **Assertion:** The total estimated cost of the human genome project was approximately 9 billion US dollars.

Reason: Human genome is said to have approximately 3×10^9 bps and cost of sequencing was 3 US dollar per bp.

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

99. Read the given following statements:

- (a) It is now proven that DNA replicates semi conservatively.
(b) Heavy DNA molecule (N^{15}) could be distinguished from the normal DNA (N^{14}) by centrifugation in a cesium chloride (CsCl) density gradient.
(c) In living cells, such as *E. coli*, the process of replication requires a set of catalysts (enzymes).
(d) In *E. coli*, the process of DNA replication completes within 28 minutes.
(e) Any mistake during replication would result into mutations.

Choose the correct answer from the options given below:

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

100. When pure round and yellow seeded pea plant (RRYY) is crossed with wrinkled and green seed pea plant (rryy), and the F progeny is test crossed then what phenotypic ratio will be obtained :-
- (1) 9 : 3 : 3 : 1
 - (2) 1 : 2 : 1 : 2 : 4 : 2 : 1 : 2 : 1
 - (3) 1 : 1
 - (4) 1 : 1 : 1 : 1
101. Which of the following is not correct about translation?
- (1) It start with AUG
 - (2) Stops at termination codon
 - (3) Occur in cytoplasm
 - (4) Occur in nucleus
102. Mycorrhizae are example of mutualism. The fungi help the plant in the absorption of essential _____ from the soil while the plant in turn provides the fungi with energy - yielding _____.
- (1) Carbohydrate, Chemical
 - (2) Nutrients, Nucleic acid
 - (3) Carbohydrate, Nutrients
 - (4) Nutrients, Carbohydrates
103. Which codon has dual functions?
- (1) UUU
 - (2) UUC
 - (3) UGG
 - (4) AUG
104. **Statement I:** $\frac{dN}{dt} = rN \left(\frac{k-N}{k} \right)$ represents logistic growth.
- Statement II:** Since resources for growth for most animal populations are finite and become limiting sooner or later, the logistic growth model is considered a more realistic one.
- In the light of above statements, choose the correct answer from the options given below.
- (1) Statement I is correct and Statement II is incorrect.
 - (2) Statement I is incorrect and Statement II is correct.
 - (3) Both Statement I and Statement II are correct.
 - (4) Both Statement I and Statement II are incorrect.
105. Read the following statements w.r.t. biological treatment of sewage.
- a. Involves removal of sewage through sequential filtration.
 - b. BOD of waste water is directly proportional to its polluting potential.
 - c. Constant agitation of primary effluent is carried out in large aeration tanks.
- Identify the **incorrect** statement(s)
- (1) b and c
 - (2) a and c
 - (3) Only a
 - (4) Only b
106. The IUCN Red list (2004) documents the extinction of ___A___ species (including ___B___ vertebrates, ___C___ invertebrates and ___D___ plants) in the last 500 years.
- (1) A=784, B=338, C=359, D=87
 - (2) A=338, B=784, C=87, D=359
 - (3) A=784, B=359, C=338, D=87
 - (4) A=784, B=338, C=359, D=187
107. Match the following Column-I with Column-II :
- | Column-I | | Column-II | |
|----------|---------------------|-----------|--|
| A. | Detritus food chain | (i) | Detritivores break down detritus into smaller particles |
| B. | Grazing food chain | (ii) | Bacterial and fungal enzymes degrade detritus into simpler inorganic substance |
| C. | Fragmentation | (iii) | Major conduit for energy flow in aquatic ecosystem |
| D. | Catabolism | (iv) | Major conduit for energy flow in terrestrial ecosystem |
- (1) A - (iv), B - (iii), C - (i), D - (ii)
 - (2) A - (iv), B - (iii), C - (ii), D - (i)
 - (3) A - (iii), B - (iv), C - (i), D - (ii)
 - (4) A - (iii), B - (iv), C - (ii), D - (i)
108. Which enzyme is used to convert pyruvic acid to lactic acid?
- (1) Pyruvic acid Decarboxylase
 - (2) Lactate Dehydrogenase
 - (3) Alcohol Dehydrogenase
 - (4) Pyruvate Dehydrogenase

109. Which of the following statement is correct?
- (a) Predators are prudent in nature.
 - (b) In Amensalism one species is harmed whereas the other is benefitted.
 - (c) Darwin was convinced that interspecific competition is a potent force in organic evolution.
 - (d) The human liver fluke depends on two intermediate hosts to complete its life cycle.
- (1) a, c, d (2) b, c, d
 (3) a, b, c (4) a and b

110. Match the column-I with column-II & give the answer.

Column-I (Common Name)		Column-II (Order)	
(I)	Man	(a)	Diptera
(II)	House fly	(b)	Poales
(III)	Wheat	(c)	Primata
(IV)	Mango	(d)	Sapindales

- (1) (I)-(a), (II)-(b), (III)-(c), (IV)-(d)
 (2) (I)-(c), (II)-(a), (III)-(b), (IV)-(d)
 (3) (I)-(c), (II)-(b), (III)-(a), (IV)-(d)
 (4) (I)-(a), (II)-(b), (III)-(d), (IV)-(c)
111. How many of the following disorders are autosomal recessive :
 Haemophilia, cystic fibrosis, sickle cell anaemia, colourblindness, phenylketonuria, Myotonic dystrophy, thalassemia.
 Choose the correct option :
- (1) Three (2) Five
 (3) Four (4) Six
112. The science of cultivation, breeding and marketing of flower is?
- (1) Floriculture (2) Tissue culture
 (3) Hydrophily (4) Apiculture
113. In the scientific nomenclature:
- (1) First letters in genus and specific epithet is capital.
 - (2) Generic name written after specific epithet.
 - (3) Both genus & specific epithet are printed in italics.
 - (4) Both genus & specific epithet written just after the authors name.

114. Who noted that the behaviour of chromosomes was parallel to the behaviour of gene :-
- (1) Mendel
 - (2) Morgan
 - (3) Sutton and Boveri
 - (4) Henking

115. Read the following statements w.r.t. PCR
- a. It can be used for early diagnosis of pathogens.
 - b. Used to detect mutations in genes in suspected cancer patients.
 - c. Denaturation, annealing and extension of primers occur at same temperature.
 - d. Only thermostable polymerases are usable in PCR

How many of the above statements are correct?

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

116. **Assertion (A):** In gymnosperms the female gametophytes do not have an independent free living existence.

Reason (R): In gymnosperms female gametophytes remain within the sporangia retained on sporophyte.

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

117. Match the column-I with column-II and select correct option :

Column-I		Column-II	
A.	Dinoflagellates	I.	Plasmodium
B.	Diatoms	II.	Longitudinal and transverse flagella
C.	Euglenoids	III.	Presence of silica in cell wall
D.	Slime moulds	IV.	Pellicle

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

118. In *Cycas*-
- (1) Male cones and female strobili may be borne on the same tree
 - (2) Male cones and female strobili may be borne on the different tree
 - (3) Male cones and megasporophylls are borne on different trees
 - (4) Male cones and megasporophylls are borne on same trees

119. Which of the following hormone is widely applied in tea plantations and hedge making?
- (1) Cytokinin
 - (2) Auxin
 - (3) Gibberellic acid
 - (4) Ethylene

120. Match the column I with column II

	Column I		Column II
a.	3-phosphoglyceric acid	i.	First stable product in C_3 cycle
b.	Oxalo-acetic acid	ii.	First stable product in C_4 cycle
c.	RuBP	iii.	Primary CO_2 acceptor in C_3 cycle
d.	Phosphoenol pyruvate	iv.	Primary CO_2 acceptor in C_4 cycle

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

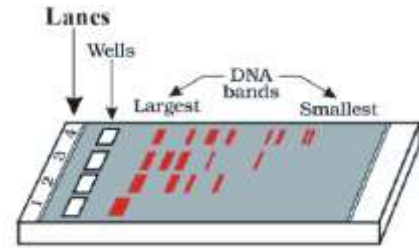
121. Find the correct statement

- (A) Light saturation for CO_2 fixation occurs at 10% of full sunlight
 - (B) PEP is the primary CO_2 acceptor in C_4 plants
 - (C) Z-scheme of light reaction takes place in presence of PS-I only
 - (D) Grana lamellae have both PS-I and PS-II
- (1) A, B, C, D
 - (2) B, C, D
 - (3) A, B, D
 - (4) A and B

122. In C_4 plants malic acid or aspartic acid (4C) formed in ___(a)___ cells are transported to ___(b)___ cells.

- (1) (a) mesophyll (b) bundle sheath
- (2) (a) bundle sheath (b) mesophyll
- (3) (a) mesophyll (b) mesophyll
- (4) (a) bundle sheath (b) bundle sheath

123. In following figure of gel electrophoresis which lane is showing undigested set of DNA sample?



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

124. Which of the following PGR promote nutrient mobilisation which helps in the delay of leaf senescence?

- (1) Auxin
- (2) Cytokinin
- (3) Ethylene
- (4) Abscisic acid

125. **Assertion:-** Cytochrome c is a small protein attached to the outer surface of the inner mitochondrial membrane.

Reason:- Cytochrome c act as a mobile carrier for transfer of electrons between complex – III and IV.

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

126. Read the following statements carefully.

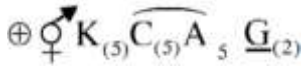
- (I) Ethephon hastens fruit ripening in tomatoes and apples.
- (II) Ethylene is one of the most widely used PGR in agriculture.
- (III) Kinetin does not occurs naturally in plants.
- (IV) 2,4-D, widely used to kill monocotyledonous weeds, does not affect mature dicotyledonous plants.
- (V) ABA plays an important role in seed development, maturation and dormancy.
- (VI) Auxin was isolated by E. Kurosawa from tips of coleoptiles of oat dormancy.

- (1) only I,II,III are correct
- (2) only I,II,IV,V are correct
- (3) only IV,VI are incorrect
- (4) only III,IV,V are incorrect

127. In which of the following plant have Hypogynous flower with parietal placentation.

- (1) Plum (2) Apple
(3) Mustard (4) Cucumber

128. Given floral formula is related to which plant :-



- (1) Makoi (2) Onion
(3) Pea (4) Mustard

129. Monoadelphous condition of stamen and actinomorphic symmetry of flower is found in :-

- (1) Brinjal (2) Citrus
(3) Pea (4) China rose

130. Which layer of dicot root is responsible for initiation of lateral roots and vascular cambium during the secondary growth?

- (1) Hypodermis (2) Cortex
(3) Endodermis (4) Pericycle

131. Arrange the following layers in young dicot stem from outside to inside :

- (A) Hypodermis (B) Cortex
(C) Pericycle (D) Endodermis
(E) Pith

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

132. The hypodermis of monocot stem consist of :-

- (1) Parenchymatous cells
(2) Collenchymatous cells
(3) Meristematic cells
(4) Sclerenchymatous cells

133. Identify X, Y & Z

Partial pressure	Alveoli	Deoxygenated Blood	Oxygenated Blood	Tissue
pO ₂	'X'	40	95	'Z'
pCO ₂	40	'Y'	40	45

- X Y Z
(1) 104 40 45
(2) 45 40 104
(3) 40 40 104
(4) 104 45 40

134. Which of the following character is not true for given figure:



- (1) Fertilisation is internal
(2) Flame cells help in osmoregulation and excretion
(3) Development is through many larval stages
(4) Sexes are separate

135. In grasses, the guard cells are :-

- (1) Barrel shaped
(2) Kidney shaped
(3) Oval shaped
(4) Dumb-bell shaped

136. The body is externally and internally divided into segments with a serial repetition of at least some organs in

- (1) Hydra (2) Fasciola
(3) Earthworm (4) Pila

137. Which of the following statements is not correct?

- (A) Cyclostomes are marine but migrate for spawning to fresh water.
(B) Over one-third of all named species on Earth are Arthropods.
(C) Platyhelminthes are mostly endoparasites found in animals including human beings.
(D) Respiration in Amphibians is by gills, lungs & skin.

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

138. How many animals in the list given below have radial symmetry :

Obelia, Sponge, Aurelia, Pleurobranchia, Fasciola, Ascaris, Earthworm, Pila, Larva of star fish.

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

139. Multilayered epithelium is not found in -
 (1) Pharynx
 (2) Moist surface of buccal cavity
 (3) Pancreatic duct
 (4) Lining of body cavity
140. Which part gets reduced in the alimentary canal of frog due to its carnivorous nature :
 (1) Oesophagus (2) Intestine
 (3) Buccal cavity (4) Cloaca
141. In non-cyclic photophosphorylation, which of the following is not synthesised.
 (1) ATP (2) NADPH + H⁺
 (3) O₂ (4) Starch
142. **Assertion:** Blood flows in heart only in one direction i.e from atria to ventricles, and then to pulmonary artery or Aorta.
Reason: Opening between atria and ventricles and between ventricles and respective vessels are provided with valves.
 (1) Both (A) and (R) are correct and (R) is the correct explanation for (A)
 (2) (A) is correct but (R) is incorrect
 (3) (A) is incorrect but (R) is correct
 (4) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
143. Donor's group for blood group AB is :-
 (1) 'A'
 (2) 'B'
 (3) 'AB' and 'O'
 (4) All of the above
144. Lungs are covered by a double layered membrane which is called
 (1) Pleural membrane
 (2) Visceral membrane
 (3) Pulmonary membrane
 (4) Parietal membrane
145. If a person drinks excess water, then ADH release will be :
 (1) Stimulated
 (2) Suppressed
 (3) Not affected
 (4) First stimulate then suppressed

146. **Statement-I:** Fibres of the tracts are covered with the myelin sheath, which constitute the outer part of cerebral hemisphere.
Statement-II: The hypothalamus contains a number of centres which control body temperature, respiration and cardiovascular reflexes.
 (1) Both statement-I and statement-II are correct.
 (2) Statement-I is correct but statement-II is incorrect.
 (3) Both statement-I and statement-II are incorrect.
 (4) Statement-I is incorrect but statement-II is correct.
147. Which of the following movements restores the resting potential of the membrane at the site of excitation?
 (1) Na⁺ diffuses outside
 (2) K⁺ diffuses inside
 (3) K⁺ diffuses outside
 (4) Na⁺ diffuses inside
148. Select the correct matching of a hormone, its source and function.

	Hormone	Source	Function
(1)	Norepinephrine	Adrenal medulla	Increases heart beat, rate of respiration and alertness
(2)	Glucagon	Beta-cells of Islets of Langerhans	Stimulates glycogenolysis
(3)	Prolactin	Posterior pituitary	Regulates growth of mammary glands and milk formation in females
(4)	Vasopressin	Posterior pituitary	Increases loss of water through urine

149. Which of the following bones are not included in the axial skeleton?
 (1) Cranial bones (2) Ribs
 (3) Girdle bones (4) Facial bones

150. Which of the following contraceptive methods involve a role of hormone?
- (1) Pills, Emergency contraceptives, Barrier methods.
 - (2) Lactational amenorrhea, Pills, Emergency contraceptives.
 - (3) Barrier method, Lactational amenorrhea, Pills
 - (4) CuT, Pills, Emergency contraceptive

151. Match column-I with Column-II :-

	Column-I		Column-II
(a)	ADH	(i)	Glucocorticoids
(b)	ACTH	(ii)	Mineralocorticoids
(c)	Aldosterone	(iii)	Diabetes mellitus
(d)	Insulin	(iv)	Diabetes insipidus

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

152. Tendons connects

- (1) Skeletal muscles to bone
- (2) Muscles to muscles
- (3) Bone to bone
- (4) Bone to ligament

153. Consider the following four statements (A-D) and select the option which includes all the correct ones only.

- (A) The male sex accessory ducts include rete testis, vasa efferentia, epididymis and vas deferens.
- (B) Leydig cells synthesise and secrete testicular hormones called androgen.
- (C) The female reproductive system is located in the pelvic region.
- (D) Each testis has about 250 compartments called testicular lobules.

Options :

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

154. In which of the following the cell wall has stiff cellulose plate on the outer surface?

- (1) Euglenoids
- (2) Diatoms
- (3) Dinoflagellates
- (4) Desmids

155. Where immature lymphocytes differentiate into antigen sensitive lymphocyte:-

- (1) M.A.L.T
- (2) Primary lymphoid organs
- (3) Secondary lymphoid organs
- (4) Spleen

156. A mass of tissue which is present in left lower corner of right atrium and close to the atrioventricular septum is -

- (1) Sino-atrial node
- (2) Atrio-ventricular node
- (3) Bundie of His
- (4) Purkinje fibres

157. Given below are two statements :-

Statement-I: Natural selection is a process in which heritable variations enabling better survival are enabled to reproduce and leaves greater number of progeny.

Statement-II: Variation result in changed frequency of gene.

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

158. Number of chromatids in chromosome at metaphase is :-

- (1) Two each in mitosis and meiosis
- (2) Two in mitosis and one in meiosis
- (3) Two in mitosis and four in meiosis
- (4) One in mitosis and two in meiosis

159. **Assertion:** Subsequent encounter with the same pathogen elicits a highly intensified anamnestic response.

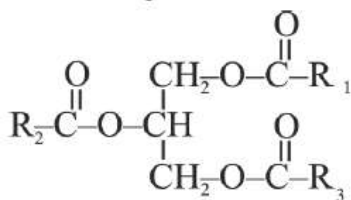
Reason: Acquired immunity is characterised by memory.

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

160. Hardy - Weinberg principle can be defined by following equation :

- (1) $p^2 + 2pq + q^2$ (2) $p^2 + q^2$
 (3) $p^2 - q^2$ (4) $(p^2 + q^2)^2$

161. Following structure represent :-



- (1) Simple fat (2) Compound lipid
 (3) Derived lipid (4) All of the above

162. Which of the following statement is incorrect?

- (A) LH acts on the Leydig cells & stimulates synthesis & secretion of inhibin.
 (B) Inner non-glandular layer called endometrium lines the uterine cavity.
 (C) Sperms are finally released from seminiferous tubules by the process called spermiation.
 (D) Cervical canal along with uterus forms the birth canal.

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

163. Choose the incorrect pair.

- (1) Lipases - Used in detergents for removing oil stains
 (2) Pectinases and proteases - Used in clarifying bottled juices
 (3) Statins - Competitively inhibit the enzyme responsible for cholesterol synthesis
 (4) None of the above

164. Match the column I with column II

	Column-I		Column-II
(A)	Recombinant protein	(I)	Study of disease
(B)	Restriction site	(II)	ADA deficiency
(C)	Gene therapy	(III)	Palindrome
(D)	Transgenic animal	(IV)	Heterologous host

Choose the correct answer from the options given below :

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

165. Transgenic tobacco which is developed through RNA interference, prevent the infection of :-

- (1) A nematode – *Meloidogyne incognita*
 (2) A bacterium – *Thiobacillus*
 (3) A fungi – *Trichoderma*
 (4) A insect – Aphid

166. Identify incorrect match :

- (1) PCR - HIV test
 (2) Probes - Genetic defects
 (3) Conventional method of diagnosis - Urine analysis
 (4) ELISA - Myocardial infarction

167. In which animal fertilisation is external with indirect development :-

- (1) *Spongilla* (2) *Fasciola*
 (3) *Ancylostoma* (4) *Pleurobrachia*

168. Match List-I with List-II.

	List-I		List-II
A.	Cell are metabolically active and proliferate	I.	G ₂ Phase
B.	DNA replication takes place	II.	G ₁ Phase
C.	Proteins are synthesised	III.	G ₀ Phase
D.	Quiescent state with metabolically active cells	IV.	S Phase

Choose the correct answer from the options given below :

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

169. Morphology of chromosomes is most easily studied in :

- (1) Prophase (2) Metaphase
 (3) Telophase (4) Interphase

170. (a) Golgi complex is related to cell secretions.
 (b) Lysosome is the part of endomembrane system.
 (c) Mitochondria is associated with light reaction.
 (d) Ribosome synthesize RNA.

In given statements which of the following are incorrect :-

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

171. Which of the following composition is called biogas?

- (1) CH₄, SO₂, H₂ (2) CH₄, CO₂, H₂
 (3) C₂H₆, CO₂, H₂ (4) CH₄, N₂O, H₂

172. **Assertion (A):** In plants such as bean, gram, pea, the endosperm is not present in mature seeds.

Reason (R): Endosperm is consumed during embryo development in plants such as bean, gram, pea.

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

173. Select incorrect statement.

- (1) Metamerism is characteristic of annelida
 (2) Water canal system present in echinoderms
 (3) Comb plate are present in ctenophores
 (4) Cnidoblast present in cnidarians

174. Given below are two statements :-

Statement-I: The cis and trans faces of the Golgi body are entirely different but interconnected.

Statement-II: Golgi apparatus is the important site of glycolipid and glycoprotein synthesis.

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

- (1) Statement-I and statement-II are incorrect
 (2) Statement-I is correct and statement-II is incorrect
 (3) Statement-I and statement-II both are correct
 (4) Statement-I is incorrect and statement-II is correct

175. Podocytes are associated with :-

- (1) PCT
 (2) Capillary
 (3) Bowman's capsule
 (4) Loop of Henle

176. Method of locomotion performed by animals vary with their :-

- (1) habitat
 (2) demand of situation
 (3) both 1 and 2
 (4) None of above

177. In a 35 day menstrual cycle, which of the following phase is of 14 days?

- (1) Follicular phase (2) Ovulation
 (3) Luteal phase (4) Menstruation

178. The figure below show four stage (a,b,c,d) of human development. Select the option giving correct identification together with site of occurrence?

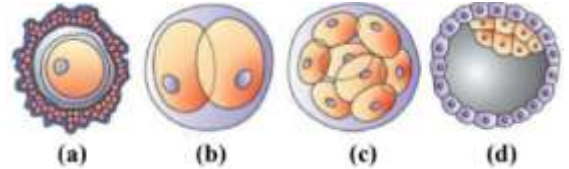


	Figure	Developmental stage	Site of occurrence
(1)	(a)	Fertilised egg	Isthmus part of fallopian tube
(2)	(b)	Zygote	End part of fallopian tube
(3)	(c)	Morula	Starting point of Fallopian tube
(4)	(d)	Blastocyst	Uterine cavity

179. Contraceptive oral pills help in birth control by :-

- (1) Killing the sperms in uterus
 (2) Forming barrier between sperm and ova
 (3) Preventing ovulation
 (4) Killing the ova

180. Select the correct set of statements from those given below:

- A. The endomembrane system does not include semiautonomous organelles
 B. Concave face of Golgi bodies is maturing face
 C. RER takes part in detoxification of toxic chemicals in the body
 D. Proteins synthesized by ribosomes are modified in the cisternae of the Golgi apparatus

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

Syllabus

FT – 7

Day & Date	:	08 June, 2026
Time	:	10: 00 AM to 1: 00 PM
Physics	:	FULL COURSE
Chemistry	:	FULL COURSE
Biology	:	FULL COURSE

