NEW STANDARD ACADEMY

Test Type : Unit Test - 03

Do not open this Test Booklet until you are asked to do so. **14-08-2023**

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. A capacitor of 2μF capacity is charged by a battery of 100 V then heat loss is :-

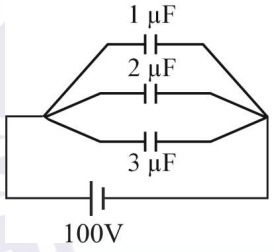
(1) 20 mJ (2) 10 mJ (3) 40 mJ (4) 30 mJ

2. Two spherical conductors of radii 2 cm and 3 cm are having charges 15 μC and –5 μC. Now, they are connected by a wire then final charges on the conductors are :-

(1) 8 μC, 12 μC (2) 4 μC, 6 μC

(3) 10 μC, 10 μC (4) None

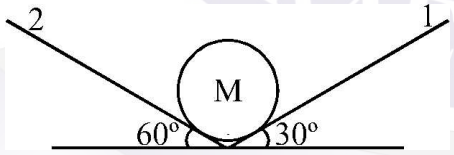
3. In the given figure charge on each capacitor in μC is :-



(1) 100, 200, 300 (2) 200, 100, 300

(3) 300, 100, 200 (4) 300, 200, 100

4. A solid sphere is placed over two smooth inclined plane as shown in figure. If N_1 is normal reaction by surface 1 and N_2 is normal reaction by surface 2, then :-



(1) $N_1 = N_2$ (2) $N_1 < N_2$

(3) $N_1 > N_2$ (4) None of these

5. If 64 small identical droplets coalesce to form a single drop then the potential of big drop is -
If radius and charge on small droplet in esu are 0.1 mm and 0.002 esu.

(1) 320 V (2) 640 V

(3) 960 V (4) 480 V

6. Two metal plates form a parallel plate capacitor. The distance between the plates is d. Now a metal of thickness d/2 and of same area is inserted completely between the plates. The ratio of capacity in two cases (initial to final) is :-

(1) 1 (2) 2 (3) 1/2 (4) 1/3

7. Two spheres of radii R_1 and R_2 having charges Q_1 and Q_2 are connected together then the energy of system.

(1) No change

(2) increases

(3) always decreases

(4) will decrease till $Q_1R_2 = Q_2R_1$

8. Distance between the plates of a parallel plate capacitor is 4 mm and potential difference is 60 V. If the distance increases to 12 mm then -

(1) potential difference on capacitor will be 180 volt

(2) potential difference on capacitor will be 20 volt

(3) potential difference on capacitor will not change

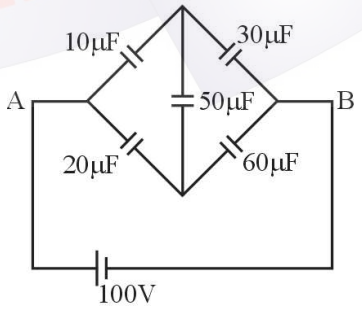
(4) charge on capacitor will become one third

9. In an air capacitor, diameter of each plate is 4 cm. capacity of this parallel plate capacitor is equal to the capacity of spherical capacitor of diameter 20 cm then distance between plates is -

(1) 4×10^{-3} m (2) 1×10^{-3} m

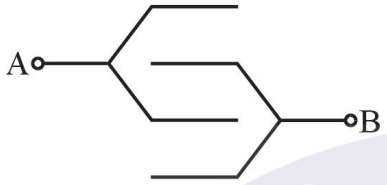
(3) 1 cm (4) 10^{-3} cm

10. Five capacitors are connected as shown in figure with 100 volt battery then net capacity between A and B is



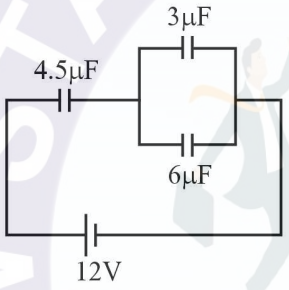
(1) $\frac{90}{2}\mu F$ (2) $\frac{90}{3}\mu F$ (3) $\frac{90}{4}\mu F$ (4) None

11. Four plates of same area are connected as shown in figure. If the distance between the plates is d then effective capacity of combination is -



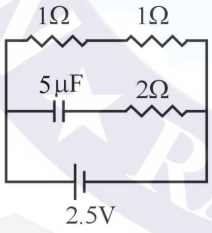
(1) $\frac{2\epsilon_0 A}{d}$ (2) $\frac{3\epsilon_0 A}{d}$ (3) $\frac{3\epsilon_0 A}{2d}$ (4) $\frac{\epsilon_0 A}{d}$

12. Potential difference on 4.5 μF capacitor in the circuit shown is -



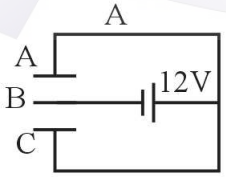
(1) 8/3 V (2) 4 V (3) 6 V (4) 8 V

13. A capacitor of capacity 5 μF is connected as shown in figure. Internal resistance of cell is 0.5 Ω. Charge on plates of capacitor will be -



(1) 20 μC (2) 5 μC (3) 10 μC (4) 25 μC

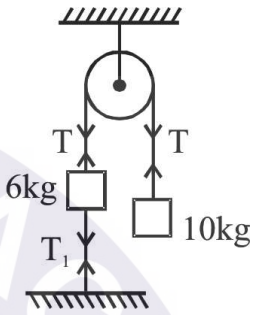
14. Three plates A, B and C each of area 50 cm^2 are taken. Distance between A and B and between B and C is 3 mm. When the plates are fully charged then stored energy in the combination is -



(1) 1.6×10^{-9} J (2) 2.1×10^{-9} J

(3) 5×10^{-9} J (4) 7×10^{-9} J

15. Two bodies of mass 6 kg and 10 kg are attached to the end of a string which passing over a pulley. The 6 kg mass is attached to the table top by other string. The tension in this string T_1 is equal to :–



(1) 40 N (2) 80 N (3) 60 N (4) 100 N

16. A parallel plate capacitor of capacity C is connected with a battery and is charged by a potential difference V. An another capacitor of capacity 2C is charged by a potential difference 2V. Now the charging batteries are removed and capacitors are connected in parallel combination such that positive plate of one capacitor is connected with negative plate of another. Then final energy of this system is -

(1) Zero (2) $\frac{25}{6} CV^2$

(3) $\frac{3}{2} CV^2$ (4) $\frac{9}{2} CV^2$

17. Consider the following statements -

(a) Frictional force between block and contact surface depends on area of contact.

(b) Frictional force may also act when there is no relative motion between the contact surfaces.

The correct statement -

(1) a only (2) b only

(3) a & b both (4) Neither a nor b

18. A rocket of mass 10000 kg is blasted upwards with an initial acceleration of 2 m/s^2. The initial thrust of the blast is -

(1) 120 KN (2) 80 KN

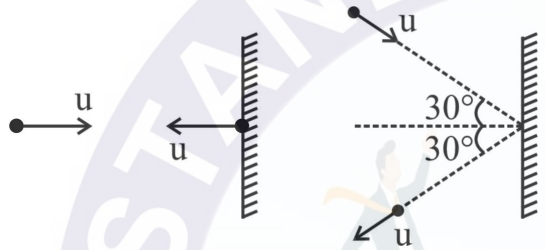
(3) 100 KN (4) 140 KN

19. A man of mass 60 kg stands on a weighing scale in a lift which is moving upward with a uniform speed of 10 m/sec. The reading on the scale is -

(1) Zero (2) 120 kg-wt

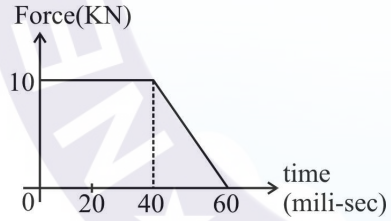
(3) 60 kg-wt (4) 90 kg-wt

20. Two identical billiard balls strike a rigid wall with same speed as shown in the figure. The ratio of magnitude of impulse imparted to the balls by the wall -



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

21. A force-time plot for a body is show in the figure. The total change in momentum of the body is -



(1) 400 N-s (2) 300 N-s

(3) 500 N-s (4) 200 N-s

22. A machine gun fires 10 bullets per second each with speed 200 m/sec. If the mass of each bullet is 20 gm, then the force required to keep the gun stationary is -

(1) 40 N (2) 0.4 N (3) 4 N (4) 8 N

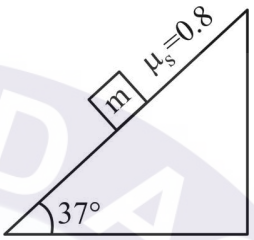
23. Upper end of a spring is attached to roof and a block of mass 2 kg is attached at its lower end. Extension in spring is 2mm on earth. Find extension in the spring on another planet where $g = 4\ m/s^2$

(1) $\frac{3}{5}$mm (2) $\frac{2}{5}$mm (3) $\frac{4}{5}$mm (4) $\frac{5}{4}$mm

24. The ratio of weight of a man in a stationary lift and in a lift accelerating downwards with a uniform accleration is 5 : 2. The acceleration of the lift is :-

(1) $\frac{g}{3}$ (2) g (3) $\frac{g}{2}$ (4) $\frac{3g}{5}$

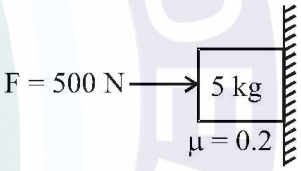
25.



Find minimum force to be applied parallel to inclined plane to move the block down the inclined plane. (m = 10 kg)

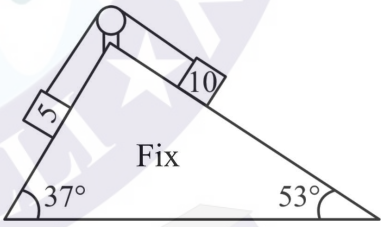
(1) 2 N (2) 3 N (3) 4 N (4) 5 N

26. Friction force acting on the block is :-



(1) 100 N (2) 50 N (3) 500 N (4) 200 N

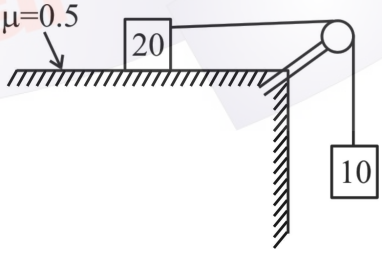
27. Find acceleration of 10 kg mass. Wedge is smooth and fixed.



(1) 5 m/s^2 (2) 4 m/s^2

(3) 3.33 m/s^2 (4) Zero

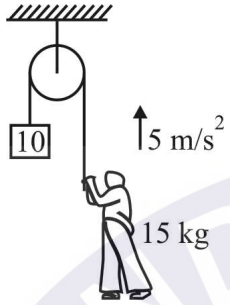
28. Acceleration of both the blocks will be



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

(3) 0 (4) 5 m/s^2

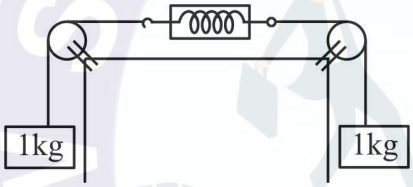
29. A man is climbing up the string with an acceleration of 5 m/s^2 as shown in the figure. Find the tension in the string.



(1) 225 N (2) 153 N

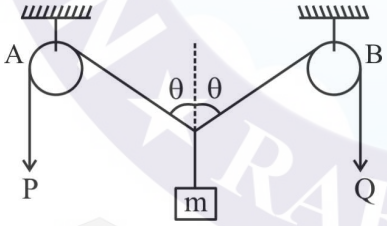
(3) 147 N (4) 200 N

30. In the given figure, what is the reading of the spring balance ?



(1) 10N (2) 20N (3) 5N (4) Zero

31. The ends P and Q of an unstrechable string move downwards with uniform speed U. Pulleys A and B are fixed. Mass M moves upwards with a speed.



(1) $2U\cos\theta$ (2) $U\cos\theta$

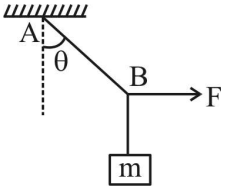
(3) $\frac{2U}{\cos\theta}$ (4) $\frac{U}{\cos\theta}$

32. Two persons are holding a light rope tightly at its ends so that it is horizontal. A 15 kg weight is attached to the rope at the mid-point which now no longer remains horizontal. The minimum tension required to completely straighten the rope is -

(1) 15 kgf (2) $\frac{15}{2}$kgf

(3) 5 kgf (4) Infinitely large

33.



If the block is in equilibrium then the tension in the string AB is -

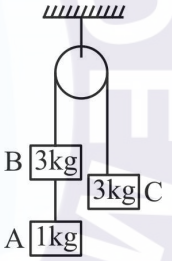
(1) $F\sin\theta$

(2) $\frac{F}{\sin\theta}$

(3) $F\cos\theta$

(4) $\frac{F}{\cos\theta}$

34. In the system shown in the figure, the acceleration of the 1 kg mass and the tension in the string connecting between A and B is -



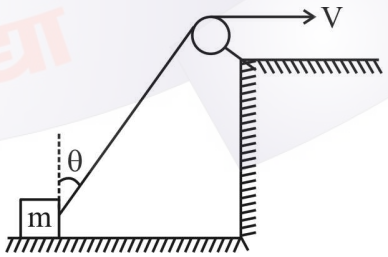
(1) $\frac{g}{4}\downarrow, \frac{8g}{7}$

(2) $\frac{g}{4}\uparrow, \frac{g}{7}$

(3) $\frac{g}{7}\downarrow, \frac{6g}{7}$

(4) $\frac{g}{2}\uparrow, g$

35. In the shown figure, the horizontal velocity of the block is -



(1) V (2) $\frac{V}{\sin\theta}$

(3) $V\sin\theta$ (4) $\frac{V}{\cos\theta}$

SECTION - B (PHYSICS)

36. **Assertion :-** When a dielectric medium is filled between the plates of a capacitor, its capacity increases.

Reason :- The dielectric medium reduces the potential difference between the plates of capacitor.

(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.

37. **Assertion :-** Metallic shield in the form of a hollow shell, can be built to block an electric field.

Reason :- In a hollow spherical shell, the electric field inside it, is zero at every point.

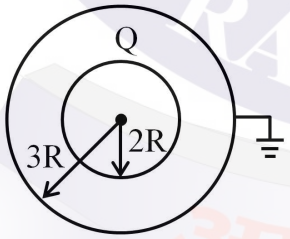
(1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

(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.

38. The energy stored in the capacitor given in figure is :-



(1) $\frac{Q^2}{12\pi\in_0 R}$

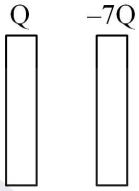
(2) $\frac{Q^2}{6\pi\in_0 R}$

(3) $\frac{Q^2}{24\pi\in_0 R}$

(4) $\frac{Q^2}{48\pi\in_0 R}$

39. In the given figure, plate area is A and distance between the plates is d then the energy stored in capacitor is :-

$\left(C = \frac{\in_0 A}{d}\right)$



(1) $\frac{4Q^2}{C}$ (2) $\frac{8Q^2}{C}$ (3) $\frac{3Q^2}{C}$ (4) $16\frac{Q^2}{C}$

40. ***Statement-I :*** During charging of a capacitor with the help of a resistance, time constant is that time taken in which any parameter changes by 63%.

Statement-II : A completely charged capacitor behaves as a short path.

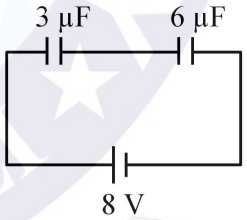
(1) Both statement-I and statement-II are correct

(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

41. For the given circuit match the column :-



	Column-I		Column-II
(A)	Energy stored in 3 μF	(P)	128 μJ
(B)	Energy stored in 6 μF	(Q)	64 μJ
(C)	Heat loss during charging	(R)	$\frac{128}{3}$ μJ
(D)	Work by battery	(S)	$\frac{64}{3}$ μJ

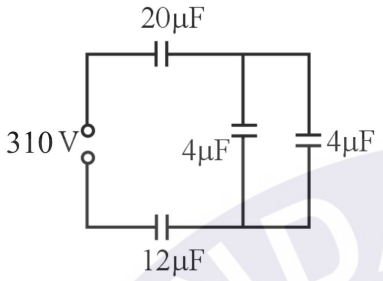
(1) A⟶P, B⟶Q, C⟶R, D⟶S

(2) A⟶P, B⟶R, C⟶S, D⟶Q

(3) A⟶Q, B⟶R, C⟶P, D⟶S

(4) A⟶R, B⟶S, C⟶Q, D⟶P

42. In the figure given, four capacitors and their capacities are shown. Charge and potential difference across 4μF capacitor will be respectively



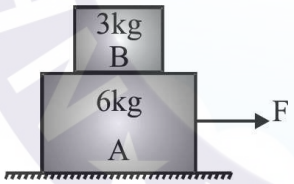
(1) 600 μC, 150 V

(2) 300 μC, 75 V

(3) 800 μC, 200 V

(4) 580 μC, 145 V

43. Two blocks A and B of masses 6 kg and 3 kg rest on a smooth horizontal surface as shown in the figure. If coefficient of friction between A and B is 0.4, the maximum horizontal force which can move them without separation is :-



(1) 72 N

(2) 40 N

(3) 36 N

(4) 20 N

44. Two copper spheres of same radii, one hollow and the other solid, are charged to the same potential. Which will hold more charge ?

(1) Solid sphere

(2) Hollow sphere

(3) Both will hold equal charge

(4) Nothing can be predicted

45. How many capacitors each of 8μF and 250V are required to form a composite capacitor of 16μF and 1000V :-

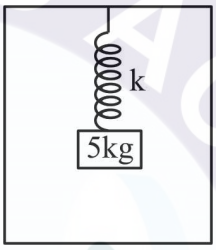
(1) 8

(2) 32

(3) 16

(4) 64

46.



Block is in equilibrium tied by a spring of spring constant k = 25 N/m in a lift.

If lift start moving upward with acceleration 3 m/s^2, find displacement of block till equilibrium (with respect to lift) is attained in new condition.

(1) $\frac{3}{5}$m

(2) $\frac{4}{5}$m

(3) $\frac{2}{5}$m

(4) $\frac{1}{5}$m

47. A parallel plate capacitor with air as medium between the plates has a capacitance of 10 μF. The area of the capacitors is divided into two equal halves and filled with two media having dielectric constants $K_1 = 2$ and $K_2 = 4$. The capacitance of the system will now be :-

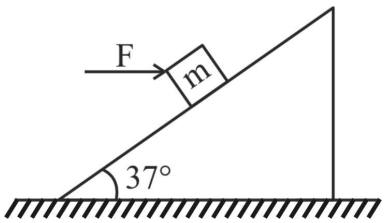
(1) 10μF

(2) 20 μF

(3) 30μF

(4) 40μF

48.



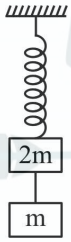
A block of mass m is placed on smooth fixed inclined plane.

A force F is applied horizontally to keep block at rest. Find value of F.

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

(3) $\frac{mg}{5}$ (4) $\frac{2mg}{5}$

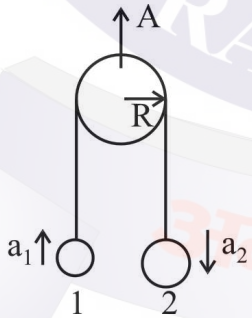
49. Initially the system shown is in equilibrium and at rest. The acceleration of 2m & m mass just after the spring is cut



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

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

50. Pulley is accelerating upwards at a rate A as shown. If a_1 and a_2 be the accelerations of bodies 1 & 2 respectively then :



(1) $A = a_1 - a_2$

(2) $A = a_1 + a_2$

(3) $A = \frac{a_1 - a_2}{2}$

(4) $A = \frac{a_1 + a_2}{2}$

SECTION-A (CHEMISTRY)

51. The specific conductivity of N/10 KCl solution at 20°C is 0.012 Ω^{-1} cm^{-1} and the resistance of the cell containing this solution at 20°C is 60Ω. The cell constant is :

(1) 4.616 cm^{-1} (2) 0.72 cm^{-1}

(3) 2.173 cm^{-1} (4) 3.324 cm^{-1}

52. A decinormal solution is lying between two platinum electrodes having 5.4 cm^2 as the cross sectional area and 1.80 cm apart shows a resistance of 32 ohm. Specific and equivalent conductance of the solution will be respectively :-

(1) 0.0104 ohm^{-1} cm^{-1} and 104.0 ohm^{-1} cm^2 eq^{-1}

(2) 104.1 ohm^{-1} cm^{-1} and 0.0104 ohm^{-1} cm^2 eq^{-1}

(3) 282.2 ohm^{-1} cm^{-1} and 0.0208 ohm^{-1} cm^2 eq^{-1}

(4) 10.41 ohm^{-1} cm^{-1} and 208 ohm^{-1} cm^2 eq^{-1}

53. Which has maximum value of equivalent conductance, assume equal ionisation of each and identical specific conductance :-

(1) 0.01 M HCl

(2) 0.01 M H_2SO_4

(3) 0.01 M H_3PO_3

(4) All have same value

54. According to Kohlrausch law the limiting value of equivalent conductivity of an electrolyte A_2B can be represented by (if limiting molar conductivity of A^+ is $\lambda^{\infty}_{A^+}$ and of B^{-2} is $\lambda^{\infty}_{B^{-2}}$) :-

(1) $\lambda^{\infty}_{A^+} + \lambda^{\infty}_{B^{-2}}$ (2) $\frac{1}{2}\lambda^{\infty}_{A^+} + \lambda^{\infty}_{B^{-2}}$

(3) $\lambda^{\infty}_{A^+} + \frac{1}{2}\lambda^{\infty}_{B^{-2}}$ (4) $2\lambda^{\infty}_{A^+} + \lambda^{\infty}_{B^{-2}}$

55. A standard hydrogen electrode has zero electrode potential because :

(1) Hydrogen is easily oxidised

(2) This electrode potential is assumed to be zero.

(3) Hydrogen atom has only one electron.

(4) Hydrogen is the lightest element.

56. Aluminium displaces hydrogen from acid solution but copper does not. A galvanic cell prepared by combining Cu/Cu^{2+} and Al/Al^{3+} has an emf of 2.0V at 298K. If the potential of copper electrode is +0.34V, then potential of aluminium electrode will be :-

(1) +1.66V (2) −1.66V

(3) 2.34V (4) −2.3V

57. Which one of the following will give Br_2 gas by reaction with KBr solution :-

(1) N_2 (2) I_2 (3) Cl_2 (4) NO_2

58. Standard oxidation electrode potentials of four metals P,Q,R and S are +2.87, +3.05 −0.80 and +0.25 volts respectively. The reducing power of these metals will be in the order :-

(1) P > Q > R > S

(2) S > R > Q > P

(3) Q > P > S > R

(4) None of these

59. Which of the following statements is not correct regarding to galvanic cell :-

(1) A reaction is spontaneous from left to right if $E_{cell} > 0$

(2) A reaction occurs from right to left if $E_{cdl} < 0$

(3) If the system is at equilibrium no net reaction occurs

(4) E_{cell} is temperature-independent

60. The reaction

$1/2\ H_{2(g)} + AgCl_{(s)} \longrightarrow H^+_{(aq)} + Cl^-_{(aq)} + Ag_{(s)}$

can be represented in the galvanic cell as :

(1) $Ag|AgCl(s)|\ KCl(aq)||AgNO_3(aq)|Ag$

(2) $Pt|H_2(g)|HCl(aq)||AgNO_3(aq)$

(3) $Pt|H_2(g)|HCl(aq)||AgCl(s)|Ag$

(4) $Pt|H_2(g)|KCl(aq)||AgCl(s)|Ag$

61. Which of the following will increase the voltage of the cell :-

$Sn_{(s)} + 2Ag^+_{(aq)} \longrightarrow Sn^{2+}_{(aq)} + 2\ Ag_{(s)}$

(1) Increase in the concentration of Sn^{2+} ions

(2) Increase in the concentration of Ag^+ ions

(3) Increase in the size of silver rod

(4) None of these

62. E.M.F. of cell $Ni\ |Ni^{2+}\ (1.0M)|\ |Au^{3+}(1.0M)|\ Au$ is .... if E° for Ni^{2+}/Ni is −0.25 V and E° for Au^{3+}/Au is 1.50 V :-

(1) +1.25 V (2) −1.75 V

(3) +1.75 V (4) +4.0 V

63. For the concentration cell :

$Zn|Zn^{2+}\ (M_1)\ ||\ Zn^{2+}\ (M_2)\ |\ Zn$, the value of ΔG will be negative if :-

(1) $M_1 = M_2$

(2) $M_1 > M_2$

(3) $M_2 > M_1$

(4) None of these

64. What will be the products obtained at anode and cathode respectively, on electrolysis of aqueous solution of $AgNO_3$ with platinum cathode and silver anode :-

(1) O_2, Ag

(2) $Ag^{\oplus}$, Ag

(3) $Ag^{\oplus}$, H_2

(4) Ag, $Ag^{\oplus}$

65. In the electrolytic cell, flow of electrons is from :-

(1) Cathode to anode in solution

(2) Cathode to anode through external supply

(3) Cathode to anode through internal supply

(4) Anode to cathode through internal supply

66. In fuel cell H_2 and O_2 react to produce electricity. In the process, H_2 gas is oxidized at anode and O_2 gas is reduced at cathode. If 67.2 litre of H_2 gas at STP produced in 15 min. then find out the current passed ?

(1) 64.33 amp

(2) 6.433 amp

(3) 643.33 amp

(4) None of these

67. Equal quantities of electricity are passed through three voltameters containing $FeSO_4$, $Fe_2(SO_4)_3$ and $Fe(NO_3)_3$. Mark out the correct statement regarding the experiment :

(1) The amount of iron deposited in $FeSO_4$ and $Fe_2(SO_4)_3$ are equal

(2) The amount of iron deposited in $Fe(NO_3)_3$ is two third of the amount of iron deposited in $FeSO_4$

(3) The amount of iron deposited in $Fe_2(SO_4)_3$ and $Fe(NO_3)_3$ is different

(4) The amount of iron deposited in all three voltameter is same

68. The discharge reaction at anode in Lead-Storage battery is :-

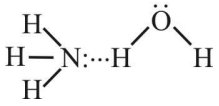
(1) $PbSO_4 + 2e^- \longrightarrow Pb + SO_4^{2-}$

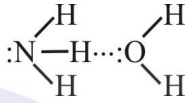
(2) $Pb + PbO_2 + 2H_2SO_4 \longrightarrow 2PbSO_4 + 2H_2O$

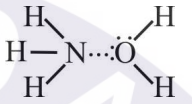
(3) $Pb + SO_4^{2-} \longrightarrow PbSO_4 + 2e^-$

(4) $PbSO_4 + 2H_2O \longrightarrow PbO_2 + 2H_2SO_4$

69. Which of the following is best representation of hydrogen bond ?

(1) 

(2) 

(3) 

(4) Both (1) & (2)

70. Strongest bond is formed by head on overlapping of :-

(1) 2s and 2p orbital

(2) 2p and 2p orbital

(3) 2s and 2s orbital

(4) All of these

71. The correct order of increasing bond angle is :-

(1) $OF_2 < ClO_2 < H_2O < Cl_2O$

(2) $OF_2 < H_2O < Cl_2O < ClO_2$

(3) $OF_2 < H_2O < ClO_2 < Cl_2O$

(4) $ClO_2 < OF_2 < H_2O < Cl_2O$

72. Molecular shapes of SF_4, CF_4, XeF_4 are :-

(1) The same with 2, 0 and 1 lone pair of electrons respectively

(2) The same with 1, 1 and 1 lone pair of electrons respectively

(3) Different with 0, 1 and 2 lone pair of electrons respectively

(4) Different with 1, 0 and 2 lone pair of electrons respectively

73. Which of the following carbonate kept in CO_2 environment :-

(1) $MgCO_3$ (2) $CaCO_3$

(3) $SrCO_3$ (4) $BeCO_3$

74. Which order are correct ?

(i) Thermal stability $\longrightarrow BeSO_4 < MgSO_4 < CaSO_4 < SrSO_4 < BaSO_4$

(ii) Basic nature $\longrightarrow ZnO > BeO > MgO > CaO$

(iii) Solubility in water $\longrightarrow$ LiOH > NaOH > KOH > RbOH > CsOH

(iv) Melting point $\longrightarrow$ NaCl > KCl > RbCl > CsCl > LiCl

(1) (i) , (iv) (2) i, ii & iv

(3) ii, iii (4) All of these

75. Select isostructural species :-

(1) I_3^+, I_3^-, ClF_3

(2) SF_4, $TeCl_4$, XeF_2

(3) XeO_3, PCl_6^-, XeF_6

(4) PO_4^{3-}, SO_4^{2-}, ClO_4^{Θ}

76. Correct order of boiling point :-

(1) $I_2 > Cl_2 > Br_2$

(2) HCl > HF

(3) $H_2O_2 > H_2O$

(4) [He] > [Xe]

77. Based upon VSEPR theory, match the shape (geometry) of the molecules in List-I with the molecules in List-II and select the most appropriate option.

	List-I (shape)		List-II (molecules)
(A)	T-shaped	(I)	XeF_4
(B)	Trigonal planar	(II)	SF_4
(C)	Square planar	(III)	ClF_3
(D)	See-saw	(IV)	BF_3

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

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

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

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

78. Which of the following order is not correct

(1) $Na_2O < MgO < Al_2O_3$ (Thermal stability)

(2) $PO_4^{-3} > CO_3^{-2} > SO_4^{-2}$ (Formal charge on terminal oxygen)

(3) $Cl_2 > Br_2 > F_2 > I_2$ (Bond energy)

(4) $Cl_2 < Br_2 < F_2 < I_2$ (Bond length)

79. Dipole moment is shown by :

(1) 1,4-Dichlorobenzene

(2) Cis 1, 2-dichloro ethene

(3) Trans-1, 2-dichloro ethene

(4) Benzene

80. ***Assertion (A) :-*** $R_3P = O$ exists but $R_3N = O$ does not exists

Reason (R) :- P is more electronegative than N

(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 but **(R)** is the correct explanation of **(A)**

81. Pick out the incorrect match of intermolecular attraction between molecule/ion in the following pairs

(1) HBr and H_2S–Dipole-dipole attraction

(2) Cl_2 and CBr_4–Dispersion force (london force)

(3) NH_3 and C_6H_6–Hydrogen bond

(4) I_2 and NO_3^- –Ion-induced dipole attraction

82. Which of the following statement regarding NH_3 and NF_3 is correct :

(1) NH_3 has pyramidal and NF_3 has trigonal planar shape

(2) Bond angle in NH_3 is smaller than NF_3

(3) Resultant dipole moment of NH_3 is $(4.90\times10^{-30}Cm)$ and that of NF_3 is $(0.8\times10^{-30}Cm)$

(4) They both are sp^2 hybridised

83. **Statement-1** (S_1) : Dipole moment of CH_3Cl is more than CH_3F.

Statement-2 (S_2) : Dipole moment depends upon difference in electronegativity of C – X bond only

(1) Both S_1 and S_2 are correct

(2) S_1 is correct but S_2 is incorrect

(3) Both S_1 and S_2 are incorrect

(4) S_1 is incorrect but S_2 is correct.

84. ***Assertion (A) :-*** p-hydroxy benzoic acid has a lower boiling point than O-hydroxy benzoic acid.

Reason (R) :- O-hydroxybenzoic acid has intramolecular hydrogen bonding.

(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)**

85. The energy required to completely separate one mole of a solid ionic compound into gaseous constituent ions is_____

(1) bond energy

(2) solvation energy

(3) hydration energy

(4) lattice energy

SECTION-B (CHEMISTRY)

86. Resistance of a decimolar solution between two electrodes 0.02 meter apart and 0.0004 m^2 in area was found to be 50 ohm. Specific conductance (κ) is :-

(1) 0.1 S m^{-1}

(2) 1 S m^{-1}

(3) 10 S m^{-1}

(4) 4×10^{-4} S m^{-1}

87. Which of the following statement is correct ?

(1) On increasing dilution, conductance (G) increases

(2) On increasing the dilution, specific conductance (κ) decreases

(3) On increasing the dilution, equivalent and molar conductance increases

(4) All of the above

88. If molar conductance of 0.1 M weak electrolyte $Be(OH)_2$ is 40 S cm^2mol^{-1} and molar conductance at infinite dilution for $BeCl_2$, NaOH and NaCl are 300, 150 and 100 S cm^2mol^{-1} respectively then dissociation constant of weak electrolyte will be –

(1) 2.2×10^{-5}

(2) 4.4×10^{-2}

(3) 4.4×10^{-5}

(4) 10^{-5}

89. When an aqueous solution of $CuSO_4$ is stirred with a silver spoon then :-

(1) Cu^+ will be formed

(2) Ag^+ will be formed

(3) Cu^{2+} will be deposited

(4) None of these

90. If the standard reduction potential E° for four divalent elements X, Y, Z, W are -1.46V, $-0{\cdot}36$ V, $-0{\cdot}15$ V and $-1{\cdot}24$ V respectively, then :

(1) X will replace Z^{+2} from aqueous solution

(2) Y will replace Z^{+2} from aqueous solution

(3) W will replace Z^{+2} from aqueous solution

(4) All the above statements are correct

91. If the pH of hydrogen electrode is changed from zero to seven. Its potential will be changed as :-

(1) Increased by 0.059 V (2) Decreased by 0.059 V

(3) Increased by 0.41 V (4) Decreased by 0.41 V

92. Consider the following statements pertaining to fuel cells :-

(a) Hydrogen-oxygen fuel cell make use of concentrated KOH solution as electrolyte and porous graphite impregnated with platinum as electrodes

(b) The efficiency of fuel cell is less then unity due to polarisation at electrodes and the resistance offered by the electrode and the electrolyte

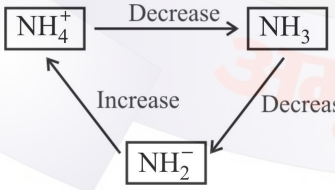
(c) The electrical work, assuming the cell to be working reversibly may be represented as $-\Delta G = W_{electrical} = -\Delta H + T\Delta S$

Which of the above statements are correct

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

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

93. Which of the following properties show given change in NH_4^+, NH_3 and NH_2^- ?



(1) Number of lone pair(s) at nitrogen

(2) Total number of electrons

(3) Number of p-orbitals in hybridisation of nitrogen

(4) Bond angle at nitrogen

94. Match the compounds given in column I with the hybridisation and shape given in column II and mark the correct option.

Column-I		Column-II	
(a)	XeF_6	(i)	Distorted octahedral
(b)	XeO_3	(ii)	Square planar
(c)	$XeOF_4$	(iii)	pyramidal
(d)	XeF_4	(iv)	Square pyramidal

Code :-

(a) (b) (c) (d)

(1) (i) (iii) (iv) (ii)

(2) (i) (ii) (iv) (iii)

(3) (iv) (iii) (i) (ii)

(4) (iv) (i) (ii) (iii)

95. Match the columns

Column I (Solid)		Column II (Examples)	
a	Covalent	P	SiO_2
b	Molecular	Q	CaO
c	Ionic	R	CCl_4
d	Metallic	S	Bronze

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

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

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

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

96. In molecule of the type AX_2L_n (L = lone pair, n = no. of LP) there exist a bond between element A and X. The $\angle XAX$ bond angle :-

(1) Always decreases if n increases

(2) Always increases if n increases

(3) Will be maximum for n = 3, 0

(4) Generally decreases if n decreases

97. The true statements from the following is/are :-

(a) PH_5 and $BiCl_5$ donot exist

(b) $P\pi - d\pi$ bond is present in SO_2

(c) Electrons travel at the speed of light

(d) SeF_4 and CH_4 have same shape

(e) I_3^+ has bent geometry

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

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

98. **Assertion (A) :-** The atoms in a covalent molecule are said to share electrons, yet some covalent molecules are polar.

Reason (R) :- In polar covalent molecules, the shared electrons more attract towards one of the atoms due to high EN.

(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)**

99. In PO_4^{-3}, the average formal charge on each oxygen atom and P-O bond order respectively are :-

(1) –0.75, 0.5 (2) –0.75, 1.25

(3) –0.75, 1.0 (4) –3, 1.25

100. Choose the correct option for the following statements -

(I) The boiling point of He is more than that of H_2

(II) The melting point of NaF is less than that of AlF_3

(III) The $PBr_5(s)$ and $PCl_5(s)$ are existing as $[PX_4]^+$ $[PX_6]^-$ where X = Cl and Br

(IV) The IE_1 of As is equal to the numerical value of $(EA)_2$ of it.

Choose the correct option :-

(1) FTFF (2) FTTF

(3) FTFT (4) TFFT

SECTION-A (BOTANY)

101. Which condition is represented by floral formula ?

(1) Type of inflorescence

(2) Placentation

(3) Position of gynoecium

(4) Type of aestivation

102. Umbellate clusters type of inflorescence found in -

(1) *Petunia* (2) *Gloriosa*

(3) *Lupin* (4) Belladona

103. Parthenocarpic fruit develops from -

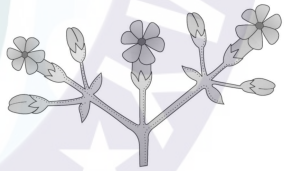
(1) Fertilized egg cell

(2) Fertilised ovary

(3) Unfertilised ovary

(4) Fertilised ovule

104. Given following figure does not represents -



(1) Arrangement of flowers - Basipetal

(2) Position of flower - Lateral

(3) Growth of floral axis - Limited

(4) Position of flower - Terminal

105. Examples of drupe fruit are -

(1) Mango and tomato

(2) Mango and coconut

(3) Cucumber and mustard

(4) Fig and maize

106. In which plant position of ovary is inferior ?

(1) Rose (2) Peach

(3) Cucumber (4) Chinarose

107. In which plant families tetramerous flowers are present ?

(1) Cruciferae (2) Solanaceae

(3) Liliaceae (4) Fabaceae

108. Silk cotton' is an example of -

(1) Simple leaf

(2) Simple palmate leaf

(3) Palmately compound leaf

(4) Pinnately compound leaf

109. Non-endospermic seeds are found in -

(1) Castor (2) Maize

(3) Pea (4) Wheat

110. When complete infloresence modified in to fruit is called -

(1) Simple fruit (2) Aggregate fruit

(3) Fleshy fruit (4) Composite fruit

111. Spathe' is modification of -

(1) Bract (2) Sepal

(3) Petal (4) Bractiole

112. According to given diagram how many plant show given placentation ?

Chinarose, Lemon, *Dianthus*, *Primula*, Cucumber, Lupin, *Cassia*, Pea, *Trifolium*, *Gloriosa*, Onion, Mustard, *Argemone*.

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

113. In which plant, leaf modified into tendril ?

(1) Wild pea (2) Garden pea

(3) Cucumber (4) *Citrus*

114. Persistent calyx condition is found in -

(1) Solanaceae family (2) Cruciferae family

(3) Liliaceae family (4) Fabaceae family

115. Number of stamens in a flower of mustard which show tetradynamous condition are -

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

116. Twisted aestivation of coralla is shown by -

(1) Mustard (2) Cotton

(3) Pea (4) Lily

117. Syncarpus and apocarpus gynoecium condition found respectively in :

(1) Mustard and rose only

(2) Tomato and lotus only

(3) Onion and *Michellia* only

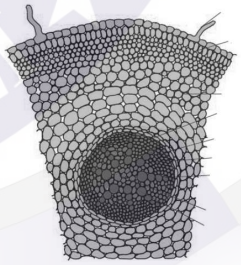
(4) All of these

118. Pith is well developed and large in :-

(1) Dicot root (2) Monocot root

(3) Monocot Stem (4) Dicot leaf

119. Identify the diagram given below.



(1) Dicot root (2) Monocot root

(3) Dicot Stem (4) Monocot stem

120. Identify the incorrect match :

(1) Dicot stem ⟶ Trichomes and few stomata

(2) Monocot Stem ⟶ Water containing cavities

(3) Monocot leaf ⟶ Bulliform cells

(4) Dicot leaf ⟶ Undifferentiated mesophyll

121. Select the odd one about cambium :

(1) Cork cambium

(2) Intrafascicular cambium

(3) Interfascicular cambium

(4) Vascular cambium in root

122. In conjoint type of vascular bundles the xylem and phloem are arranged :

(1) Alternate manner along the different radii

(2) Along the same radius of vascular bundle

(3) Outside of endodermis

(4) Along the cork cambium.

123. Ground tissue system not consist of :-

(1) Pith (2) Pericycle

(3) Subsidiary cells (4) Cortex

124. ____ occur in layers below the epidermis in most of the dicotyledonous.

(1) Parenchyma (2) Collenchyma

(3) Sclerenchyma (4) Sclereids

125. In flowering plants main water transporting elements :-

(1) Tracheids

(2) Xylem parenchyma

(3) Sieve cells

(4) Both tracheids and vessels

126. Which of the following does not conduct water but it gives mechanical support to the stem :

(1) Heart wood (2) Sapwood

(3) spring wood (4) Autumn wood

127. Select the mis-matched pair :-

(1) Bulliform Cells ⟶ Grasses

(2) Parallel Venation ⟶ Monocot

(3) Vessels ⟶ Gymnosperm

(4) Sclereids ⟶ Pear

128. Read the following statements A to E :-

(A) Lenticels occur in most woody trees

(B) Vascular cambium in root is completely secondary in origin.

(C) Phellogen is a couple of layer thick generally.

(D) Primary and secondary phloem get gradually crushed.

(E) The cells of the endodermis in dicot stems are rich in starch grain.

How many of the above statements are correct ?

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

129. Match the list I with List II.

	List I		List II
(A)	Casparian strip	(I)	Stem and leaves
(B)	Conjoint vascular bundle	(II)	Exchange of gases
(C)	Stomata	(III)	Waxy material suberin
(D)	Lenticels	(IV)	Epidermis of leaves

Choose the correct answer from the option given below :

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

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

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

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

130. Which of the following statement is incorrect regarding sclereids ?

(1) Variously shaped

(2) Highly thickened lignified cell wall and lumen is narrow.

(3) Commonly found in the fruits wall of nut seed coat of legumes and leaves.

(4) They are type of parenchyma or complex tissue.

131. Xylem in angiosperms consist of how many type of elements ?

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

132. Match List - I with List - II.

	List-I		List-II
(A)	Apical meristem	(i)	Axil of leaves
(B)	Axillary bud	(ii)	Between mature tissue
(C)	Intercalary meristem	(iii)	Generally lose the ability to divide
(D)	Permanent tissue	(iv)	Primary meristem

Choose the correct answer from the options given below :

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

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

133. Tracheids differ from other tracheary elements in :

(1) End wall is imperforated

(2) Being lignified

(3) Enucleated

(4) Having casparian strip

134. Conducting cells called ____ elements are the part of xylem where water minerals are transported.

(1) Tracheary

(2) Vascular

(3) Phloem

(4) Sieve

135. Which statement is incorrect about the guard cells ?

(1) They are modified cells of ground tissue

(2) They are chlorophyllous

(3) Their outer wall is thin and inner wall is highly thickened.

(4) They regulate stomatal movement for transpiration and gaseous exchange.

SECTION-B (BOTANY)

136. **Statement-I :-** Petals are usually brightly coloured to attract insect for fertilisation.

Statement-II :- In radial symmetry, flower can be divided into two similar halves only in one particular vertical plane.

(1) Statement-I and statement-II correct.

(2) Statement-I and statement-II incorrect.

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

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

137. In some plants petiole becomes flat leaf like green and photosynthesize food, is called :

(1) Phylloclade (2) Cladode

(3) Phyllode (4) Pulvinus

138. **Assertion (A) :-** Thorn are found in many plants such as *Citrus* and *Bougainvillea*.

Reason (R) :- They protects plant from browsing animals.

In the light of the above statements, choose the correct answer from the option given below -

(1) Both **(A)** and 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)**.

139. In given floral formula Gynoecium represents -

$$Br\oplus\,\delta\,\overset{\frown}{P_{(3+3)}}A_{3+3}\,\underline{G}_{(3)}$$

(1) Trilocular, tricarpellary, hypogynous condition.

(2) Tricarpellary, syncarpus, superior ovary

(3) Tricarpellary, syncarpus, axile placentatian

(4) Trilocular, syncarpus, superior ovary

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

	Column-I		Column-II
A.	Pulvinus	I.	*Citrus*
B.	Swollen petiole	II.	Lily
C.	Winged petiole	III.	Legume plant
D.	Trimerous flower	IV	*Eichhornia*

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

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

141. How many of the following are the example of underground modification of stem for storage of food ?

Mint, *Oxalis*, *Doobgrass*, Jasmine, *Eichhornia*, Potato, *Opuntia*, Ginger, *Casuarina*, Turmeric, Zaminkand

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

142. When complete stem modified into fleshy, green, cylindrical structure and leaf modified into spines is found in -

(1) *Asparagus* (2) *Ruscus*

(3) *Opuntia* (4) *Enphorbia*

143. Read all statement carefully and select correct statement :-

(1) Tap root develop from other than redicle.

(2) Adventitious roots are present only in monocot plants.

(3) Pneumatophore roots show negative geotropic movement.

(4) Youngest root hair present towards base part of root.

144. Trichomes in shoot system of dicots are Usually/Mostly :-

(1) Multicellular (2) Unicellular

(3) Absent (4) Branched

145. Match List-I with List-II :

	List-I		List-II
(A)	Companion cell	(I)	Oblitrated central lumen
(B)	Phloem Parenchyma	(II)	Maintain pressure gradient
(C)	Xylem Fibre	(III)	Devoid of Protoplasm
(D)	Vessels	(IV)	Store food

Choose the correct answer from the option given below :

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

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

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

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

146. Given below are two statements :-

Statement I :- Root apical meristem occupies the tip of a root.

Statement II :- Shoot apical meristem occupies the distant most region of the stem axis.

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

(1) Both statement I and II are false

(2) Statement I is correct but statement II is false.

(3) Statement I is incorrect but statement II is true.

(4) Statement I and II are true.

147. Periderm consist of :-

(1) Cork cambium, Phellem, Endodermis

(2) Phellogen, Cork cambium, Dermatogen

(3) Phellogen, Phelloderm, Pericycle

(4) Cork cambium, Phellem, Phelloderm

148. ***Assertion (A) :*** Apical and intercalary meristem are primary meristem.

Reason (R) : They appear early in life of a plant.

In light of 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

149. Read the following statements carefully :

(i) Occur as layer or patches

(ii) Cell wall unevenly thickened due to pecto-cellulosic deposition.

(iii) Cells are spherical oval or polygonal

(iv) Often has chloroplast.

The above characteristics are shown belong to which tissues ?

(1) Parenchyma

(2) Collenchyma

(3) Sclerenchyma

(4) Vascular tissue

150. Epidermis is made up of ____ and it _____ is usually :

(1) Sclerenchyma, Multilayered

(2) Collenchyma, single layered

(3) Parenchyma, multilayered

(4) Parenchyma, single layered

SECTION-A (ZOOLOGY)

151. Tissue made of flattened cells & found in the walls of blood vessels ?

(1) Cuboidal epithelium

(2) Squmous epithelium

(3) Columnar epithelium

(4) Compound epithelium

152. Simple cuboidal epithelium is found in :

(1) Proximal convoluted tubule

(2) Ducts of glands

(3) Both (1) & (2)

(4) Fallopian tube

153. Find out incorrect match :

(1) Cuboidal epithelium - secretion & absorption

(2) Ciliated epithelium - movement of particles

(3) Squamous epithelium - diffusion & Absorption

(4) Glandular epithelium - secretion

154. Find out the odd one on basis of number of cells :

(1) Salivary gland (2) Goblet cell

(3) Pituitary gland (4) Thyroid gland

155. Junction perform cementing to keep neighouring cells together :

(1) Tight junction (2) Gap junction

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

156. Select the incorrect statement regarding epithelium :

(1) Squamous epithelium found in air sacs of lungs

(2) Cuboidal epithelium found in tubular parts of nephron

(3) Columnar epithelium form the lining of stomach and loop of henle

(4) Both (2) and (3)

157. Which tissue provide protection against the chemical and mechanical stresses :

(1) Simple squamous (2) Simple cuboidal

(3) Simple columnar (4) Compound epithelium

158. Which tissue serves as a support framework for epithelium :

(1) Adipose C.T.

(2) Areolar C.T.

(3) Dense regular C.T.

(4) Dense irregular C.T.

159. Find out incorrect match :

(1) Adipose ⟶ mainly beneath the skin

(2) Dense irregular ⟶ Tendon and ligament

(3) Dense irregular ⟶ Skin

(4) Fibroblast ⟶ Produces fibres

160. **Assertion (A) :-** Most of the bones are cartilaginous in origin.

Reason (R) :- Most of the embryonic cartilage goes under the process of ossification.

(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)**

161. How many statement are incorrect regarding bones :

(A) Bones have non-pliable matrix

(B) Bones cells are called osteocytes

(C) Some bones produces blood cells

(D) Bones are rich in calcium salts and elastin fibres

(E) Bones are type of specialised connective tissue

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

162. Given below are two statements :

Statement-I :- Cartilage is solid, pliable & resist compression.

Statement-II :- Cartilage is present in tip of nose & between adjacent vertebrae.

Choose the correct answer from the options given below :

(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

163. Choose the incorrectly matched pair :

(1) Chondrocytes – Bone cell

(2) Neuroglial cells – Nervous system

(3) Fibroblast – Areolar tissue

(4) Macrophage – Areolar Tissue

164. Match list-I with list-II

	List-I		List-II
(A)	Bronchioles	(i)	Dense regular connective tissue
(B)	Areolar tissue	(ii)	Loose C.T.
(C)	Globlet cell	(iii)	Glandular tissue
(D)	Tendons	(iv)	Ciliated epithelium

	(A)	(B)	(C)	(D)
(1)	(iii)	(iv)	(ii)	(i)
(2)	(iv)	(ii)	(iii)	(i)
(3)	(i)	(ii)	(iii)	(iv)
(4)	(ii)	(i)	(iv)	(iii)

165. Which of the following functions is not performed by epithelial tissue :

(1) Protection (2) Secretion

(3) Absorption (4) Conduction

166. In which of the following, the squamous epithelium is not found ?

(1) Wall of blood vessels

(2) Air sacs of lungs

(3) Trachea

(4) Bowman's Capsule

167. Given below two statements :

Statement-I : Compound epithelium has a main role in secretion & absorption.

Statement-II : Compound epithelium covers dry surface of skin & moist surface of buccal cavity.

(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

168. Macrophages and Leucocytes represents ?

(1) Amoeboid movement

(2) Cilliary movement

(3) Flagellar movement

(4) Muscular movement

169. In human beings cilliary movement is found in

(1) Small intestine (2) Limbs

(3) Jaw (4) Fallopian tube

170. Speical properties of muscle is

(1) Excitability (2) Contractility

(3) Elasticity (4) All of these

171. Skeletal muscles is known as :

(1) Striated muscles

(2) Visceral muscles

(3) Smooth muscles

(4) Cardiac muscles

172. Muscles with characteristic striations and involuntary are

(1) Muscles of heart

(2) Muscles of Eyelids

(3) Muscles in the wall of alimentary canal.

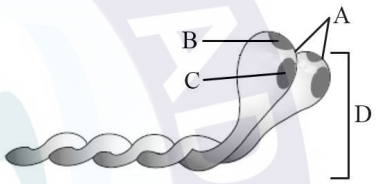
(4) Muscles of Hand

173. Thin filament consist of :

(1) Actin (2) Myosin

(3) Meromyosin (4) Globular head

174. Identify the parts labelled as A, B, C & D and choose the correct option :-



(1) A-Cross arm, B-Head, C-A.T.P. binding sites, D-Actin binding sites

(2) A-Head, B-Actin binding sites, C-A.T.P binding sites, D-Cross Arm

(3) A-ATP binding sites, B-Cross arm, C-Head, D-Actin binding sites

(4) A-Actin binding sites, B-ATP binding sites, C-Head, D-Cross arm

175. Axial skeleton consists of how many bones ?

(1) 80 (2) 40 (3) 30 (4) 206

176. Given below are two statements :

Statement-I : Muscle contraction is initiated by a signal sent by the C.N.S. via sensory neuron.

Statement-II : A neural signal reaching the Neuro-muscular junction releases a neurotransmiter (Acetyle choline).

Choose correct option from the followings :

(1) Both Statement-I & Statement-II are correct.

(2) Both Statement-I & Statement-II is incorrect.

(3) Statement-I is incorrect & Statement-II is correct.

(4) Statement-I is correct & Statement-II is incorrect.

177. Inflamation of joints due to accumulation of uric acid crystal is known as

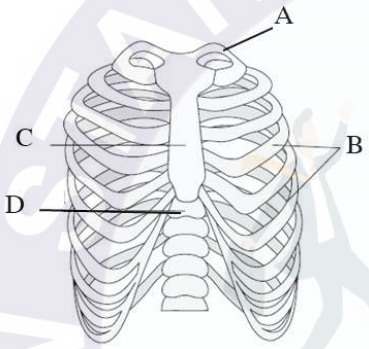
(1) Osteoporosis

(2) Arthritis

(3) Gout

(4) Rheumetoid arthritis

178. The figure showing ribs and cage. Identify the parts labelled as A, B, C & D



(1) A-Clavicle, B-Ribs, C-Sternum, D-Vertebral column

(2) A-Ribs, B-Clavicle, C-Sternum, D-Vertebral column

(3) A-Sternum, B-Ribs, C-Vertebral column, D-Clavicle

(4) A-Vertebral column, B-Sternum, C-Ribs, D-Clavicle

179. **Statement-I** : Joints are essential for all types of movements involving the bony parts of the body.
Statement-II : Fibrous joints allow any movement.
Choose the correct answer from the options given below :

(1) Both Statement-I & Statement-II are correct.

(2) Both Statement-I & Statement-II is incorrect.

(3) Statement-I is correct & Statement-II is incorrect.

(4) Statement-I is incorrect & Statement-II is correct.

180. Match the following column and mark the correct option.

	Column-I		**Column-II**
(a)	Pivot joint	(i)	Between carpal and metacarpal of thumb.
(b)	Hinge joint	(ii)	Between atlas axis
(c)	Ball and socket joint	(iii)	Knee joint
(d)	Saddle joint	(iv)	Between humerus & pectoral girdle.

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

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

181. Number of bones present in forelimb of Human :

(1) 32 (2) 36 (3) 30 (4) 40

182. **Statement-I** : Pectoral and Pelvic girdle bone help in the articulation of the upper and the lower limbs respectively with the axial skeleton.
Statement-II : Pelvic girdle consist of two coxal bones.

(1) Both statement-I and II correct

(2) Both statement-I and II incorrect

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

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

183. The central part of thick fillament which is not overlaped by thin filament is known as

(1) Sarcomere (2) H-zone

(3) M-line (4) A-Band

184. Joint between atlas and axis is

(1) Saddle joint

(2) Ball and socket joint

(3) Hing joint

(4) Pivot joint

185. During muscle contraction

(1) I-band and H-zone decreases or disappears

(2) A-band decrease

(3) Both A and I band decrease

(4) A and I-band remain unchanged.

SECTION-B (ZOOLOGY)

186. Tissue having very less or no intercellular matrix :

(1) Connective Tissue

(2) Cardiac Tissue

(3) Epithelial Tissue

(4) Muscular Tissue

187. Tissue present in bronchioles & fallopian tubes :

(1) Squamous (2) Cuboidal

(3) Columnar (4) Compound

188. Which of the following is exocrine gland :

(1) Salivary gland (2) Thyroid

(3) Adrenal (4) Pituitary

189. Most abundant and widely distributed tissue in body :

(1) Epithelial (2) Connective

(3) Nervous (4) Muscular

190. In which tissue fibres are absent :

(1) Bone (2) Cartilage

(3) Adipose (4) Blood

191. In columnar epithelium, nuclei are located :

(1) At the centre

(2) At the base

(3) Near the apex

(4) None of above

192. Which type of tissue found in inner lining of ducts of salivary glands :

(1) Simple cuboidal

(2) Simple columnar

(3) Compound epithelium

(4) Simple squamous

193. Which of the following is not a connective tissue :

(1) Bone (2) Cartilage

(3) Blood (4) Muscle

194. Which one of the following item gives its correct total number ?

(1) Cervical vertebrae in Human-8

(2) Ribs - 12 pairs

(3) Sternum - 2

(4) Total number of bones in adult human - 208

195. In muscles store house of calcium ions is :

(1) Sarcoplasmic reticulum

(2) Myofibril

(3) Sarcosome

(4) Sarcoplasm

196. Which of the following type of joint allows considerable movement that help in locomotion.

(1) Cartilaginous joint

(2) Synovial joint

(3) Fibrous joints

(4) None of these

197. In scapula bone below the acromion is a depression called ?

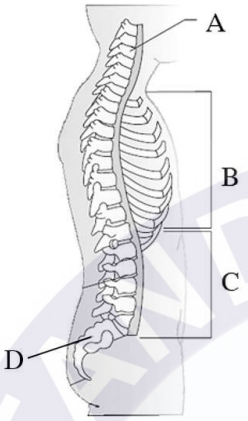
(1) Thorasic cavity

(2) Glenoid cavity

(3) Acetabulum

(4) Foramen of Magnum

198. The figure showing the vertebral column (right lateral view). Identify the parts labelled as A, B, C and D and select the correct option.



	A	B	C	D
(1)	Cervical vertebra	Thorasic vertebra	Lumber vertebra	Sacrum
(2)	Thorasic vertebra	Cervical vertebra	Sacrum	Lumber vertebra
(3)	Lumber vertebra	Sacrum	Cervical vertebra	Thorasic vertebra
(4)	Sacrum	Lumber vertebra	Thorasic vertebra	Cervical vertebra

199. Which of the following is the skull bone ?

(1) Atlas (2) Axis

(3) Mandible (4) Patella

200. Match the column-I with column-II with correct option.

	Column-I		**Column-II**
(a)	Head of femur	(i)	Vertebrae
(b)	Glenoid cavity	(ii)	Flat bones
(c)	Sternum	(iii)	Pectoral girdle
(d)	Cartilagenous joint	(iv)	Acetabulum

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

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

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

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