NEW STANDARD ACADEMY

Test Type : REVIEW TEST # 01

Do not open this Test Booklet until you are asked to do so.

28-08-2023

PRE-MEDICAL : 12th Undergoing/Pass Students

Read carefully the Instructions on the Back Cover of this Test Booklet.

Important Instructions :

1. On the answer sheet, fill in the particulars on Side-1 and Side -2 carefully with blue/black ball point pen only.
2. The test The test is of 3 hours 20 minutes duration and this Test Booklet contains 200 questions. Each question carries 4 marks. For each correct response, the candidate will get 4 marks. For each incorrect response, one mark will be deducted from the total scores. The maximum marks are 720.
3. In this Test Paper, each subject will consist of two sections. Section A will consist of 35 questions (all questions are mandatory) and Section B will have15 questions. Candidate can choose to attempt any 10 question out of these 15 questions. In case if candidate attempts more than 10 questions, first 10 attempted questions will be considered for marking
4. In case of more than one option correct in any question, the best correct option will be considered as answer.
5. Use Blue/Black Ball Point Pen only for writing particulars on this page/marking responses.
6. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
7. On completion of the test, the candidate must hand over the Answer Sheet to the Invigilator before leaving the Room/Hall. The candidates are allowed to take away this Test Booklet with them.
8. The candidates should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet. Do not write your Form No. anywhere else except in the specified space in the Test Booklet/Answer Sheet.
9. Use of white fluid for correction is not permissible on the Answer Sheet.

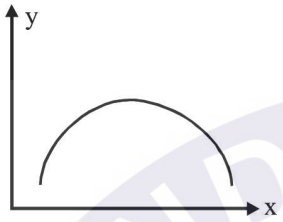
Name of the Candidate(In Capitals) _____

Date of Examintation _____

Candidate`s Signature:_____ Invigilator`s Signature: _____

SECTION - A (PHYSICS)

1. Magnitude of slope of the shown graph.



(1) First increases then decreases

(2) First decreases then increases

(3) Increases

(4) Decreases

2. Evaluate $\int_{R_1}^{R_2} \frac{KQ_1Q_2}{r^2} dr$

Where KQ_1Q_2 is a constant.

(1) $KQ_1Q_2\left[\frac{1}{R_1}-\frac{1}{R_2}\right]$

(2) $KQ_1Q_2\left[\frac{1}{R_2}-\frac{1}{R_1}\right]$

(3) $KQ_1Q_2\left[\frac{1}{R_2^2}-\frac{1}{R_1^2}\right]$

(4) $KQ_1Q_2\left[\frac{1}{R_1}+\frac{1}{R_2}\right]$

3. The length of a strip measured with a meter rod is 10.0 cm. Its width measured with a vernier callipers is 1.00 cm. The least count of the meter rod is 0.1 cm and that of vernier callipers is 0.01 cm. What will be the error in its area ?

(1) $\pm 0.01\ cm^2$ (2) $\pm 0.1\ cm^2$

(3) $\pm 0.11\ cm^2$ (4) $\pm 0.2\ cm^2$

4. If energy(E), velocity(V) and time(T) are considered as fundamental quantities then dimension of mass will be :-

(1) $[E\ V^{-2}\ T^0]$ (2) $[E^2\ V^{-2}\ T^0]$

(3) $[E\ V^2\ T]$ (4) $[E^{-1}\ V^2\ T^1]$

5. In a certain system, the units of length, mass and time are chosen to be 1 cm, 100 g and 10 s. The unit of kinetic energy will be :-

(1) 0.1 erg (2) 1 erg

(3) 10 erg (4) None of these

6. Force between two identical unlike charges is F. Now 25% of one charge is transfered to another then new force between the charges at same distance will be :-

(1) $\frac{16}{9}F$ (2) $\frac{9}{16}F$

(3) $\frac{15}{16}F$ (4) $\frac{16}{15}F$

7. A dipole of moment P is placed in uniform electric field E. It is rotated from 60° to 120° made with direction of electric field then work done is :-

(1) $PE\left(1-\frac{\sqrt{3}}{2}\right)$

(2) PE

(3) PE/2

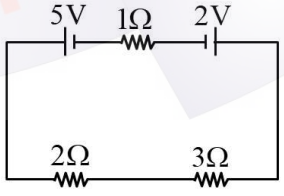
(4) $PE\left(1+\sqrt{3}/2\right)$

8. A body of mass 20 g has a charge 3mC. It moves with velocity of 20 m/sec and enters in a region of electric field of 80 N/C in the same direction as velocity of body. The velocity of the body after 3 seconds in this region is :-

(1) 80 m/s (2) 56 m/s

(3) 44 m/s (4) 40 m/s

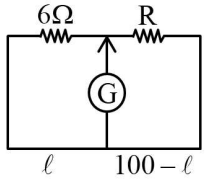
9. In the given figure, current in the circuit is :-



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

(3) $\frac{3}{4}A$ (4) $\frac{4}{5}A$

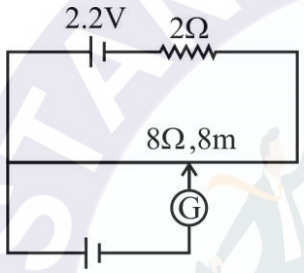
10. In the given fig, if balance point is 25 cm apart from left end then unknown resistance R is :-



(1) 6Ω (2) 12Ω

(3) 24Ω (4) 18Ω

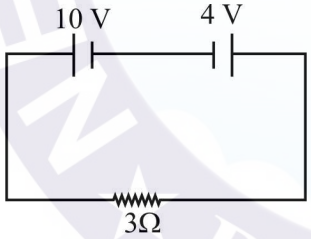
11. In the given figure, potential gradient is –



(1) 0.11 V/m (2) 0.33 V/m

(3) 0.44 V/m (4) 0.22 V/m

12. In the given fig, power supplied by 10 V battery is–



(1) 20 W (2) 8 W

(3) 12 W (4) कोई नहीं

13. Two conducting spheres of radii 6 cm and 12 cm each having same charge of 3×10^{-8} C are kept far apart. They are connected by a wire then find potential on the spheres :-

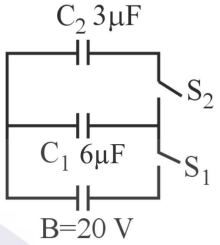
(1) 1 kV (2) 2 kV (3) 3 kV (4) 4 kV

14. 1000 small drops each of radius r and charge q are mixed together to form a big drop. Potential of big drop in comparison to potential of small drop is -

(1) 1000 times (2) 100 times

(3) 10 times (4) equal

15. In the figure shown $C_1 = 6\ \mu F$ and $C_2 = 3\ \mu F$ and battery B = 20 V and switch S_1 is closed first. Then S_2 is closed keeping S_1 open. Finally charge on C_2 will be



(1) 120 μC (2) 80 μC

(3) 40 μC (4) 20 μC

16. Many capacitors marked as 8 μF, 250 V are given. How many minimum no. of capacitors will be required to make a composite capacitor of 16 μF, 1000 V -

(1) 40 (2) 32 (3) 8 (4) 2

17. A bullet of mass 2 gm, travelling at a speed of 100 m/sec penetrates a wooden block upto 10 cm. Then the average force applied by the bullet on the block is :-

(1) 400 N (2) 200 N (3) 100 N (4) zero

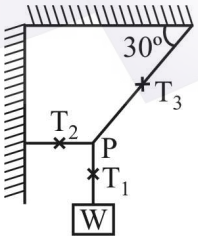
18. Tension in the string will be -

(1) 100 N (2) 20 N (3) 60 N (4) 80 N

19. A marble block of mass 2 kg lying on ice when given a velocity of 6 m/s is stopped by friction in 10 s. Then the coefficient of friction is :-

(1) 0.03 (2) 0.04 (3) 0.06 (4) 0.02

20. The ratio of T_1 & T_2 is :-



(1) $\frac{1}{\sqrt{3}}$ (2) $\frac{2}{\sqrt{3}}$ (3) $\frac{\sqrt{3}}{2}$ (4) $\frac{\sqrt{3}}{1}$

21. A 60 kg monkey, climbs on a rope which can withstand a maximum tension of 900 N. The case in which the rope will break if the monkey.

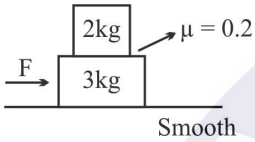
(1) Climbs up with acceleration of 6 m/s^2.

(2) Climbs down with acceleration of 4 m/s^2.

(3) Climbs up with uniform speed of 5 m/sec.

(4) Falls down the rope nearly freely under gravity.

22.



If F = 5N find friction between both the block.

(1) 2 N (2) 4 N (3) 1 N (4) 1.2 N

23. Speeds of two particles are 3U and 5U at a specific instant. The ratio of the respective displacements at which both stopped in same time interval.

(1) 3 : 5 (2) 5 : 3

(3) $\sqrt{3} : \sqrt{5}$ (4) $\sqrt{5} : \sqrt{3}$

24. A bullet is fired horizontally from a rifle at a distant target. Ignoring the air resistance, which of the following is correct-

	Horizontal acceleration	**Vertical acceleration**
(1)	10 m/s^2	10 m/s^2
(2)	10 m/s^2	0 m/s^2
(3)	0 m/s^2	10 m/s^2
(4)	0 m/s^2	0 m/s^2

25. A particle moves along the parabola path $y = x^2$ & x component of the velocity remains constant equal to c. The acceleration of the particle is-

(1) $\vec{a} = c^2\hat{j}$ (2) $\vec{a} = 2c^2\hat{j}$

(3) $\vec{a} = 3c^2\hat{j}$ (4) $\vec{a} = 4c^2\hat{j}$

26. A ball is projected up with 20 m/s at 30° to the horizontal from a tower of height of 40 m. Distance from the foot of tower where the ball hit the ground is-

(1) $20\sqrt{2}$ m (2) $20\sqrt{3}$ m

(3) $40\sqrt{2}$ m (4) $40\sqrt{3}$ m

27. A particle A moves with a velocity $4\hat{j}$ and another particle B moves with a velocity $3\hat{i}$ then $\vec{V}_{AB}$ is-

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

(3) $3\hat{i} - 4\hat{j}$ (4) $-4\hat{j} - 3\hat{i}$

28. A swimmer's speed in the direction of flow of river is 16 km/h. Swimmer's speed against the direction of flow of river is 8 km/h then the swimmer's speed in still water is

(1) 24 km/h (2) 12 km/h

(3) 4 km/h (4) 8 km/h

29. A ship is travelling due west at 40 km/h another ship heading 37° west of south is always appear due south from the first ship. The speed of the second ship in km/h is–

(1) $\frac{200}{3}$km/h (2) 200 km/h

(3) 100 km/h (4) 50 km/h

30. If the unit of force is 1 kilonewton, the length is 1 km and time is 10 s, what will be the unit of mass :

(1) 10 kg (2) 1000 kg

(3) 100 kg (4) 10000 kg

31. Each side of a cube is measured to be 6.372 m. The total surface area of cube with appropriate significant figures is

(1) 2.5×10^2 m^2 (2) 243.6 m^2

(3) 2×10^2 m^2 (4) 251.3207 m^2

32. The value of $(4.2 \times 10^{-3} - 5.4 \times 10^{-4})$ is

(1) 9.6×10^{-3} (2) 1.2×10^{-3}

(3) 3.7×10^{-3} (4) 3.0×10^{-3}

33. A student measures the period of oscillation of a simple pendulum in successive measurement the reading turn out to be 1.93s, 1.99s, 2.06s, 2.08s and 1.95s. A more accurate way to write the measurement with error is

(1) (2.03 ± 0.06)s (2) (2.00 ± 0.05)s

(3) (2.00 ± 0.06)s (4) (2.03 ± 0.1)s

34. The components of a vector along x and y directions are (n + 1) and 1 if the coordinate system is rotated by an angle θ then the component change to n and 3 the value of n will be :-

(1) 2 (2) 3.5

(3) 1 (4) 4

35. $\vec{A} = \hat{i} + 3\hat{j}$ and $\vec{B} = \hat{i} - \hat{j} + \hat{k}$ then unit vector perpendicular to $\vec{A}$ and $\vec{B}$:-

(1) $\hat{k}$ (2) $\frac{3\hat{i} + \hat{j} - 4\hat{k}}{\sqrt{26}}$

(3) $\frac{-3\hat{i} + \hat{j} + 4\hat{k}}{\sqrt{26}}$ (4) $\frac{-3\hat{i} + \hat{j} - 4\hat{k}}{\sqrt{26}}$

SECTION - B (PHYSICS)

36. Match the column:

Column I		Column II	
A.	$\sin\left(2\pi + \frac{\pi}{6}\right)$	P.	$\frac{\sqrt{3}}{2}$
B.	$\cos\left(2\pi + \frac{\pi}{6}\right)$	Q.	$\frac{1}{2}$
C.	cos 405°	R.	$\sqrt{3}$
D.	tan 420°	S.	$\frac{1}{\sqrt{2}}$

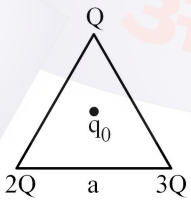
(1) A-Q, B-P, C-S, D-R

(2) A-S, B-R, C-P, D-Q

(3) A-R, B-S, C-P, D-Q

(4) A-P, B-S, C-Q, D-R

37. In the given fig, net force on charge q_0 is :-



(1) $\frac{kQq_0}{a^2}$ (2) $\frac{3\sqrt{3}kQq_0}{a^2}$

(3) $\frac{kQq_0}{3a^2}$ (4) Zero

38. **Assertion :-** At a point in space, the electric field points towards north. In the region, surrounding this point, the rate of change of potential will be zero along the east and west.

Reason :- Electric field due to a charge is the space around the charge in which another charge experiences a force.

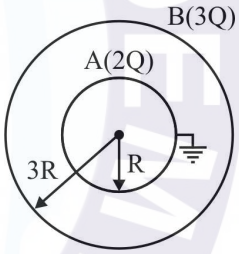
(1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.

(3) Assertion is True but the Reason is False.

(4) Both Assertion & Reason are False.

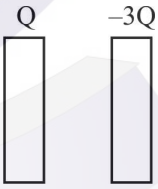
39. In the given figure, if inner sphere is grounded then final charge on the inner sphere is :-



(1) +Q (2) 3/2 Q

(3) −Q (4) −5/2 Q

40. Final charge on the right most surface is :-



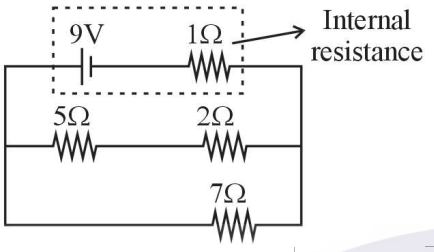
(1) Q (2) −Q (3) 2Q (4) −2Q

41. Charge q is given to a ring of radius a then the magnitude of electric field at a point $2\sqrt{2}$ a distance apart from the centre and lying on the axis of ring is :-

(1) $\frac{2\sqrt{2}}{27}\frac{Kq}{a^2}$ (2) $\frac{2}{27}\frac{Kq}{a^2}$

(3) $\frac{3\sqrt{2}}{18}\frac{Kq}{a^2}$ (4) $\frac{4\sqrt{2}}{9}\frac{Kq}{a^2}$

42. Match the column for given circuit :



Column I		Column II	
(A)	Current flowing	(P)	2V
(B)	Terminal potential difference of cell	(Q)	7V
(C)	Voltage across 2Ω	(R)	2A
		(S)	3A

(1) (A) – (S); (B) – (P); (C) – (Q)

(2) (A) – (R); (B) – (Q); (C) – (P)

(3) (A) – (S); (B) – (R); (C) – (P)

(4) (A) – (Q); (B) – (P); (C) – (R)

43. **Assertion :-** Material used in construction or making of a standard resistance is constantan or Manganin.
Reason :- Temperature resistance co-efficient of these materials is very small or negligible.

(1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.

(3) Assertion is True but the Reason is False.

(4) Both Assertion & Reason are False.

44. **Statement I :** To convert a galvanometer into ammeter, a high value resistance is applied in parallel.
Statement II : To increase the range of voltmeter, resistance in series with (G) should be decreased.

(1) Statement-I and statement-II both are true

(2) Statement-I is true and statement-II is false

(3) Statement-I is false and statement-II is true

(4) Statement-I and statement-II both are false

45. A dielectric is filled between the plates of a isolated charged parallel plate capacitor then match the quantities in column-I with their changes in column-II

	Column-I		Column-II
(A)	Electric field	(P)	Increases
(B)	Energy stored	(Q)	Decreases
(C)	Capacity	(R)	Remains same
(D)	Charge		

(1) A⟶P, B⟶Q, C⟶R, D⟶P

(2) A⟶P, B⟶Q, C⟶P, D⟶R

(3) A⟶Q, B⟶Q, C⟶P, D⟶R

(4) A⟶R, B⟶P, C⟶Q, D⟶P

46. Two parallel plate capacitor A and B having capacitance of 1 μF and 5 μF are charged separately to the same potential 100 volt. Now, they are connected in parallel such that the positive plate of A is connected to negative plate of B then common potential is :-

(1) $\frac{400}{3}$V (2) $\frac{200}{3}$V

(3) $\frac{500}{3}$V (4) $\frac{800}{3}$V

47. **Assertion (A) :** When a capacitor is charged by a battery, both the plates receive equal charge in magnitude, no matter sizes of plates are identical or not.
Reason (R) : The charge distribution on the plates of a capacitor is in accordance with the charge conservation principle.

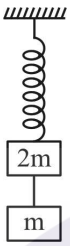
(1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.

(3) Assertion is True but the Reason is False.

(4) Both Assertion & Reason are False.

48. Initially the system is in equilibrium and rest. The acceleration of 2m & m just after cutting the string respectively will be -



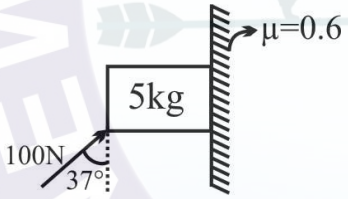
(1) $g/2\uparrow, g\downarrow$

(2) $g\uparrow, g/2\downarrow$

(3) $g\uparrow, 2g\downarrow$

(4) $2g\uparrow, g\downarrow$

49. A block is in contact with vertical wall as shown.
Find friction on block.



(1) 30 N

(2) 36 N

(3) Zero

(4) None of these

50. $\vec{A} = 2\hat{i} + 3\hat{j} + 4\hat{k}$, angle between $\vec{A}$ and x-axis is θ then-

(1) $\theta = \tan^{-1}(2.5)$

(2) $\theta = \cos^{-1}(2.5)$

(3) $\theta = \cos^{-1}\left(\frac{5}{\sqrt{29}}\right)$

(4) $\theta = \sin^{-1}(2.5)$

SECTION-A (CHEMISTRY)

51. Two radiations have the ratio of energies 3 : 8. If first radiation has the wave number 150 cm^{-1} then wave number of second radiation will be :-

(1) 200 cm^{-1} (2) 20 cm^{-1}

(3) 56.25 cm^{-1} (4) 400 cm^{-1}

52. The radius of third shell of Be^{+3} ion is R then radius of its 6^{th} shell will be :-

(1) 2R (2) $\frac{R}{2}$ (3) 4R (4) $\frac{R}{4}$

53. Suppose wavelength of 1^{st} line of Lyman series of H–atom spectrum is 1890Å. What would be the wavelength of 1^{st} line of Lyman series in Li^{2+} ion spectrum -

(1) 630Å (2) 210Å

(3) 1230Å (4) 10Å

54. Which of the following set of four quantum numbers is true for 3p electron in sulphur :-

(1) $n=3, \ell=0, m=+1, s=+\frac{1}{2}$

(2) $n=2, \ell=1, m=-1, s=+\frac{1}{2}$

(3) $n=3, \ell=2, m=+1, s=-\frac{1}{2}$

(4) $n=3, \ell=1, m=-1, s=+\frac{1}{2}$

55. Which have the same number of s-electrons as the d-electrons in Fe^{2+} ion ?

(1) Li (2) Na

(3) N (4) P

56. The fraction of total volume occupied by the atoms present in a simple cubic unit cell is :

(1) $\frac{\pi}{6}$ (2) $\frac{\pi}{3\sqrt{2}}$

(3) $\frac{\pi}{4\sqrt{2}}$ (4) $\frac{\pi}{4}$

57. A given metal crystallises in a cubic structure having edge length of 361 pm. If there are four metal atoms in one unit cell then what is the radius of one atom ?

(1) 80 pm (2) 108 pm

(3) 40 pm (4) 127 pm

58. In a unit cell containing X^{2+}, Y^{3+} and Z^{2-} where X^{+2} occupies $\frac{1}{8^{th}}$ of tetrahedral voids, Y^{+3} occupies $\frac{1}{2}$ of OHV and Z^{-2} form CCP structure then formula of compound is :

(1) X_2Y_4Z (2) XY_2Z_4

(3) XY_3Z_4 (4) X_4YZ_2

59. In an ionic compound, a cation is expected to be found in a tetrahedral voids if r_+/r_- lies in the range of :-

(1) 0.155 to 0.225

(2) 0.414 to 0.732

(3) 0 to 0.155

(4) 0.225 to 0.414

60. The cubic unit cell of aluminium (molar mass = 27.0 g mol^{-1}) has an edge length of 405 pm. Its density is 2.70 g cm^{-3}. The type of unit cell is :-

(1) primitive

(2) face-centred

(3) body centred

(4) end centred

61. Select the incorrect statement :

(1) Stoichiometry of crystal remains unaffected due to Schottky defect

(2) Frenkel defect is usually shown by ionic compounds having low coordination number

(3) F-centres generation is responsible factor for imparting the colour to the crystal

(4) Density of crystal always increases due to substitutional impurity defect

62. What will be the mole fraction of urea, if 18 gm of it is dissolved in 126 gm of aqueous solution :-

(1) $\frac{1}{4}$ (2) $\frac{1}{21}$

(3) $\frac{1}{12}$ (4) $\frac{1}{28}$

63. If four gases A, B, C and D have Henry's constant (K_H) values 1.9×10^1, 6.5×10^{-4}, 7.8×10^{-4} and 6.0×10^3 bar respectively then which of the following gas has maximum solubility at same partial pressure ?

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

64. Vapour pressure of two volatile component A and B is given by $P_s = 5.3 + 2.3\ X_B$ [X_B = mole fraction of B]. Calculate value of vapour pressure in pure state for A and B respectively :

(1) 2.3, 5.3 (2) 5.3, 2.3

(3) 5.3, 7.6 (4) 3, 4.3

65. The degree of association is 70% for the following reaction $2A \rightleftharpoons (A)_2$. Calculate the Van't Hoff factor.

(1) 0.65 (2) 1.3 (3) 0.35 (4) 0.85

66. Which has lowest boiling point at 1 atm pressure :-

(1) 0.1 M KCl (2) 0.1 M urea

(3) 0.1 M $CaCl_2$ (4) 0.1 M $AlCl_3$

67. The osmotic pressure of 1M solution of glucose is x atm then what will be the osmotic pressure of 0.2 M solution of KBr ?

(1) 0.4 x (2) 0.2 x (3) 2 x (4) x

68. Which of the following solutions has the highest equivalent conductance ?

(1) 0.01 M NaCl

(2) 0.05 M NaCl

(3) 0.005 M NaCl

(4) 0.02 M NaCl

69. The oxidation potential of Zn, Cu, Ag, H_2 and Ni are 0.76 V, –0.34 V, –0.80 V, 0 V, 0.55 V respectively. Which of the following reaction will provide maximum voltage ?

(1) $Zn + Cu^{2+} \longrightarrow Cu + Zn^{2+}$

(2) $Zn + 2Ag^{+} \longrightarrow 2Ag + Zn^{2+}$

(3) $H_2 + Cu^{2+} \longrightarrow 2H^{+} + Cu$

(4) $H_2 + Ni^{2+} \longrightarrow 2H^{+} + Ni$

70. In an electrochemical cell that function as a voltaic cell :-

(1) electrons move from the cathode to the anode

(2) electrons move through a salt-bridge

(3) electrons can move either from the cathode to the anode or from the anode to the cathode

(4) reduction occurs at the cathode

71. The cell reaction for the given cell is spontaneous if :

$Pt|\underset{P_1}{Cl_{2(g)}}|Cl^{-}(1M)||Cl^{-}(1M)|\underset{P_2}{Cl_{2(g)}}|Pt$

(1) $P_1 > P_2$ (2) $P_1 < P_2$

(3) $P_1 = P_2$ (4) $P_2 = 1atm$

72. In the electrolysis of which solution, H_2O is oxidised in preference to Cl^{-} ions ?

(1) conc. NaCl

(2) Very dil. NaCl

(3) Fused NaCl

(4) Solid NaCl

73. A 5 ampere current is passed through a solution of zinc sulphate for 40 minutes. Find the amount of zinc deposited at cathode (atomic weight Zn = 65.38) :-

(1) 40.65 gm

(2) 4.065 gm

(3) 0.4065 gm

(4) 65.04 gm

74. Following are some of the facts about dry cell :-

I : It is also called Leclanche cell

II : It gives constant voltage.

III : Electrolyte is a moist paste of NH_4Cl and $ZnCl_2$ in starch

IV : Cathodic reaction is

$2MnO_2(s) + 2NH_4^{+}(aq) + 2e^{-} \rightarrow Mn_2O_3(s) + 2NH_3(g) + H_2O(\ell)$

Select the correct facts :-

(1) I, II, III

(2) I, IV

(3) I, II, III, IV

(4) I, III, IV

75. Which of the following species are hypervalent?

(I) ClO_4^{-} (II) BF_3 (III) SO_4^{2-} (IV) CO_3^{2-}

(1) I, II, III

(2) I, III

(3) III, IV

(4) I, III, IV

76. Rotation around bond is not restricted in :-

(1) C_2H_4 (2) C_2H_2 (3) C_2F_2 (4) C_2H_6

77. Find the incorrect statement :-

(1) Number of hybrid orbitals produced is equal to the number of atomic orbitals that get hybridised.

(2) Hybrid orbitals are equivalent in energy and shape

(3) Hybrid orbitals are more effective in forming sigma bonds than pure atomic orbitals

(4) In hybridisation only half filled atomic orbitals participates

78. The π–bond between Cl–O in ClO_4^{-} is formed by the overlapping of _____ orbitals :-

(1) $sp^3 - 2p$ (2) $2p - 3p$

(3) $2p - 3d$ (4) $3p - 3d$

79. In BrF_3 molecule, the lone pairs occupy equatorial positions to minimize -

(1) Lone pair-bond pair repulsion only

(2) Bond pair-bond pair repulsion only

(3) Lone pair-lone pair repulsion and lone pair-bond pair repulsion

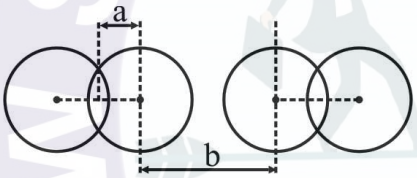
(4) Lone pair-lone pair repulsion only

80. Which of the following is the strongest attraction between molecules / ions :

(1) $H_2 - H_2$ (2) $H-Cl - C_6H_6$

(3) $H-Cl - H-Cl$ (4) $Na^+ - Cl-H$

81. Which type of atomic radius represented by 'a' & 'b' in the given diagram :-



(1) a = AR, b = MR

(2) a = CR, b = VWR

(3) a = IR, b = CR

(4) a = CR, b = AR

82. Which of the following order of atomic radius is correct :-

(1) Sc < Y ≈ La (2) K < Rb ≈ Cs

(3) Ge < Sn < Pb (4) Ni < Pd ≈ Pt

83. ***Assertion (A) :*** Second IP of oxygen is greater than that of fluorine

Reason (R) : Oxygen acquires stable half filled electronic configuration after loosing one electron

(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)**

84. In the following which configuration of element has maximum ionisation energy :

(1) $1s^2 2s^2 2p^5$

(2) $1s^2 2s^2 2p^4$

(3) $1s^2 2s^2 2p^3$

(4) $1s^2 2s^2$

85. Select correct order of given property :

(1) HOF < HOCl < HOBr < HOI (Acidic nature)

(2) HF > HCl > HBr > HI (Acidic nature)

(3) $N_2O < N_2O_3 < N_2O_4 < N_2O_5$ (Acidic nature)

(4) $H_2O > H_2S > H_2Se > H_2Te$ (Acidic nature)

SECTION-B (CHEMISTRY)

86. If a photon with 12 eV energy is incident on hydrogen atom then the true statement from the following will be :-

(1) In atom electron will transfer in first excited state and its energy will be increased by 1.8 eV

(2) In atom electron will remain in ground state but its total energy will be – 1.6 eV

(3) Atom will not absorb the photon

(4) None of these

87. The wavelength of photon obtained by electron transition between specific two levels in H– atom and He^+ ion are λ_1 and λ_2 respectively, then :-

(1) $\lambda_2 = \lambda_1$ (2) $\lambda_2 = 2\lambda_1$

(3) $\lambda_2 = \lambda_1/2$ (4) $\lambda_2 = \lambda_1/4$

88. $1s^2, 2s^2, 2p^5, 3s^1$ is the electronic configuration of :-

(1) First excited state of flourine

(2) First excited state of O^{2-}

(3) Ground state of flourine

(4) This excited state is impossible

89. A compound is formed by elements A and B crystallises in cubic structure in which A atoms are at the corners of the cube and B atoms are at each face centre. The formula of the compound will be :

(1) A_4B_3

(2) A_2B

(3) AB_3

(4) A_2B_3

90. Which of the following statement is not correct?

(1) The co-ordination number of each type of ion in CsCl crystal is 8

(2) A metal that crystallizes in bcc structure has a co-ordination number of 12

(3) A unit cell of an ionic crystal shares some of its ions with other unit cells

(4) The edge length of the unit cell in CsCl is $a = \frac{2}{\sqrt{3}}(r_{Cs^+} + r_{Cl^-})$

91. The molality of 15% (w/v) solution of H_2SO_4 with the density 1.1 g/cm^3, is approximately-

(1) 1.2 (2) 1.4

(3) 1.8 (4) 1.6

92. Total vapour pressure of mixture of 1 mol A ($P°_A$ = 150 torr) and 2 mol B ($P°_B$ = 300 torr) is 240 torr. In this case :-

(1) there is a negative deviation from Raoult's law.

(2) there is a positive deviation from Raoult's law.

(3) there is no deviation from Raoult's law.

(4) none of these

93. A 0.2 m aqueous solution of KCl freezes at $-0.680°C$. The percent apparent dissociation of KCl is (K_f for water = 1.86 K molal^{-1})

(1) 83 (2) 63

(3) 15 (4) 100

94. The conductivity of 0.01 mol/L aqueous solution of acetic acid at 300 K is 19.5×10^{-5} ohm^{-1} cm^{-1} and limiting molar conductivity of acetic acid at the same temperature is 390 ohm^{-1} cm^2 mol^{-1}. The degree of dissociation of acetic acid is :-

(1) 0.5 (2) 0.05

(3) 5×10^{-5} (4) 5×10^{-7}

95. Match the column ?

	Column I		Column II
A	I_3^-	P	sp^3
B	XeO_3F_2	Q	sp
C	SiO_2	R	sp^3d
D	$BeCl_2$	S	sp^3d^2
		T	sp^2

(1) A - R, B - R, C - Q, D - Q

(2) A - R, B - S, C - P, D - Q

(3) A - P, B - S, C - T, D - S

(4) A - R, B - R, C - P, D - Q

96. **Assertion** :- In peroxy disulphuric acid central atom is sp^3 hybridised.

Reason :- Peroxy disulphuric acid contains one peroxy (−O−O−) linkage

(1) If both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

(2) If both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.

(3) If Assertion is True but the Reason is False.

(4) If both Assertion & Reason are False.

97. N_2 and O_2 are converted into monoanions N_2^- and O_2^- respectively, which of the following statement is wrong ?

(1) In N_2^-, the N−N bond weakens

(2) In O_2^-, the O−O bond order decrease

(3) In O_2^- bond length increases

(4) N_2^- becomes diamagnetic

98. Choose the correct statement –

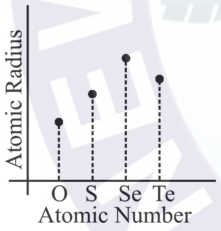
(1) Van der Waal radius is larger than metallic radius because Van der Waal bond is weaker than metallic bond.

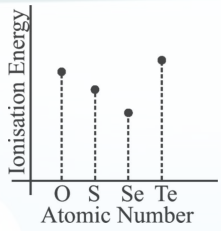
(2) Van der Waal radius is larger than metallic radius but these radii are independent from strength of metallic and Van der Waal bond.

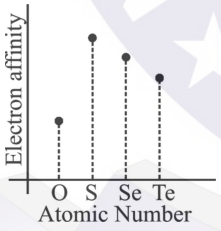
(3) Van der Waal radius is smaller than metallic radius because metallic bond are stronger bond in Van der Waal bond.

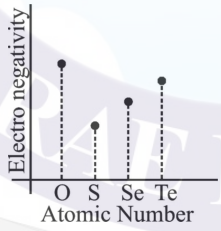
(4) Van der Waal radius is smaller than metallic radius because metallic bond is weaker than Van der Waal bond .

99. Select the correct graph for given property for chalcogen family -

(1) 

(2) 

(3) 

(4) 

100. Which statements is/are incorrect :

(1) In alkali metals group, from top to bottom increase in size is maximum from Na to K.

(2) Addition of e^- in P atom will be exothermic.

(3) IP of F is greater than its EA value.

(4) Reaction $O^-_{(g)} + S_{(g)} \rightarrow O_{(g)} + S^-_{(g)}$ is endothermic.

SECTION-A (BOTANY)

101. Pollen grains are well preserved as fossils due to the presence of :-

(1) Sporopollenin

(2) Pollen kitt

(3) Intine

(4) Two layered wall

102. In over 60 percent of angiosperms, pollen grains are shed at :

(1) 3-Celled stage

(2) 2-celled stage

(3) 1-celled stage

(4) 7-celled stage

103. In angiosperm all the four microspores of tetrad are covered by layer, which is formed by

(1) Pecto - cellulose (2) Callose

(3) Cellulose (4) Sporopollenin

104. Filiform apparatus is characteristic feature of :-

(1) Suspensor cell

(2) Egg cell

(3) Synergid cell

(4) Zygote

105. How many statement are correct regarding stamen ?

(A) It is unit of androecium

(B) It is equivalent to microsporophyll

(C) It is differentiated into filament and anther

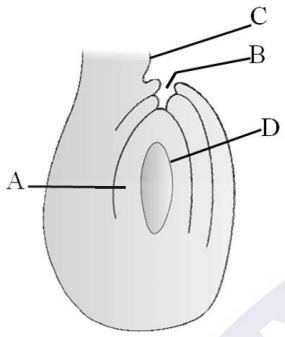
(D) It is male sex organ of the flower

Option :-

(1) One (2) Two

(3) Three (4) Four

106. A diagrammatic view of typical anatropous ovule :



Choose the correct option regarding A, B, C and D above in diagram

	A	B	C	D
1	Nucellus	Funicle	Hilum	Embryo sac
2	Nucellus	Embryo sac	Funicle	Hilum
3	Nucellus	Hilum	Embryo sac	Funicle
4	Nucellus	Micropyle	Funicle	Embryo sac

107. **Assertion (A) :** The flowers produce enormous amount of pollen when compared to the number of ovules available for pollination.

Reason (R) : To compensate the uncertainties and associated loss of pollen grains during pollination.

(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

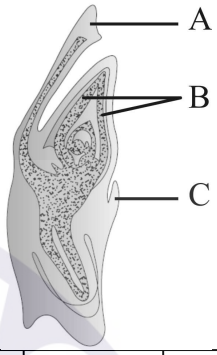
(4) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

108. Ploidy of endosperm tissue in flowering plant is generally :-

(1) Haploid (2) Diploid

(3) Triploid (4) Tetraploid

109. Identify the correct labelling A, B and C in the given below figure



	A	B	C
(1)	Coleoptile	Scutellum	Epiblast
(2)	Scutellum	Coleoptile	Epiblast
(3)	Epiblast	Coleoptile	Scutellum
(4)	Scutellum	Coleoptile	Radicle

110. The thalamus contributes to fruit formation in -

(1) Apple and Strawberry

(2) Apple and Onion

(3) Strawberry & Bean

(4) Cashew and Castor

111. Nonalbuminous seeds are -

(1) Wheat & Maize

(2) Castor & Barley

(3) Pea & Groundnut

(4) Maize & Gram

112. Identify the angiosperm which produce more than one embryo in their seed is/are :

(1) Orange

(2) *Cycas*

(3) Banana

(4) Orange and *Cycas*

113. Given below are two statement :

Statement-I :- Endodermis of dicot stem also reffered to as the starch sheath.

Statement-II :- The cell of the endodermis are rich in starch grains.

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

(1) Both statement I and statement II are incorrect

(2) Statement I in correct but statement II is incorrect

(3) Statement I in incorrect but statemen II is correct

(4) Both statement I and statement II are correct

114. Axillary and terminal buds developed by the activity of :

(1) Lateral meristem

(2) Intercalary meristem

(3) Apical meristem

(4) Parenchyma

115. Apical meristems and intercalary meristems are :

(1) Primary and secondary meristems respectively

(2) Secondary and primary meristems respectively

(3) Both are primary meristems

(4) Both are secondary meristems

116. Fibres and sclereids are the type of :

(1) Parenchyma

(2) Collenchyma

(3) Sclerenchyma

(4) Xylem

117. In leaves, ground tissue consist of :

(1) Mesophyll

(2) Epidermal cells

(3) Vascular tissue

(4) Guard cells

118. Cynobacteria are used in agricultural fields for crops improvements because of :

(1) Respiration (2) Algal blooms

(3) N_2 fixation (4) All of these

119. DNA of *E.Coli* is :-

(1) ss circular (2) ds circular

(3) ds linear (4) ss linear

120. Several ribosomes may attach to a single mRNA and form a chain called :-

(1) Ribosome (2) Nucleosome

(3) Polysome (4) All of these

121. Potato spindle tuber diease is cause by :-

(1) Virus (2) Lichen

(3) Prions (4) Viroid

122. Match the columns I and II, and choose the correct combination from the options given.

	Column-I		**Column-II**
A.	Chief producer of ocean	I.	Slime mould
B.	Red tides	II.	*Euglena*
C.	Pelicle layer	III.	*Gonyaulax*
D.	Plasmodium	IV.	Diatoms

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

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

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

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

123. **Statement 1:-** Slime moulds are saprophytic protists.

Statement 2:- During unfavourable conditions, slime moulds form an aggregation called plasmodium.

(1) Only statement 1 is correct

(2) Only statement 2 is correct

(3) Both statement 1 and statement 2 are correct

(4) Both statement 1 and statement 2 are incorrect

124. **Assertion :** Deuteromycetes are known as imperfect fungi.

Reason : Only the sexual or vegetative phases of these fungi are known.

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

(2) Both A and R true but R is not correct explanation A

(3) A is true but R is false

(4) A is false and R is true

125. **Statement-I :-** Leafs converted into spines for defence in cactus.

Statement-II :- When a shoot tip transforms into a flower it is always solitary.

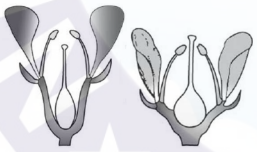
(1) Statement I correct and statement II are incorrect

(2) Statement I incorrect and statement are II correct

(3) Both statement I and II are correct

(4) Both statement I and II are incorrect

126. How many plants belongs to given diagram :



Mustard, Chilli, Brinjal, Rose, Plum, Peach, Guava, Cucumber, Apple, Sunflower.

(1) Three (2) Four (3) Five (4) Six

127. Plants show variation in the length of filament in stamen ?

(1) *Salvia* and mustard

(2) Turnip and *Capsella*

(3) Radish and Turnip

(4) All of these

128. How many stamens are present in Liliaceae and Cruciferae family members respectively :

(1) 5 and 5 (2) 5 and 6

(3) 6 and 6 (4) 6 and 5

129. In which plant the petioles expand, become green and synthesise food ?

(1) *Opuntia* (2) *Euphorbia*

(3) Australian acacia (4) *Asparagus*

130. Aestivation in which directional overlapping of petals are present :-

(1) Valvate (2) Twisted

(3) Imbricate (4) Vexillary

131. In biological name the first word denotes :-

(1) Species (2) Specific epithet

(3) Genus (4) Author

132. Haplontic life cycle is represented by :-

(1) *Spirogyra*

(2) *Volvox*

(3) Some species of *Chlamydomonas*

(4) All of the above

133. Which of the following is not a moss ?

(1) *Funaria* (2) *Polysiphonia*

(3) *Sphagnum* (4) *Polytrichum*

134. In gymnosperms, development of pollen grains takes place with in the ____?____.

(1) Microsporangium

(2) Megasporangium

(3) Archegonia

(4) Ovary

135. Which of the following statement is not correct ?

(1) Keys are generally analytical in nature.

(2) Herbarium is a store house of collected plant and animal specimens.

(3) Keys are based on contrasting characters.

(4) Botanical gardens have collections of living plants for reference.

SECTION-B (BOTANY)

136. **Statement-I :-** Megaspore mother cell undergoes meiotic devision

Statement-II :- Generally all the four megaspores form female gametophyte.

Options :

(1) Statement I and II both are correct.

(2) Statement I and II both are incorrect.

(3) Only Statement I is correct.

(4) Only Statement II is correct.

137. **Assertion :-** Cleistogamous flowers are invariably are invariably autogamous.

Reason :- Cleistogamous flowers are bisexual flowers and do not open at all.

(1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.

(3) Assertion is True but the Reason is False.

(4) Both Assertion & Reason are False.

138. **Statement-I :** The pollen and pistil components and the interactions leading to the recognition followed by always acceptance.

Statement-II : The pistil has ability to recognise the pollen grains.

(1) Both statement-I and statement-II are correct

(2) Both statement-I and Statement-II are incorrect

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

(4) Statement-I is correct and statement-II is incorrect

139. Read the following statements carefully -

A. The flowers pollinated by flies and beetles secrete foul odours to attract.

B. Dioecy prevents both autogamy and geitonogamy.

C. Embryo development precedes endosperm development.

D. In the dicot plants the cotyledon is called scutellum that is situated in the middle of embryonal axis.

Which of the following set of statement is correct?

(1) A & B (2) B & C

(3) C & D (4) A & D

140. Read the following statements A to E :

(A) Phellogen is generally a couple of layers thick.

(B) Bark refers to all tissue interior to vascular cambium.

(C) Vascular cambium is generally more active on the inner side.

(D) In young dicot stem cork cambium present in form of complete ring.

(E) In isobilateral leaf, the equal number of stomata are present on both the surface.

How many of the above statements are correct ?

(1) Four (2) Three

(3) Two (4) One

141. **Assertion (A) :-** Vascular bundles are conjoint and closed in monocotyledon stem.

Reason (R) :- Xylem and phloem are jointly situated along the same radius of vascular bundle.

In the light of the above statements, choose the correct answer from the options given below :

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

(2) A is true but R is false

(3) A is false but R is true

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

142. Match List-I with List-II :

	List-I		List-II
(A)	Meristem	(I)	Storage
(B)	Parenchyma	(II)	Mechanical support
(C)	Sclerenchyma	(III)	Transport food material
(D)	Phloem	(IV)	Produce primary tissues

Choose the correct answer from the options given below :

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

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

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

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

143. In which of the following there is no sexual reproduction:-

(1) *Ulothrix* (2) *Nostoc*

(3) *Aspergillus* (4) *Volvox*

144. $NH_4^+ \xrightarrow{A} NO_2^- + \Delta$

$NO_2^- \xrightarrow{B} NO_3^- + \Delta$

In the above reaction A and B are respectively :-

(1) *Nitrobacter,* *Nitrosomonas*

(2) *Nitrosomonas,* *Nitrobacter*

(3) *E.Coli,* *Pseudomonas*

(4) *Rhizobium,* *Pseudomonas*

145. How many flower of plants show zygomorphic and actinomorphic symmetry respectively :

Pea, gulmohar, bean, *Cassia*, mustard, *Datura*, chilli, *Canna*, Lupin, *Tulipa*, Lily, *Petunia*, *Trifolium*

(1) 6 and 7 (2) 7 and 6

(3) 5 and 6 (4) 6 and 6

146. Plants show Trilocular, tricarpellary and syncarpous gynoecium :

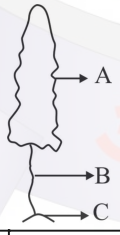
(1) Belladonna and tobacco

(2) Soyabean and groundnut

(3) Lupin and *Petunia*

(4) *Asparagus* and *Colchicum*

147. Identify the parts labelled A, B and C in the given figure below :



	A	B	C
(1)	Capsule	Seta	Foot
(2)	Holdfast	Stipe	Frond
(3)	Frond	Stipe	Holdfast
(4)	Leaf	Stem	Root

148. Match the Column-I and Column-II and choose right options.

	Column-I		Column-II
(I)	Class	(P)	Category includes related class
(II)	Genus	(Q)	Category includes related orders
(III)	Phylum	(R)	Category includes related species
(IV)	Kingdom	(S)	Category includes related divisions

	(I)	(II)	(III)	(IV)
(1)	Q	R	S	P
(2)	P	Q	R	S
(3)	Q	R	P	S
(4)	S	R	Q	P

149. Read the given statements and select the correct option :-

Statement-I :- The pteridophytes include horsetails and mosses.

Statement-II :- *Selaginella* and *Salvinia* which produce two kinds of spores, are known as heterosporous fern.

(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.

150. Some characters/ structures are given below. How many of them are found in both bryophytes and pteridophytes ?

(A) Embryo (B) Archegonium

(C) Vascular tissue (D) Seed

(E) Gemma cup

(F) Foot , Seta and Capsule

(G) Protonema (H) Endosperm

(I) Root (J) Zygote

(1) Three (2) Four (3) Five (4) Six

SECTION-A (ZOOLOGY)

151. Which of the following is an oviparous mammal ?

(1) *Macropus* (2) *Pteropus*

(3) *Delphinus* (4) *Ornithorhynchus*

152. Which gland is present in *Neophron ?*

(1) Milk producing glands in thorax

(2) Oil producing glands in thorax

(3) Sweat gland on tail

(4) Oil glands at the base of the tail

153. Find the correct match -

(1) Chelone ⟶ Turtle, Amphibia

(2) Chameleon ⟶ Garden lizard, Reptile

(3) Naja ⟶ Cobra, Amphibia

(4) Hemidactylus ⟶ Wall lizard, reptile

154.

Which structure is absent in female individuals of above given animal ?

(1) Claspers (2) Notochord

(3) Placoid scales (4) Cloaca

155.

Which structure is absent in individuals of given animal ?

(1) Operculum (2) Placoid scales

(3) Air bladder (4) Bony endoskeleton

156. Coanocytes are unique feature of :-

(1) *Paramoecium* (2) *Scypha*

(3) *Adamsia* (4) *Pleurobrachia*

157. **Statement-I :-** The body cavity which is lined by mesoderm is called coelom.
Statement-II :- In platyhelminthes, mesoderm is present as scattered pouches in between the ectoderm and endoderm.

(1) Statement-I is correct but statement-II is incorrect.

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

(3) Statement-I and II both are correct.

(4) Both statement-I and II are incorrect.

158. Hemichordata was earlier considered as a subphylum under phylum chordata. But now it is placed as a separate phylum under :-

(1) Chordata (2) Protochordata

(3) Urochordata (4) Non-chordata

159. Tegmina arises from :-

(1) Prothorax (2) Mesothorax

(3) Metathorax (4) Neck region

160. Chitinous exoskeleton in each segment of cockroach, consist of :-

(1) Dorsal sternum & ventral tergum

(2) Dorsal tergum & ventral sternum

(3) Dorsal sternum & lateral pleuron

(4) Dorsal tergum & ventral pleuron

161. Read the following statements and select the incorrect option :

(1) The CNS of cockroach includes brain & ganglionated ventral nerve cord.

(2) Spiracles helps in excretion

(3) Blood from sinuses enter in heart chambers through ostia

(4) In female cockroach one pair ovary lying laterally in 2–6th abdominal segment.

162. Match the column-I & column-II

Column-I		Column-II	
(A)	Hermaphrodite	(1)	Produce blood cells & haemoglobin
(B)	Direct development	(2)	Testes and overy in same animal
(C)	Chemoreceptor	(3)	Larval form absent
(D)	Blood gland	(4)	Sense of chemical substance

Option :

(1) A–2, B–4, C–3, D–1

(2) A–3, B–2, C–4, D–1

(3) A–1, B–3, C–2, D–4

(4) A–2, B–3, C–4, D–1

163. Which tissue functions as a lining for body cavities ducts & tubes :-

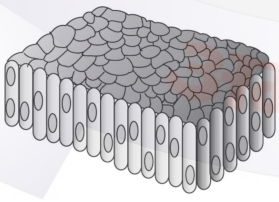
(1) Compound epithelium

(2) Simple epithelium

(3) Loose C.T.

(4) Dense C.T.

164. Identify the tissue with diagram



(1) Simple squamous

(2) Simple cuboidal

(3) Simple Columnar

(4) Ciliated columnar

165. The excess of nutrients which are converted into fats are stored in this tissue ?

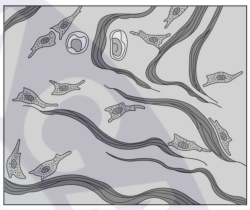
(1) Areolar tissue

(2) Adipose tissue

(3) Dense regular

(4) Dense irregular

166. Identify the tissue with diagram



(1) Areolar tissue

(2) Adipose tissue

(3) Dense regular tissue

(4) Dense irregular tissue

167. Which tissue connects skeletal muscles to bone.

(1) Areolar tissue

(2) Dense regular tissue

(3) Dense irregular tissue

(4) None of above

168. Which fibres are maximum in dense irregular C.T.?

(1) Elastin

(2) Collagen

(3) Reticular

(4) None of above

169. The tissue composed of tall & slender cells & present in lining of stomach & intestine.

(1) Simple squamous

(2) Simple cuboidal

(3) Simple columnar

(4) Compound epithelium

170. Which hormone stimulate the leydig cell to secret the Androgen :

(1) FSH (2) LH

(3) GnRh (4) ABP

171. A sugar which act as a sperm fuel are secreted by which gland :

(1) Prostate

(2) Bulbourithral gland

(3) Seminal vesicle

(4) Pituitary gland

172. How many testicular lobules are present in both testis :

(1) 250 (2) 650

(3) 500 (4) 2 - 3

173. Match the column-I with column-II :

	Column-I		Column-II
(a)	Barrier method	(i)	Periodic abstinence
(b)	Chemical method	(ii)	I.U.D.
(c)	Hormonal method	(iii)	Cream/Jelly
(d)	Natural method	(iv)	Pills

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

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

174. Which of the following pill are used as a emergency contraceptive pill :

(1) Mala-D (2) Mala-N

(3) Saheli (4) i-Pill

175. A person suffering from Asthenospermia and couple unable to produce child. Doctor suggest for ICSI technique for in-vitro fertilization. Which one of the following method done after ICSI :

(1) GIFT (2) AI

(3) IUT (4) Amniocentesis

176. How many of the following statements are correct ?

(A) Mons pubis is a cushion of fatty tissue covered by skin and pubic hair.

(B) Labia majora are paired folds of tissue under the labia minora.

(C) Clitoris is a tiny finger like structure which lies at the lower junction of two labia minora.

(D) External genetilia include mons pubis, labia majora, labia minora, hymen and clitoris.

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

177. How many of the following cells are diploid ?

Oogonia, Primary oocyte, Secondary oocyte, Ovum, Zygote.

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

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

	Column-I		Column-II
(A)	Morula	(i)	8-16 celled stage
(B)	Blastocyst	(ii)	Hollow
		(iii)	Trophoblast cells
		(iv)	Solid

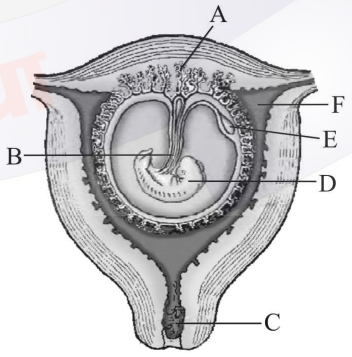
(1) A-(i), (ii) ; B-(iii), (iv)

(2) A-(iii), (iv) ; B-(i), (ii)

(3) A-(i), (iii) ; B-(ii), (iv)

(4) A-(i), (iv) ; B-(ii), (iii)

179. Which of the following is correct labelling for B.



(1) Yolk sac (2) Umbilical cord

(3) Mucus plug in cervix (4) Cavity of uterus

180. Match the column I & II with correct option.

	Column-I		Column-II
(A)	Sarcomere	(i)	Smooth muscle
(B)	Actin filament	(ii)	Skeletal muscle
(C)	Slow muscle fiber	(iii)	Contractile unit
(D)	Fast muscle fiber	(iv)	I-band

(1) A-iii, B-iv, C-i, D-ii (2) A-i, B-ii, C-iii, D-iv

(3) A-iv, B-i, C-iii, D-ii (4) A-ii, B-iii, C-iv, D-i

181. **Statement-I :** About 40-50 percent of the body weight of human adult is contributed by muscles.
Statement-II : Muscles is endodermal origin.

(1) Both statement I and II correct

(2) Both statement I and II incorrect

(3) Statement I correct and statement II incorrect

(4) Statement I incorrect and statement II correct

182. Wild contraction of muscles due to low Ca^{++} in body fluid.

(1) Tetany

(2) Arthritis

(3) Muscular dystrophy

(4) Myasthenia gravis

183. (i) Central part of thick filament not overlapped by thin filaments is called the 'H' zone.

(ii) In human beings skeletal system is made up of 206 bones and few cartilages.

(iii) Each middle ear contains two tiny bones known as ear ossicles.

(iv) Each coxal bone of pelvic girdle formed by the fusion of three bones.

Select the correct option with correct statements.

(1) i, ii and iv (2) ii, iii and i

(3) iii, ii and iv (4) i, ii, iii and iv

184. Match the Column-I and Column-II and pick out the correct answer.

	Column-I		Column-II
(a)	Phalanges	(i)	14
(b)	Ribs	(ii)	8
(c)	Wrist bones	(iii)	5
(d)	Palm bones	(iv)	24

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

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

185. **Assertion :-** Inflamation of joints due to accumulation of uric acid crystal known a gout.
Reason :- Progressive degeneration of skeletal muscle mostly due to genetic disorder known as muscular dystrophy.

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

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

(3) (A) and (R) are incorrect.

(4) (A) correct but (R) incorrect.

SECTION-B (ZOOLOGY)

186. The teeth of dog fish are modified _____ scales and directed _____.
Fill in the blanks with correct option :

(1) Placoid, Forwardly

(2) Placoid, Backwardly

(3) Cycloid, Forwardly

(4) Cycloid, Backwardly

187. (A) The body is covered by chitinous exoskeleton.
(B) They are mostly monoecious.
(C) They are bilaterally symmetrical, triploblastic and coelomate animals.
(D) They have open blood circulation usually.
Choose the correct statements about arthopodas.

(1) A only (2) A and B only

(3) A, B and D only (4) A, C and D only

188. Match column-I with column-II

	Column-I		Column-II
A.	Antedon	I.	Closed blood circulation
B.	Doliolum	II.	Sexes are not separate
C.	Saccoglossus	III.	Calcareous endoskeleton
D.	Branchiostoma	IV.	Proboscis gland

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

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

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

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

189. **Assertion (A) :-** Sea-horse is an aquatic mammal.
Reason (R) :- Sea horse has milk producing glands.

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

(2) Both **(A)** and **(R)** are not correct

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

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

190. Alary muscles play an important role is :-

(1) Circulation of blood

(2) Respiration

(3) Body movement

(4) Peristalsis

191. **Statement-I :** In cockroach foregut comprise of pharynx, oesophagus, crop and gizzard.
Statement-II : Anal cerci are paired jointed out growth found in cockroach. These arises from 9th sternum.

(1) Both statement-I & II are false

(2) Statement-I is correct but statement-II is incorrect

(3) Statement-I is false but statement-II is correct

(4) Both statement-I & II are correct

192. Find the correct statement -

(1) Tendon is a specialised C.T.

(2) Cartilage is a loose C.T.

(3) Adipose is a dense C.T.

(4) Areolar is a loose C.T.

193. The matrix of connective tissue

(1) Lipids

(2) Monosaccharides

(3) Modified polysaccharide

(4) Phospholipids

194. Which statement is wrong regarding blood.

(1) Blood is a fluid connective tissue.

(2) The matrix of blood is plasma.

(3) Only collagen fibre are present in blood.

(4) It consists R.B.C., W.B.C. platelets & Plasma.

195. Read the following statements carefully and choose the incorrect one :

(1) Daily oral pill prevent ovulation

(2) Weekly oral pill prevent implantation

(3) Vasectomy prevent physical mating of sperm and ovum

(4) Hormone releasing I.U.D. suppress sperm motility and the fertilization capacity of sperm

196. Which one of the following statement are correct for IUT :

(1) Zygote upto 8 Blastomeres are transfer into uterus

(2) Zygote more then 8 Blastomeres are not transfer into uterus

(3) Zygote more then 16 Blastomers are transfer into the uterus

(4) Zygote more then 8 Blastomeres are transfer into the fallopian tube

197. **Statement-I :-** After Oogenesis sperm heads become embeded in the sertoli cells.

Statement-II :- No more oogonia are formed and added after birth.

(1) Both statement-I and statement-II are incorrect.

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

(3) Statement-I is incorrect out statement-II iscorrects.

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

198. Which of the following hormones is/are not secreted by placenta during pregnancy ?
hCG, hPL, estrogen, thyroxine, progesteron

(1) Estrogen and Progesteron

(2) hCG and Thyroxine

(3) Thyroxine only

(4) hPL and Estrogen

199. The given figure shows an actin filament Identify the labelled part A, B and C and select the correct option.

(1) A-Tropomyosin, B-Troponin, C-F actin

(2) A-Troponin, B-Tropomyosin, C-F actin

(3) A-F actin, B-Troponin, C-Tropomyosin

(4) A-Myosin, B-F actin, C-Tropomyosin

200. Joint between the bone of human skull is :

(1) Synovial Joint

(2) cartilaginous Joint

(3) Hing Joint

(4) Fibrous Joint