1. The stress developed in doubling the length of a wire of Young's modulus Y is (Assuming that wire maintains its elasticity)

(1) 4 Y (2) 3 Y

(3) 2 Y (4) Y

2. If 64 identical liquid drops of radius 2 cm combine to form a large drop, then its radius will be

(1) 4 cm

(2) 8 cm

(3) 16 cm

(4) 32 cm

3. A square coil of side L carries a current i. It is held in the XY plane in a uniform magnetic field $B\hat{i}$. The toque on the coil due to the magnetic field is

(1) iL^2B (2) iLB

(3) $\frac{iL^2B}{2}$ (4) Zero

4. In YDSE, how many maximas can be obtained on a screen (including central maximum) on both sides of the central fringe if λ = 2000 Å and d= 7000 Å.

(1) 1 (2) 6

(3) 3 (4) 7

5. A particle is moving along x-axis as

$x = 2(t - 1) + 3(t-2)^2$

Which of the following is true?

(1) Initial velocity is 20 m/s

(2) Acceleration of particle is 6 m/s^2

(3) The particle is at origin at t = 0

(4) None of these

6. If an object is taken to the centre of the earth, then its weight will become

(1) Zero

(2) Infinite

(3) Same as on the surface of earth

(4) $\frac{3}{2}$ times as on the surface of earth

7. A metallic rod is fixed between two rigid walls and then heated. The stress developed in the rod will be independent of

(1) Young's modulus of the material

(2) Thermal coefficient of the material

(3) Rise in temperature

(4) Length of the rod

8. The angular velocity of a body is $\vec{\omega} = 2\hat{i} + 3\hat{j} + 4\hat{k}$ and a torque $\vec{\tau} = \hat{i} + 2\hat{j} + 3\hat{k}$ acts on it. The rotational power will be

(1) 20 *W* (2) 15 *W*

(3) $\sqrt{17}$ *W* (4) $\sqrt{14}$ *W*

9. Three charges 3q, Q and q are placed on x-axis at positions 0, $\frac{l}{2}$, l respectively. The resultant force on q will be zero, if Q is equal to.

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

(3) $\frac{q}{4}$ (4) $\frac{-q}{4}$

10. The velocity of electromagnetic wave in free space is 3×10^8 m/s. The frequency of a radio wave of wavelength 200 m/s.

(1) 1.5×10^8 Hz

(2) 3×10^8 Hz

(3) 1.5×10^6 Hz

(4) 2×10^6 Hz

11. Which among the following have dimensions same as Poisson's ratio?

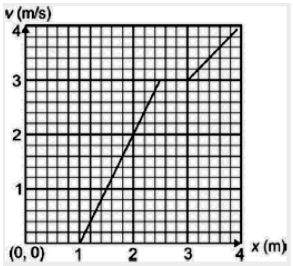
(1) Strain rate

(2) Viscosity

(3) Stress

(4) Refractive index

12. A block of mass 2 kg, moves such that the variation of velocity with position is as represented in the graph. The power delivered to the particle at x = 2m will be



(1) 8 W (2) 32 W

(3) 4 W (4) 16 W

13. Which among the following special diodes is used in no biasing, for its proper operation?

(1) Zener diode (2) Photodiode

(3) LED (4) Solar cell

14. **Statement-I :** The instantaneous power of an agent is measured as the dot product of instantaneous velocity and the force acting on it at that instant.

Statement-II : The unit of instantaneous power is watt.

(1) Both statement I and Statement II are incorrect

(2) Statement I is correct and Statement II is incorrect

(3) Statement I is incorrect and statement II is correct

(4) Both statement I and Statement II are correct.

15. A wave is represented by $y = 0.4\sin\left(8t - \frac{x}{4}\right)$.

Where all the symbols have their usual meanings and are in SI units. The speed of the wave is

(1) 32 m/s (2) 64 m/s

(3) 20 m/s (4) 15 m/s

16. For a plane electromagnetic wave, average of which among the following is zero?

(1) Electric field (2) Magnetic energy

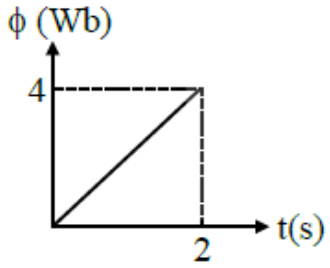
(3) Electric energy (4) All of these

17. If C_p and C_v denotes the specific heats (per unit mass) of an ideal gas of molecular mass M_0, then correct relation among the following is

(1) $C_p - C_v = R$ (2) $C_p - C_v = \frac{R}{M_0}$

(3) $C_p - C_v = M_0R$ (4) $C_p + C_v = R$

18. Magnetic flux passing through a coil of resistance 2Ω is as shown in figure. Match the following two columns. In column II all physical quantities are in SI units.



Column-I		Column-II	
(i)	Induced emf produced	(a)	4
(ii)	Induced current	(b)	1
(iii)	Charge flow in 2s	(c)	8
(iv)	Heat generation in 2s	(d)	2

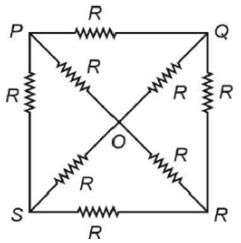
(1) i-d, ii- b, iii-d, iv-a

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

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

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

19. The equivalent resistance between points P and R for the network shown in figure is



(1) $\frac{11R}{17}$ (2) $\frac{7R}{4}$

(3) $\frac{2R}{3}$ (4) $\frac{6R}{7}$

20. The mobility of free electrons in a metallic conductor is proportional to (where symbols have their usual meaning)

(1) $\frac{e\tau}{m}$ (2) $\frac{m\tau^2}{e}$

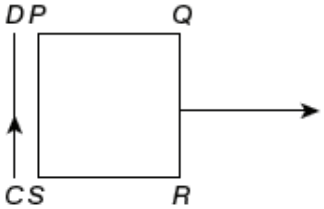
(3) $\frac{e}{m\tau}$ (4) $\frac{e^2}{2\tau m}$

21. An object is placed at 40 cm from a spherical mirror on the principal axis. If image formed is inverted and having magnification of $\frac{1}{2}$, then focal length of the mirror would be

(1) $\frac{-20}{3}$cm (2) -20

(3) $\frac{-40}{3}$cm (4) $\frac{-100}{3}$cm

22. A square loops *PQRS* is carried away from a current carrying long straight conducing wire *CD*. The direction of induced current in the loop will be



(1) Anti-clockwise

(2) Clockwise

(3) Sometimes clockwise sometimes anti-clockwise

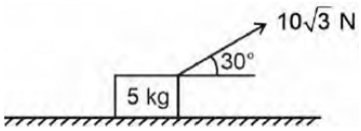
(4) Current will not be induced

23. The position equation of a particle is given by $\vec{r} = t^2\hat{i} + 4t\hat{j}$. Time when particle is moving at an angle 30° with x axis will be

(1) $\sqrt{3}$ s (2) $2\sqrt{3}$ s

(3) 2 s (4) $4\sqrt{3}$ s

24. A block is placed on a surface as shown in the diagram given below. Coefficient of friction between the block and surface is $\sqrt{3}$, the the friction force acting on the block will be



(1) 150 N (2) 15 N

(3) 30 N (4) 100 N

25. A force $\vec{F} = 3\hat{i} + 2\hat{j}$ is acting on a body and displaces it by $\sqrt{13}$ m. If work done by the force is 6.5 J, then the angle between force and displacement will be

(1) 60° (2) 45°

(3) 20° (4) 0°

26. A current in the circuit is given by equation i = (3+4 sin 100πt) A. Its average value for one complete cycle will be

(1) 3 A (2) 4 A

(3) 5 A (4) 7 A

27. A circular coil of 10 turns having area of cross-section 2 m^2. A magnetic field piercing it's cross-section normally having magnitude 2t T. The magnitude of induced emf will be.

(1) 10 V (2) 20 V

(3) 30 V (4) 40 V

28. Work done to rotate a bar magnet of magnetic moment M in magnetic field B from θ = 30° to θ = 45° will be.

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

(2) $\left(\sqrt{3}-\sqrt{2}\right)\frac{MB}{2}$

(3) MB

(4) $\frac{MB}{\sqrt{3}}$

29. Which of the following is not the standard form of a progressive wave?

(1) $y = A\sin\left[2\pi\left(\frac{t}{T}-\frac{x}{\lambda}\right)\right]$

(2) y = A sin (vt - kx)

(3) $y = A\sin\omega\left(t-\frac{x}{v}\right)$

(4) y = A sink (vt – x)

30. A parallel plate condenser is connected to a battery of e.m.f. 4 volt. If a plate of dielectric constant 8 is inserted into it, then the potential difference on the condenser will be

(1) 0.5 V (2) 2 V

(3) 4 V (4) 32 V

31. The centre of mass of the system of particles depends on

(a) Masses of the particles

(b) Relative position of the particle

(1) Only (a) is true

(2) Only (b) is true

(3) Both (a) and (b) are true

(4) Both (a) and (b) are false

32. **Assertion:** If the displacement of the body is zero, the distance covered by it may not be zero.

Reason: Displacement is a vector quantity and distance is a scalar quantity.

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

(2) Both (A) and (R) are true and (R) is NOT the correct explanation of (A).

(3) (A) is true but (R) is false.

(4) (A) is false but (R) is true.

33. A big drop of radius 1 cm is converted into 1000 small identical droplets. If surface tension of liquid is 70 dyne/cm. Then the ratio of final surface energy to initial surface energy is

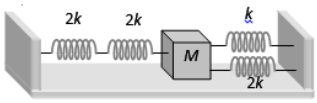
(1) 10

(2) 100

(3) $\frac{1}{10}$

(4) $\frac{1}{100}$

34. Four massless springs whose force constants are 2k, 2k, k and 2k respectively are attached to a mass M kept on a frictionless plane (as shown in figure). If the mass M is displaced in the horizontal direction, then the frequency of oscillation of the system is



(1) $\frac{1}{2\pi}\sqrt{\frac{k}{4M}}$ (2) $\frac{1}{2\pi}\sqrt{\frac{4k}{M}}$

(3) $\frac{1}{2\pi}\sqrt{\frac{k}{7M}}$ (4) $\frac{1}{2\pi}\sqrt{\frac{7k}{M}}$

35. A body falls freely from rest for 4s. The average speed will be (g = 10 m/s^2)

(1) 20 m/s (2) 10 m/s

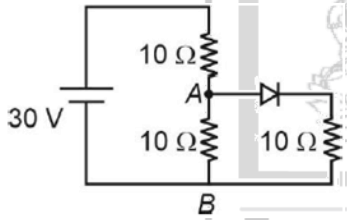
(3) 40 m/s (4) 80 m/s

36. Which among the following has smallest wavelength?

(1) Radio wave (2) Micro wave

(3) UV- Rays (4) X-Rays

37. For given circuit potential difference V_{AB} is



(1) 10 V (2) 20 V

(3) 30 V (4) 15 V

38. A wire when connected to 150 V mains supply has power dissipation P_1. Now the wire is cut into three equal pieces which are connected in parallel to the same supply. Power dissipation in this case is P_2. Then value of $\frac{P_2}{P_1}$ is.

(1) 3 (2) $\frac{1}{3}$

(3) 9 (4) $\frac{1}{9}$

39. A geostationary satellite is revolving around the earth. To make it escape from gravitational field of earth, is velocity must be increased

(1) 100% (2) 41.4%

(3) 50% (4) 59.6%

40. A wheel completes 2000 rotations in covering a distance of $9.5\,km$. The diameter of the wheel is

(1) $1.5\,m$ (2) $1.5\,cm$

(3) $7.5\,m$ (4) $7.5\,cm$

41. A coil of self inductance 12 H is connected in an L–C – R circuit. Frequency of source is 100 Hz. Then the value of X_c for which circuit will be purely resistance will be.

(1) 12π (2) 2400π

(3) 1200π (4) 24π

42. Helium at 27^oC has a volume of 8 *litres*. It is suddenly compressed to a volume of 1 *litre*. The temperature of the gas will be $[\gamma = 5/3]$

(1) 108^oC (2) 9327^oC

(3) 1200^oC (4) 927^oC

43. An ideal gas is undergoing an adiabatic change. Which of the following pressure-temperature relations is true?

(a) $p\gamma^{-1}T^{\gamma}$=constant

(b) $p\gamma\, T^{1-\gamma}$= constant

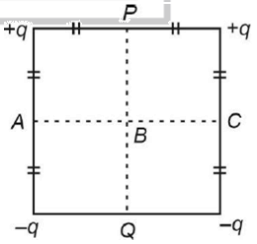
(c) $p\gamma\, T^{1-\gamma}$ = constant

(d) $p^{1-\gamma}T^{\gamma}$ = constant

(1) only a & c (2) only a & b

(3) only d (4) all

44. Figure represents a square carrying charges +q, +q, –q, –q, –q at its four corners as shown. Then the potential will be zero at points.



(1) A, B, C, P and Q (2) A, B and C

(3) A, P, C and Q (4) P, B and Q

45. The moment of inertia of *HCl* molecule about an axis passing through its centre of mass and perpendicular to the line joining the H^+ and Cl^- ions will be, if the interatomic distance is 1 Å

(1) $0.61\times10^{-47}\,kg.m^2$

(2) $1.61\times10^{-47}\,kg.m^2$

(3) $0.061\times10^{-47}\,kg.m^2$

(4) 0

46. Which will not give test of Fe^{3+} ions?

(a) $FeCl_3$

(b) $K_3[Fe(CN)_6]$

(c) $Fe_4[Fe(CN)_6]_3$

(d) $K_4[Fe(CN)_6]$

(e) $FeSO_4.(NH_4)_2SO_4.6H_2O$

(1) Only (a) and (c) (2) (b) and (d)

(3) (b), (d) and (e) (4) (a), (b) and (c)

47 Represent the correct order of electron gain enthalpy with negative sign of O, S, F, Cl?

(1) Cl > F > O > S (2) Cl > F > S > O

(3) Cl > S > F > O (4) Cl > O > F > S

48. Which of the following cannot act as both oxidising agent and reducing agent?

(1) H_2O_2 (2) H_2

(3) HNO_3 (4) H_2SO_3

49. $Fe(OH)_3$ can be separated from $Al(OH)_3$ by addition of:

(1) dil. HCl (2) NaCl solution

(3) NaOH solution (4) NH_4Cl and NH_4OH

50. Match the column:

List-I		List-II	
a	ZnS	P	Black
b	PbS	Q	Group-IV of basic radicals
c	CuS	R	Group-II of basic radical
d	NiS	S	Dirty white

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

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

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

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

51. Number of peroxide linkage in CrO_5, H_2SO_5, $H_2S_2O_8$ are respectively.

(1) 2, 1, 2 (2) 2, 2, 2

(3) 1, 1, 1 (4) 2, 1, 1

52. **Assertion:** Order of Δ_o: $[Co(CN)_6]^{3-} > [Co(OX)_3]^{3-}$

Reason: Both $CN^{\ominus}$ and OX^{-2} are chelating ligand.

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

(2) (A) is correct but (R) is not correct

(3) (A) is not correct but (R) is correct

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

53. The coordination number of a central metal atom in a complex is determined by -

(1) The number of ligands around the metal ion bounded by sigma and pi-bonds both.

(2) The number of ligands around a metal ion bonded by pi-bonds.

(3) The number of ligands around a metal ion bounded by coordinate bond.

(4) The number of only anionic ligands bonded to the metal ion.

54. **Statement-I:** Cr^{+2} act as a oxidising agent

Statement-II: Cr in +2 achieve $t_{2g}^3 e_g^o$ configuration.

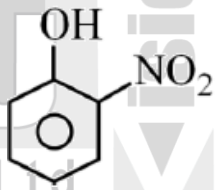
(1) Both Statement I and Statement II are incorrect.

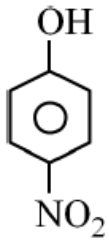
(2) Statement I is correct but Statement II is incorrect.

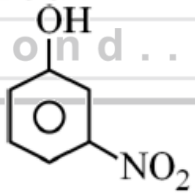
(3) Statement I is incorrect but Statement II is correct.

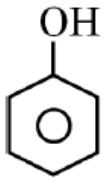
(4) Both Statement I and Statement II are correct.

55. Which of the following is most acidic compound?

(1) 

(2) 

(3) 

(4) 

56. Which element estimated by Duma's method -

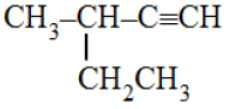
(1) P (2) Cl

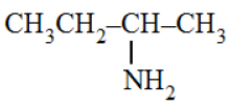
(3) N (4) S

57. The major product of the following reaction is:-

$CH_3CH_2–C\equiv CH \xrightarrow[(ii)\ CH_3CH_2Br]{(i)\ NaNH_2}$

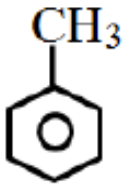
(1) $CH_3 – CH_2 – C \equiv C – CH_2 – CH_3$

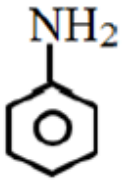
(2) 

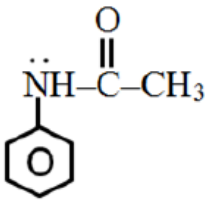
(3) 

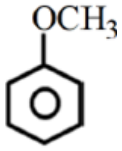
(4) $CH_3 – CH_2 – C \equiv C – NH_2$

58. Which of the following aromatic compound does not show Friedel craft's reaction?

(1) 

(2) 

(3) 

(4) 

59. **Assertion (A):** Haloalkanes are slightly soluble in water.

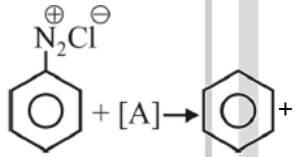
Reason (R): Bromo, iodo and polychloro derivatives of hydrocarbon are heavier than water.

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

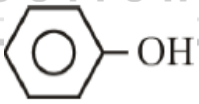
(2) (A) is correct but (R) is not correct

(3) (A) is not correct but (R) is correct

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

60.  + [A] → + N_2 + $CH_3 - CHO$ + HCl A is

(1) $H_3PO_2 + H_2O$ (2) $CH_3 - CH_2 - OH$

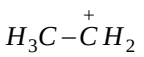
(3) Both (1) & (2) (4) 

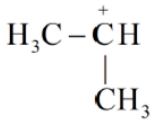
61. Pent-3-en-2-ol on oxidation with PCC gives 'A'. 'A' on reaction with sodium hypoiodite gives 'B' which on further heating with soda lime gives 'C' 'C' is

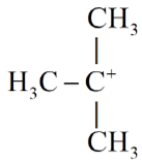
(1) Butanal (2) Propene

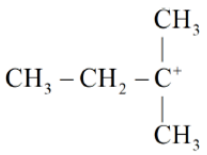
(3) But-1-ene (4) Butanoic acid

62. Which of the following carbocations will show the highest number of hyper conjugative forms?

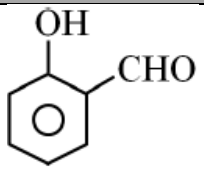
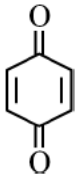
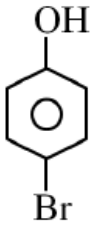
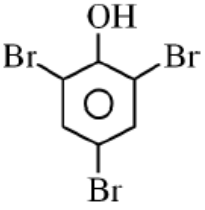
(1) 

(2) 

(3) 

(4) 

63. Match the reagents (List-I) with the product (List-II) obtained from phenol

List-I (Reagent)		List-II (Product)	
a	$Na_2Cr_2O_7$, H_2SO_4	i	
b	Br_2 in CS_2	ii	
c	Br_2/H_2O	iii	
d	(i) aq. NaOH + $CHCl_3$ (ii) H^+	iv	

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

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

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

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

64. What is the hybridization of C_1, C_2, C_3 carbon in the following compound?

$$\overset{6}{C}H_3-\overset{5}{C}H_2-\overset{4}{C}H=\overset{3}{C}H-\overset{2}{C}\equiv\overset{1}{C}-H$$

(1) sp^3, sp^3, sp^3 (2) sp^3, sp^2, sp^2

(3) sp, sp, sp^2 (4) sp, sp^2, sp^2

65. Which reagent can be used to distinguish methanol and ethanol

(1) Tollen's reagents

(2) 2,4-DNP

(3) I_2 + NaOH

(4) Fehling test

66. Which of the following is optically inactive amino acid.

(1) Alanine (2) Valine

(3) Glycine (4) Histidine

67. A gaseous reaction, 2A(g) → B(g) + 5C(g) shows increase in pressure from 80 mm Hg to 100 mm Hg in 5 minutes. The rate of disappearance of A is :-

(1) 4 mm Hg min^{-1}

(2) 8 mm Hg min^{-1}

(3) 16 mm Hg min^{-1}

(4) 2 mm Hg min^{-1}

68. $E^o_{Ni^{+2}/Ni}$ *and* $E^o_{Au^{3+}/Au}$ are –0.25 V and 1.50 V respectively. The E_{cell} of the cell

$Ni(s)\,Ni^{+2}_{(aq)}\,(0.01\,M)||Au^{+3}_{(aq)}\,(0.1M)|Au(s)$ will be:

(1) 1.79 V (2) –1.79 V

(3) 1.29 V (4) –1.29 V

69. How much electric charge in faraday is required to obtain 6.35 g Cu from aqueous solution of $CuSO_4$? [Atomic mass of Cu = 63.5 amu]

(1) 0.1 F (2) 1 F

(3) 0.2 F (4) 2 F

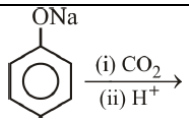
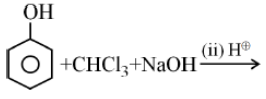
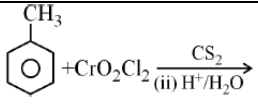
70. The daily consumption of pure O_2 by a person is 448 L at STP, then calculate the mass of $NaClO_3$ required to produce O_2 for daily consumption of a person at STP?

[$NaClO_3(s) + Fe(s) \rightarrow O_2(g) + NaCl(s) + FeO(s)$]

(1) 106.5 g (2) 213 g

(3) 1065 g (4) 2130 g

71. Match List-I with List-II

List-I		List-II	
a	$R - CH_2 - COOH \xrightarrow[(ii)\ H_2O]{(i)\ X_2/Red\ P}$	i	Etard reaction
b		ii	Kolbe's reaction
c		iii	Hell Volhard Zelinsky reaction
d		iv	Reimer Tiemann reaction

Choose the correct answer

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

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

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

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

72. Concentrated nitric acid used in laboratory work is 63% nitric acid (HNO_3) by mass. If the density of this solution is 1.5 g/mL, then find molarity of this aqueous solution.

(1) 10 M (2) 11 M

(3) 15 M (4) 5 M

73. A particle of mass 0.01 g is moving with a velocity of 0.0001% to that of light. What will be its de-Broglie wavelength?

(Planck's constant = 6.6×10^{-34} Js)

(1) 6.6×10^{-34} m (2) 3.3×10^{-32} m

(3) 2.2×10^{-31} m (4) 2.2×10^{-17} m

74. 1 mole of gas absorbs 30 J of heat at constant volume and its temperature raises from 30°C to 35°C. The value of ΔU is -

(1) 60 J (2) 150 J

(3) 30 J (4) 120 J

75. Which of the following will be correct?

(1) During adiabatic compression of an ideal gas, temperature of gas increases.

(2) If a refrigerator's door is kept open, room gets cooled.

(3) Enthalpy of formation of $C_{(diamond)}$ will be zero.

(4) For the reaction: $2NH_3(g) \rightarrow N_2(g) + 3H_2(g)$; $\Delta H < \Delta E$ at room temperature.

76. In the dissociation of $2HI(g) \rightleftharpoons H_2(g) + I_2(g)$ the degree of dissociation will be influenced by the :-

(1) Addition of inert gas at constant pressure

(2) Addition of inert gas at constant volume

(3) Increase of temperature

(4) Increase of pressure

77. If pH of a saturated solution of $Ba(OH)_2$ is 12, the value of its K_{sp} is

(1) $4.00 \times 10^{-6}\ M^3$

(2) $4.00 \times 10^{-7}\ M^3$

(3) $5.00 \times 10^{-6}\ M^3$

(4) $5.00 \times 10^{-7}\ M^3$

78. Number of O–H bond(s) in H_2O and H_2O_2 together is = x

Number of lone pair(s) in H_2O and H_2O_2 together is = y sum of x and y is:

(1) 12 (2) 10

(3) 8 (4) 6

79. Match correctly Column I with Column II.

Column – I		Column – II (O.N. of central atom)	
A	CrO_2^-	a	+7
B	ClO_3^-	b	+3
C	MnO_4^-	c	+6
D	CrO_4^{2-}	d	+5

(1) A—a, B—b, C—c, D—d

(2) A—b, B—c, C—d, D—a

(3) A—b, B—d, C—a, D—c

(4) A—d, B—a, C—b, D—c

80. Which of the following radicals will be precipitated by passing H_2S through its solution in presence of dil. HCl?

(1) Cu^{+2} (2) Ni^{+2}

(3) Al^{+3} (4) Mg^{+2}

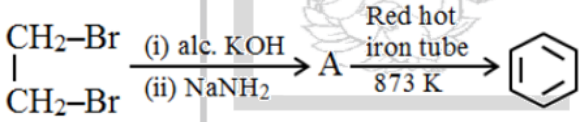
81. An example of σ and π bonded organo-metallic compound respectively?

(1) Frankland reagent and Ziese's salt

(2) Ferrocene and Ziese's salt

(3) Grignard reagent and Frankland

(4) All of these

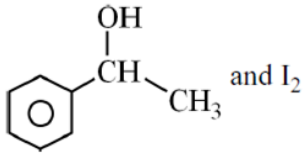
82. 

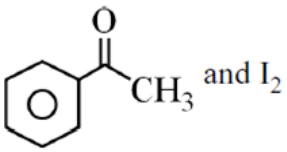
Compound A is ?

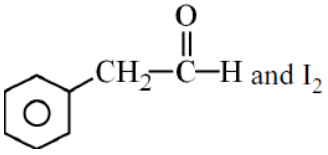
(1) $CH_2=CH_2$ (2) HC≡CH

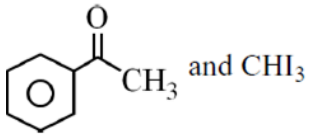
(3) $CH_2=CH–Br$ (4) $CH_3–CH_3$

83. Compound 'A', C_8H_8O is found to react with NaOI (produced by reacting Y with NaOH) and yields a yellow precipitate with characteristic smell 'A' & 'Y' are respectively

(1) 

(2) 

(3) 

(4) 

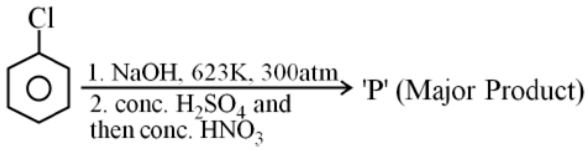
84. The correct order of atomic radii in group 13 elements is

(1) B < Al <In < Ga < Tl

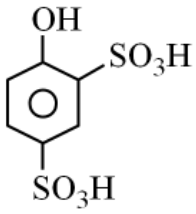
(2) B < Ga < Al < Tl <In

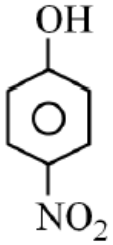
(3) B < Al < Ga <In < Tl

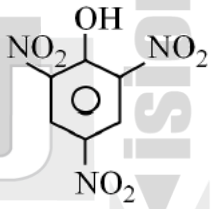
(4) B < Ga < Al <In < Tl

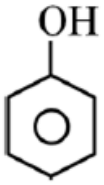
85. 

'P' is

(1) 

(2) 

(3) 

(4) 

86. **Assertion:** Chlorobenzene does not react with NaOH where as ethyl chloride reacts.

Reason: The partial double bond between carbon and chlorine in chlorobenzene causes less reactivity towards Nucleophilic substitution reactions.

(1) (A) is false but (R) is true

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

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

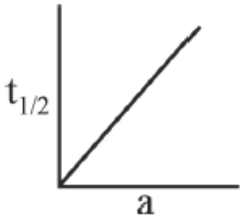
(4) (A) is true but (R) is false.

87. 50 mL, 0.1 M NaOH is added to 50 mL, 0.08 M HNO_3 and volume of resulting solution is made upto 500 mL. pH of solution would be :

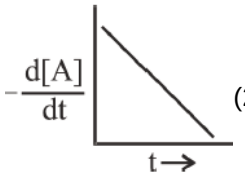
(1) 3 (2) 11.3

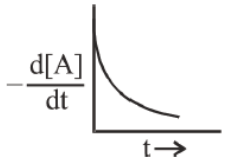
(3) 2.7 (4) 11

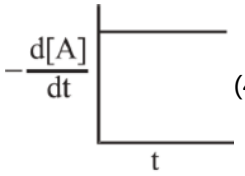
88. Consider the reaction A → B, graph between half life ($t_{1/2}$) and initial concentration (a) of the reactant is:-

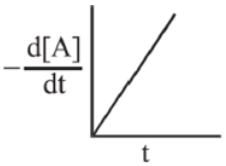


Hence graph between $-\frac{d[A]}{dt}$ and time will be:-

(1) 

(2) 

(3) 

(4) 

89. **Assertion (A):-** All the isotopes of an element show the same type of chemical behaviour.

Reason (R):- The chemical behaviour of an atom is controlled by the number of neutron.

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

(2) (A) is correct but (R) is not correct

(3) (A) is not correct but (R) is correct

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

90. Match the column

List – I (Compound / Ions)		List – II (Properties)	
P	SO_3^{2-}	1	sp^3 hybridization
Q	XeO_3	2	sp^3d^2 hybridization
R	SF_6	3	Central atom contains at least two lone pair
S	XeF_2	4	Regular octahedral geometry
		5	At least one pπ-dπ bond is present

The correct code is:

(1) P → 2, 5; Q → 1, 4; R → 2, 4; S → 4

(2) P → 1, 5; Q → 1, 5; R → 2, 4; S → 3

(3) P → 1; Q → 1, 4; R → 2, 5; S → 2

(4) P → 5; Q → 2, 3; R → 1, 5; S → 2

91. The following figure represents the modified stem of –

(1) Grass (2) *Bougainvillea*
(3) *Euphorbia* (4) *Cucumber*

92. Which of the following is a characteristic feature of pteridophytes?
(1) Spore germinates to give rise small, multicellular, thalloid gametophyte.
(2) Sporophyte of pteridophytes is not free living but attached to gametophyte.
(3) Gametophytic generation is dominant phase
(4) Gametophytes do not have free living existence.

93. Read A to D and tell the correct order of components from outer side to inner side in a young monocot root.
(A) Cortex
(B) Pericycle
(C) Epidermis
(D) Pith
(1) C, D, B, A (2) A, B, C, D
(3) C, A, B, D (4) C, B, A, D

94. In which plant, stem act as organ of perennation to tide over conditions unfavourable for growth?
(1) Onion (2) *Colocasia*
(3) Pineapple (4) *Citrus*

95. Which of the following statement is correct?
(1) Rose has inferior ovary
(2) Guava has superior ovary
(3) Cucumber has inferior ovary
(4) Plum has superior ovary

96. Among Pea, Soyabean, Mustard, *Asparagus, Indigofera* Tulip Sesbania, Turnip, how many plants have vexillary aestivation?
(1) Three (2) Four
(3) Five (4) Six

97. If 20 individuals in a laboratory population of 200 drosophila died in a month then calculate the death rate of Drosophila?
(1) 10 individual per drosophila per month
(2) 0.1 individual per drosophila per month
(3) 1 individual per drosophila per month
(4) 20 individual per drosophila per month.

98. Find the wrongly matched pair.
(1) Hot spot - endemism
(2) Ex-situ conservation - Zoological park
(3) In-situ conservation - Botanical garden
(4) World summit on sustainable development- South Africa

99. Multiple alleles can be studied at :
(1) an individual level
(2) a population level
(3) a gamete level
(4) a cell level

100. Match the column I with column II for wheat classification and select the correct option using the codes given below.

Column – I		Column – II	
(a)	Division	(i)	Poales
(b)	Order	(ii)	Poaceae
(c)	Family	(iii)	Monocotyledonae
(d)	Class	(iv)	Angiospermae

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

101. Light reactions or the "Photochemical" phase does not includes
(1) Light absorption (2) Water splitting
(3) Oxygen release (4) Reduction of CO_2

102. **Assertion (A):** Zygote do not undergo reduction division immediately in bryophytes.
Reason (R): In bryophytes the dominant phase in the life cycle is the gametophytic plant body.
(1) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
(2) (A) is correct but (R) is not correct
(3) (A) is incorrect but (R) is correct
(4) Both (A) and (R) are correct and (R) is the correct explanation of (A)

103. How many ATP and $NADH_2$ are synthesised, regarding one molecule of glucose, during EMP pathway?

(1) 18 ATP and 12 $NADH_2$

(2) 12 ATP and 12 $NADH_2$

(3) 2 ATP and 2 $NADH_2$

(4) 10 ATP and 10 $NADH_2$

104. Regarding Enzymes, identify the correct statements:

I. Almost all enzymes are proteins.

II. Ribozymes are nucleic acids that behave like enzymes.

III. Enzymes increase the activation energy of the reaction.

(1) I and II (2) II and III

(3) I and III (4) All are correct

105. In Drosophila, genes for body colour and eyes colour are located respectively on:

(1) X chromosomes and Y chromosome

(2) Y chromosome and X chromosome

(3) X chromosome and X chromosome

(4) Y chromosome and Y chromosome

106. **Statement-I:** Rivet popper hypothesis proposed by Paul Ehrlich.

Statement-II: Species-area relationship first time described by Alexander Von Humboldt.

(1) Both Statement I and Statement II are incorrect.

(2) Statement I is correct but Statement II is incorrect.

(3) Statement I is incorrect but Statement II is correct.

(4) Both Statement I and Statement II are correct.

107. Which of the following is an incorrect combination?

(1) Stem height in garden pea plant – Dominance

(2) Flower colour in snapdragon – Co-dominance

(3) ABO blood grouping – Multiple alleles

(4) Human skin colour – Polygenic inheritance

108. Which of the following is incorrectly matched pair :

(1) Cousins – Orange & Banana

(2) Skoog & Miller – Coconut internode

(3) F.W. Went – Avena coleoptile

(4) Darwin and Darwin – Canary Grass

109. Which of the following is not a mendelian disorder?

(1) Cystic fibrosis (2) Phenylketonuria

(3) Turner's syndrome (4) Haemophilia

110. A free living fungus species, commonly found in root ecosystem, which is used as bio control agent is treatment of plant disease :-

(1) Trichoderma

(2) Bacillus

(3) Penicillium notatum

(4) Saccharomyces

111. **Assertion:** ADH (Anti Diuretic Hormone)prevent diuresis.

Reason: ADH facilitates water reabsorption from the later parts of the tubule.

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

(2) (A) is correct but (R) is not correct

(3) (A) is incorrect but (R) is correct

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

112. Carbon reactions is the other name for :

(1) Light reactions

(2) Dark reactions

(3) Photochemical reactions

(4) Photo oxidation reactions

113. From where in the light reaction, photon's energy is absorbed and electron jump into an orbit further from the atomic nucleus respectively:

(1) Antennae and reaction centre

(2) Reaction centre and Antennae

(3) Antennae and Antennae

(4) Reaction centre and reaction centre

114. Match the columns and find the correct option

Column – I		Column – II	
(A)	Oospore	(I)	*Neurospora*
(B)	Zygospore	(II)	*Ustilago*
(C)	Ascospores	(III)	*Albugo*
(D)	Basidiospore	(IV)	*Rhizopus*

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

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

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

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

115. Which of the following is a conduit for energy transfer across trophic levels?

(1) Mutualism (2) Parasitism

(3) Predator (4) Proto-cooperation

116. Read the following statement and select the correct option :-

(A) Loosely linked gene show high recombination

(B) Genes show linkage present on non-homologous chromosomes

(C) In garden pea plant 14 linkage groups are present

(D) Linkage is broken by crossing over

(1) A and C (2) A, C and D

(3) B and D (4) A and D

117. Which of the following structure gets implanted?

(1)  (2) 

(3)  (4) 

118. In Krebs cycle ATP is synthesized during conversion of

(1) Malic acid to oxaloacetic acid

(2) Succinyl coenzyme A to succinic acid

(3) Citric acid to Cis-Aconitic acid

(4) Fumaric acid to Malic acid

119. Find the incorrect match from following:

(1) Mendel – 14 true breeding varieties of Pea plant

(2) Morgan – Drosophila

(3) Sutton and Boveri – Chromosomal theory

(4) Meselson and Stahl – DNA transcription

120. Match the column I and II and choose the correct combination from the option given :

(a)	Auxin	(i)	Seed dormancy
(b)	GA	(ii)	Fruit ripening
(c)	ABA	(iii)	Parthenocarpy in Tomato
(d)	Ethylene	(iv)	Bolting

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

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

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

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

121. Which statements about placentation are CORRECT?

I. In marginal placentation, placenta forms a ridge along the ventral suture of ovary — e.g., Pea.

II. In axile placentation, placenta is axial and ovules are attached to it — e.g., Tomato, Lemon.

III. In parietal placentation, ovules develop on the inner wall of ovary — e.g., Mustard, Argemone.

IV. In free central placentation, ovules are borne on a central axis with no septa — e.g., Dianthus, Primrose.

(1) I, II, III and IV

(2) I and II only

(3) II, III and IV only

(4) I, III and IV only

122. Which process is not performed by bacterial activity?

(1) Production of antibiotics

(2) Fixing nitrogen in legumes

(3) Making curd from milk

(4) They are pioneer vegetation on rocks

123. **Assertion:** Except for plants in shade or in dense forests, light is rarely a limiting factor in nature.

Reason: C_4 plants respond to high light intensities.

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

(2) (A) is correct but (R) is not correct

(3) (A) is incorrect but (R) is correct

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

124. A unicellular eukaryotic wall less microbe was collected by a student from rain water. His teacher grouped the organism in _____ kingdom according to Linnaeus system and _____kingdom according to Whittaker's system.

(1) Animalia, Monera

(2) Monera, plantae

(3) Plants, protista

(4) Animalia, protista

125. Ground tissue is not differentiated in layers in -

(1) Monocot root
(2) Dicot root
(3) Dicot stem
(4) Monocot stem

126. Choose the correct statement :-

(1) Anaerobic respiration involves ETS[electron transport system].
(2) TCA cycle is common between aerobic and anaerobic respiration.
(3) ATP is form during both type of respiration.
(4) Anaerobic respiration required mitochondria.

127. Which of the following is not correctly matched to its number?

(1) Lymphocyte → 20-25% of TLC
(2) Neutrophils → 60-65% of TLC
(3) Monocyte → 2-3% of TLC
(4) Basophil → 0.5-1% of TLC

128. Match the columns and choose the correct option –

	Column – I		Column – II
(a)	Reaction centre P_{680}	(i)	Photosystem I
(b)	Reaction centre P_{700}	(ii)	Stroma lamallae
(c)	Photosystem I	(iii)	Grana thylakoid
(d)	Photosystem II	(iv)	Photosystem II

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

129. Consider the following statements and choose the correct option.

(a) Proximal end of filament is attached to the thalamus.
(b) Tapetum helps in dehiscence of anther.
(c) In wheat, pollen grain maintain viability for months.
(d) Two anther lobes are attached together with help of a region, called connective.

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

130. Which group of protista includes diatoms and golden algae?

(1) Chrysophytes (2) Dinoflagellates
(3) Euglenoids (4) Protozoans

131. **Statement-I :** In conjoint type of vascular bundles, the Xylem and phloem are jointly situated along the same radii of vascular bundles.

Statement-II : Vascular bundles of monocot stem have ability to form secondary xylem and secondary phloem.

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

132. Mammary glands are present in?

(1) *Camelus* (2) *Neophron*
(3) *Pavo* (4) *Corvus*

133. Choose the correct statement :-

(A) UTR is required for efficient translation process
(B) Release factor binds to start codon for initiation of translation.
(C) Translation requires mRNA with start and stop codons.
(D) Elongation phase involves movement of ribosomes from codons to codons along mRNA.

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

134. What is the role of 23s rRNA in the process of translation in prokaryotes?

(1) Activation of amino acids
(2) Aminoacylation of tRNA
(3) Formation of peptide bond
(4) Termination of translation

135. __A__ is a hyperglycaemic hormone and deficiency of __B___ causes hyperglycemia.
Identify A and B respectively.

(1) Insulin and Glucagon
(2) Glucagon and Insulin
(3) Glucagon and Glucagon
(4) Insulin and Insulin

136. Which of the following hormone is secreted by ovary?

(1) hPL (2) hCG

(3) Relaxin (4) GnRH

137. PCT of nephron in kidney has :-

(1) Simple squamous epithelium with microvilli

(2) Simple cuboidal epithelium with microvilli

(3) Simple columnar epithelium with microvilli

(4) Simple epithelium with cilia and Microvilli

138. Which fish is also called as dog fish?

(1) *Labeo* (2) *Catla*

(3) *Trygon* (4) *Scoliodon*

139. Every 100 ml of oxygenated blood can deliver around

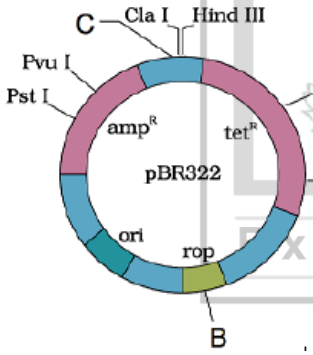
(1) 5 ml of O_2 to the tissue under normal physiological condition

(2) 15 ml of O_2 to the tissue under stress condition

(3) Both (1) and (2)

(4) Always 5-10 ml of O_2

140.



In above diagram of pBR322, label the A & B

	A	B
(1)	Bam HI	Pvu II
(2)	Pvu II	Bam HI
(3)	EcoR I	Pvu II
(4)	Bam HI	EcoR I

141. Choose incorrect match?

(1) PCR - Amplification of nucleic acid.

(2) ELISA - antigen antibody interaction.

(3) Transgenic crop - increase reliance an chemical pesticides.

(4) Totipotency - capacity of generate a whole plant from any cell.

142. Over 95 percent of all existing transgenic animals are:-

(1) Sheep (2) Pigs

(3) Rabbits (4) Mice

143. Which of the following statements are correct?

(a) Passenger pigeon extinct due to over exploitation

(b) Earth summit was occurred in 1992 at Rio-de-Janeiro.

(c) World summit on sustainable development was held at Johannesburg in 2002.

(d) Amazonian rain forest in south America has the greatest biodiversity on earth.

(1) Only a, b, c (2) Only b, c

(3) Only b (4) a, b, c, d

144. Match the column I with column II.

	Column – I		Column – II
(a)	Gel electrophoresis	(i)	EcoRI
(b)	GAATTC	(ii)	Vitamin A enrich
(c)	Golden rice	(iii)	Corn borer
(d)	CrylAb	(iv)	Agarose gel

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

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

145. Fill in the blanks -

- Menstrual cycle operate in ___A___.
- The cyclical changes in the ovary and the uterus during menstrual cycle are induced by changes in the levels of ___B___.

(1) A - Only human
B- Ovarian hormone only

(2) A - All primates
B - Pituitary hormone only

(3) A - Monkeys, apes and kangaroo
B - Both pituitary and ovarian hormone

(4) A - Monkeys, apes and human
B - Both pituitary and ovarian hormone

146. The linking of antibiotic resistance gene with the plasmid vector became possible by help of which enzyme?

(1) DNA polymerase

(2) Restriction endonuclease

(3) Taq DNA polymerase

(4) DNA ligase

147. Identify CORRECT statements about prophase I of meiosis:

I. Leptotene — chromosomes become visible, start condensing.

II. Zygotene — homologous chromosomes begin to pair (synapsis), forming bivalents.

III. Pachytene — crossing over occurs at chiasmata; chromosomes further condense.

IV. Diplotene — synaptonemal complex dissolves, chiasmata visible; bivalents held by chiasmata.

(1) I, II, III and IV (2) I and II only

(3) I, II and IV only (4) II, III and IV only

148. Match list-I with list-II

List – I		List – II	
(a)	Gizzard	(i)	Storage of food
(b)	Spiracles	(ii)	Mesothorax
(c)	Forewings	(iii)	10 pair
(d)	Crop	(iv)	Grinding the food particles

Choose the correct answer from the option given below.

(1) (a)–(iv), (b)–(iii), (c)–(ii), (d)–(i)

(2) (a)–(iv), (b)–(iii), (c)–(i), (d)–(ii)

(3) (a)–(iv), (b)–(i), (c)–(iii), (d)–(ii)

(4) (a)–(i), (b)–(iv), (c)–(iii), (d)–(ii)

149. Which of the following is an incorrect match?

(1) *Ascidia* –Urochordata– subphylum

(2) *Scoliodon* – amphibia – class

(3) *Catla* –Pisces – super class

(4) *Lamprey*–Agnatha– Division

150. Grinding in cockroach is performed by :-

(1) Pharynx (2) Oesophagus

(3) Crop (4) Gizzard

151. Select the correct statement about *Periplaneta.*

(1) 6-8 Malpighian tubules

(2) Crop used for grinding of food

(3) Anal style found only in male

(4) All of these

152. Which of the following animal has muscular pharynx?

(1) *Ascaris* (2) *Nereis*

(3) *Culex* (4) *Aedes*

153. Select the incorrect statement with respect to Ctenophora :

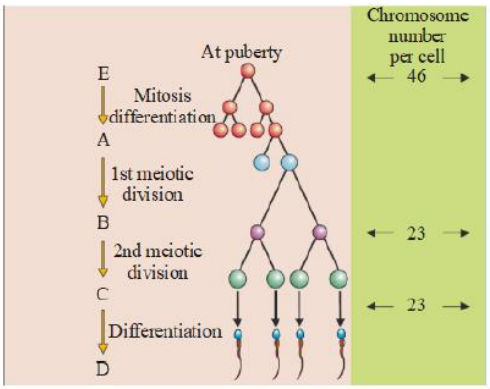
(1) Commonly known as sea walnut

(2) They are exclusively marine

(3) Radial symmetrical

(4) Triploblastic organism

154. The primary spermatocytes are transformed into secondary spermatocytes from :



(1) E to A (2) A to C

(3) A to B (4) C to D

155. Excretory waste of cockroach is :-

(1) Urea (2) Ammonia

(3) Uric acid (4) Guanine

156. Which of the following is incorrect matching?

(1) AIDS - HIV

(2) Cancer - Oncogene

(3) Benign tumor - Mass of metastatic cells

(4) α-Interferon - Biological response modifier

157. Select the correct statements with reference to non-chordates:

(A) Presence of ventral, hollow and double nerve-cord.

(B) Presence of dorsal heart.

(C) Gill slits are absent.

(D) A post-anal tail is present.

(E) Pharynx perforated by gill slits.

(1) B and C only

(2) B, D and E only

(3) C, D and E only

(4) A, C and D only

158. The inner part of cerebral hemispheres and a group of associated deep structures like amygdala and hippocampus are called :-

(1) Cerebral aqueduct (2) Limbic system

(3) Thalamus (4) Synapse

159. Match the column-I with column II, and choose the correct combination from the option given :

Column – I		Column – II	
(a)	Allergen	(i)	Histamine
(b)	Mast cells	(ii)	Rheumatoid arthritis
(c)	Auto immune disease	(iii)	Pollen
(d)	IgE antibody	(iv)	Allergy

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

160. The epithelial cells of Bowman's capsule called___(A)____ are arranged in an intricate manner so as to leave some minute spaces called___(B)_____. What is 'A' and 'B' respectively:
(1) (A)-Podocytes ; (B)-Glomerular filtration
(2) (A)-Podocytes ; (B)-Filtration slits
(3) (A)-Slit pores ; (B)-Podocytes
(4) (A)-Slit pores ; (B)-Glomerular filtration

161. The layer of uterus responsible for contractions during parturition is
(1) Perimetrium (2) Peritoneum
(3) Myometrium (4) Myocardium

162. Match the column-I and II and choose the correct combination from the options given :

Column – I		Column – II	
(a)	Carpals	(i)	7 in numbers
(b)	Metacarpals	(ii)	14 in numbers
(c)	Phalanges	(iii)	14 in numbers
(d)	Tarsals	(iv)	8 in numbers

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

163. Given below are two statements.
Read the following statements w.r.t nucleosomes.
Statement-A: Theoretically number of beaded structures or nucleosomes present in nucleus of diploid human cell will be $\frac{6.6\times10^{9}bp}{200bp}$.

Statement-B: Histones are rich in basic amino acid residues lysine and arginine.
Answer from the options given below
(1) Both the statements A and B are correct
(2) Both the statements A and B are incorrect
(3) Statement A is correct and statement B is incorrect
(4) Statement A is incorrect and statement B is correct.

164. Which of the following statements about the human male reproductive system are CORRECT?
I. The testes are located inside the scrotum, which maintains a temperature 2–2.5°C lower than body temperature.
II. Sertoli cells produce testosterone and are found in the interstitial space of the testes.
III. The seminiferous tubules are the site of spermatogenesis.
IV. The rete testis connects the seminiferous tubules to the vasa efferentia.
(1) I, III and IV only
(2) I, II and III only
(3) II, III and IV only
(4) I, II, III and IV

165. The muscle fibres which taper at both ends and do not show striations is :
(1) Cardiac muscle (2) Smooth muscle
(3) Skeletal muscle (4) Straited muscle

166. A triangular flat bone situated in the dorsal part of the thorax between the second and the seventh ribs is :
(1) Hip bone
(2) Scapula
(3) Pectoral girdle
(4) Pelvic girdle

167. **Assertion:** The heterozygous female (carrier) for haemophilia may transfer the disease to sons.
Reason: In haemophilia a single protein that is apart of the cascade of proteins involved in the clotting of blood is affected.
(1) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
(2) (A) is correct but (R) is not correct
(3) (A) is incorrect but (R) is correct
(4) Both (A) and (R) are correct and (R) is the correct explanation of (A)

168. The animal called 'Lobefins' evolved into the first amphibians, they are ancestors of modern day ___.

(1) Frogs (2) Lizards

(3) Snakes (4) Dolphins

169. Match the columns and find the correct combination:

	Column – I		Column – II
(a)	Inspiratory capacity	(i)	TV + IRV
(b)	Total lung capacity	(ii)	ERV + TV + IRV
(c)	Vital capacity	(iii)	TV + ERV
(d)	Expiratory capacity	(iv)	TV + IRV + ERV + RV

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

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

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

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

170. The hormone which play important role in the regulation of a 24 hour rhythm of our body is :

(1) Melatonin

(2) Thymosin

(3) Cortisol

(4) Vasopressin

171. Identify correct about allergy

(I) IgE antibodies are produced

(II) The exaggerated response of the immune system to certain antigens present in the environment is called allergy.

(III) Treatment of allergy is done by administration of antihistamines.

(IV) AIDS is an allergic disorder.

(1) Only two statements are correct

(2) Only one statements is correct

(3) Only three statements are correct

(4) All Four statements are correct

172. Which one is not an Aschelminthes?

(1) Ascaris

(2) Ancylostoma

(3) Wuchereria

(4) Fasciola

173. Different types of fertilization is given below.

(a) ZIFT (b) IUT

(c) ICSI (d) GIFT

(e) AI

Select correct classification :-

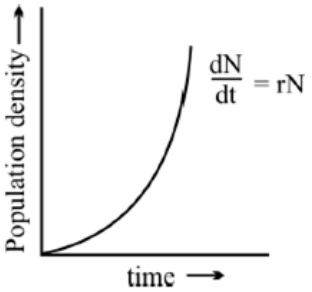
(1) Invitro → d, b, c; In-vivo → a, e

(2) Invitro → a, b, c; In-vivo → d, e

(3) Invitro → d, e; In-vivo → a, b, c

(4) Invitro → a, c, e; In-vivo → b, d

174. The given graph shows:



(1) Logistic growth

(2) Sigmoid growth

(3) Exponential growth

(4) Arithmetical growth

175. Grass → Goat → Man

In this food chain energy at grass level is 1000 J. Energy at man level will be:

(1) 1000 J

(2) 10 J

(3) 100 J

(4) 0.01 J

176. The accelerated rate of species extinction is due to:

(1) Habitat loss

(2) Over exploitation

(3) Co-extinction

(4) All of the above

177. Match the column-I with column II, and choose the correct combination from the options given below –

	Column – I		Column – II
(a)	AUG	(i)	Phe
(b)	UUU	(ii)	Stop codon
(c)	GGG	(iii)	Met
(d)	UGA	(iv)	Gly

(1) a–iii, b–i, c–ii, d–iv

(2) a–ii, b–i, c–iii, d–iv

(3) a–i, b–iii, c–ii, d–iv

(4) a–iii, b–i, c–iv, d–ii

178. Which of the following is a correct statement about application of PCR (Polymerase chain Reaction)?

(A) PCR is used in diagnosis of hereditary diseases

(B) Discovering Variations and mutations in genes.

(C) In forensic, it is one of the step in DNA fingerprinting.

(D) PCR is used for amplification and quantification of DNA.

(1) A and B

(2) B, C and D

(3) A, B, C and D

(4) Only C

179. Match the columns I with column II :

Column – I		Column – II	
a.	*Plasmodium*	i.	Ringworms
b.	*Wuchereria*	ii.	Sporozoites
c.	*Trichophyton*	iii.	Filariasis
d.	*Entamoeba histolytica*	iv.	Common cold
e.	*Rhinoviruses*	v.	Amoebic dysentery

(1) a-i, b-iii, c-ii, d-iv, e-v

(2) a-v, b-ii, c-i, d-iv, e-iii

(3) a-ii, b-iii, c-i, d-v, e-iv

(4) a-ii, b-i, c-v, d-iii, e-iv

180. Find the correct statement about chemical which is obtained from given plant.

(1) Their receptors are present on cardiovascular system

(2) Given as painkiller

(3) Have Hallucinogenic properties

(4) Its receptor are present only on CNS

Syllabus

FT – 4

Day & Date : 01 June, 2026
Time : 10: 00 AM to 1: 00 PM
Physics : FULL COURSE
Chemistry : FULL COURSE
Biology : FULL COURSE

RJ VISION Pvt. Ltd.

NEET (UG) TOPPERS

and many more...

JEE (MAIN) TOPPERS

and many more...

BOARD TOPPERS - CBSE / GSEB

and many more...

OLYMPIADS TOPPERS : IMO & NSO

and many more...