NEW STANDARD ACADEMY

REVIEW TEST - 01 **25-11-24**

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

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. The capacity and the energy stored in a parallel plate condenser with air between its plates are respectively C_0 and W_0. If the air is replaced by glass(dielectric constant = 5) between the plates, the capacity of the condenser and the energy stored in it will respectively be:

(1) $5C_0, 5W_0$

(2) $5C_0, \frac{W_0}{5}$

(3) $\frac{C_0}{5}, 5W_0$

(4) $\frac{C_0}{5}, \frac{W_0}{5}$

2. A $5\mu F$ capacitor is connected in series with a $10\mu F$ capacitor. When a 300 volt potential difference is applied across this combination, the energy stored in the capacitors is :

(1) 15 J (2) 1.5 J

(3) 0.15 J (4) 0.10 J

3. Between the plates of a parallel plate capacitor of capacity C, two parallel conducting plates, of the same material and area same as the plate of the original capacitor, are placed. If the thickness of each plate is equal to $\frac{1}{5}$th of the distance between the plates of the original capacitor, then the capacity of the new capacitor is :-

(1) $\frac{5}{3}C$ (2) $\frac{3}{5}C$

(3) $\frac{3C}{10}$ (4) $\frac{10C}{3}$

4. The acceleration a (in ms^{-2}) of a body, starting from rest varies with time t(in s) following the equation $a = 3t + 4$. The velocity of the body at time t = 2s will be :-

(1) 10 ms^{-1} (2) 18 ms^{-1}

(3) 14 ms^{-1} (4) 26 ms^{-1}

5. The horizontal range of a projectile fired at an angle of 15° is 50 m If it is fired with the same speed at an angle of 45°, its range will be -

(1) 60 m (2) 71 m

(3) 100 m (4) 141 m

6. Rain is falling vertically downward with a velocity of 3 km/h. A man walks in the rain with a velocity of 4 km/h With respect to man the raindrops will fall with a velocity of :-

(1) 1 km/h (2) 3 km/h

(3) 4 km/h (4) 5 km/h

7. A car is travelling at 20 m/s on a straight road. It applies brakes which produces constant retardation of 2 m/s^2. Distance travelled by the car in 3rd second after the breaks are applied -

(1) 10 m (2) 15 m

(3) 20 m (4) 25 m

8. If I stand at rest on a horizontal floor, it pushes upwards on my feet with a force equal to my weight Mg where M is my mass. Which of the following is Newtons third-law pair to this upward force on my feet ?

(1) The gravitational force that the earth exerts on my body.

(2) The gravitational force that my body exerts on earth.

(3) The normal force that my feet exert on the floor.

(4) The frictional force that my feet exert on the floor.

9. Dipole is placed parallel to a uniform electric field. If W is the work done in rotating the dipole by 60°, then work done in rotating it by 180° is

(1) 2W (2) 3W

(3) 4W (4) W/2

10. A train is moving towards north at a speed 10 m/sec. Its length is 150 m. A parrot is flying parallel to the train towards south with a speed of 5m/s. The time taken by the parrot to cross the train will be-

(1) 12 sec. (2) 8 sec.

(3) 15 sec. (4) 10 sec.

11. If $\sqrt{3}y = 3x - 1$ then slope of the line is :-

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

12. Find minimum value of $y = 2x^2 - 2x + 3$

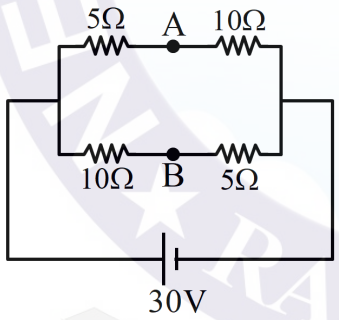
(1) $\frac{2}{5}$ (2) $\frac{3}{2}$ (3) $\frac{5}{2}$ (4) $\frac{7}{2}$

13. The area of a rectangular field (in m^2) of length 55.6m and breadth 25m after rounding off the value for correct significant digits is :

(1) 1390.0 (2) 14×10^2

(3) 1390 (4) 139×10^1

14. Potential difference between points A and B is.



(1) 10 V (2) 15 V

(3) 20 V (4) 25 V

15. If sum of two unit vectors is a unit vector, then the magnitude of their difference is :

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

16. If $\vec{a} = \hat{i} + \hat{j}, \vec{b} = \hat{j} + \hat{k}$ then find area of the parallelogram formed by $\vec{a}$ and $\vec{b}$

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

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

17. Given that $0.2\hat{i} + 0.6\hat{j} + a\hat{k}$ is a unit vector. What is the value of a ?

(1) $\sqrt{0.3}$ (2) $\sqrt{0.4}$

(3) $\sqrt{0.6}$ (4) $\sqrt{0.8}$

18. Two balls are dropped from same height at 1 second interval of time. The separation between the two balls after 3 second of the drop of the 1st ball is :-

(1) 50 m (2) 25 m

(3) 35 m (4) 40 m

19. A block of mass M slides down on a rough inclined plane with constant velocity. The angle made by the incline plane with horizontal is θ. The magnitude of the contact force will be.

(1) Mg

(2) $Mg\cos\theta$

(3) $\sqrt{Mg\sin\theta + Mg\cos\theta}$

(4) $Mg\sin\theta\sqrt{1+\mu}$

20. **Assertion (A) :** An electric fan continues to rotate for some time after the current is switched off.

Reason (R) : Fan continues to rotate due to inertia of motion.

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

(1) A is correct but R is not correct

(2) A is not correct but R is correct

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

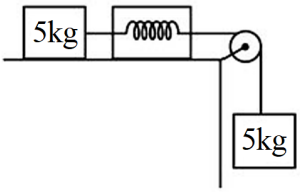
(4) Both A and R are correct but R is NOT the correct explanation of A

21. At a place where the acceleration due to gravity is 10 m/s^2, a force of 5 kg-wt acts on a body in horizontal direction on mass of 10 kg which is initially at rest. The velocity of the body after 4 s is :-

(1) 5 m/s (2) 20 m/s

(3) 10 m/s (4) 50 m/s

22. Reading of spring balance will be :



(1) 50 N (2) 25 N

(3) 100 N (4) 5 N

23. Two spheres of equal radii having 10C and 6C charge are placed at some separation. If both spheres are connected by wire then the ratio of initial to final force between them is :

(1) $\frac{5}{6}$ (2) $\frac{15}{16}$

(3) $\frac{16}{15}$ (4) $\frac{6}{5}$

24. Inside a hollow charged spherical conductor, the potential

(1) is constant

(2) varies proportionally as the distance from the centre

(3) varies inversely as the distance from the centre

(4) varies inversely as the square of the distance from the centre.

25. If an electron has an initial velocity in an oblique direction from that of a uniform electric field, the path of the electron is :

(1) A straight line (2) A circle

(3) An ellipse (4) A parabola

26. The electric potential V at any point x, y, z (all in metres) in space is given by $V = 3x^3$ volt. The electric field at the point (1m, 0, 2m) in volt/metre is :

(1) 9 along negative x-axis

(2) 9 along positive x-axis

(3) 36 along negative x-axis

(4) 18 along positive z-axis

27. The insulation property of air breaks down at $E = 3 \times 10^6$ volt/meter. The maximum charge that can be given to a sphere of diameter 5 m is approximately (in coulombs)

(1) 2×10^{-2}

(2) 2×10^{-3}

(3) 2×10^{-4}

(4) 2×10^{-5}

28. How much kinetic energy will be gained by an α - particle in going from a point at 70 V to another point at 50 V :

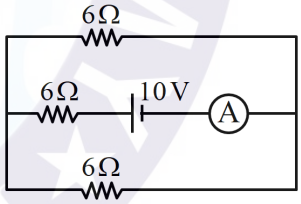
(1) 40eV

(2) 40keV

(3) 40MeV

(4) 0eV

29. In the given circuit diagram find reading of ammeter.



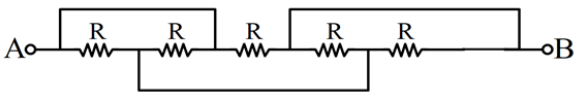
(1) $\frac{10}{18}$A

(2) $\frac{10}{9}$A

(3) $\frac{5}{6}$A

(4) $\frac{5}{18}$A

30. Find equivalent resistance between A and B.



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

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

31. An electric cell of e m.f. E is connected across a copper wire of diameter d and length ℓ The drift velocity of electron in the wire is V_d. If the length of the wire is increased to 2ℓ the new drift velocity of electron will be -

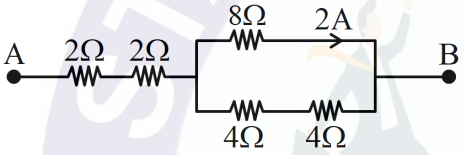
(1) V_d

(2) $2V_d$

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

(4) $\frac{V_d}{4}$

32. If current through 8Ω is 2A then find potential difference across A and B.



(1) 8V

(2) 32V

(3) 16V

(4) 24V

33. A cell has an emf 5V When connected across an external resistance of 2Ω the terminal potential difference falls to 2V. The internal resistance of the cell is :

(1) 1Ω

(2) 2Ω

(3) 3Ω

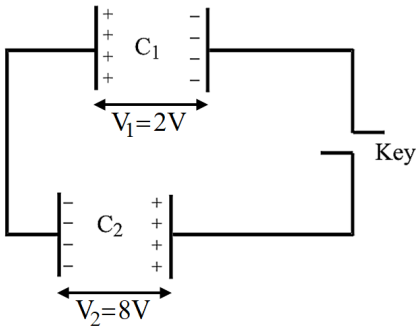
(4) 4Ω

34. In a meter bridge experiment a resistance A on left end is balanced against resistance B at a point which is 40 cm from left end of wire. If resistance A is doubled then find new balancing point from same end.

(1) $\frac{50}{7}$cm (2) $\frac{400}{7}$cm

(3) $\frac{400}{3}$cm (4) $\frac{50}{6}$cm

35.



If $C_1 + C_2 = 10$

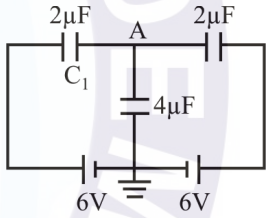
After closing the key if common potential is zero then find C_1 and C_2.

(1) 6,4 (2) 8,2

(3) 3,7 (4) 5,5

SECTION - B (PHYSICS)

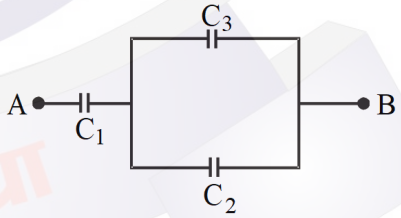
36. Three capacitors are connected as shown in fig. Then the charge on capacitor C_1 is :-



(1) $6\mu C$ (2) $12\mu C$

(3) $18\mu C$ (4) $24\mu C$

37. The combination of capacitors with $C_1 = 3\ \mu F$, $C_2 = 4\ \mu F$ and $C_3 = 2\ \mu F$ is charged by connecting AB to a battery. Consider the following statements:



(I) Energy stored in C_1 = Energy stored in C_2 + Energy stored in C_3

(II) Charge on C_1 = Charge on C_2 + Charge on C_3

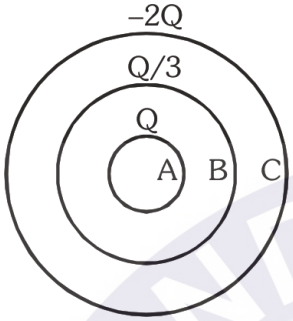
(III) Potential drop across C_1 = Potential drop across C_2 = Potential drop across C_3

Which of these is/are correct ?

(1) I and II (2) only II

(3) I and III (4) only III

38. Three conducting concentric spherical shells of radius R, 2R and 3R have charges Q, $\frac{Q}{3}$ and - 2Q respectively. The intermediate shell is now grounded then the charge flow into the earth is :



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

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

(3) Q

(4) 0

39. A travelling microscope has 20 divisions per cm on the main scale while its vernier scale has total 25 divisions and 25 vernier scale divisions are equal to 24 main scale divisions, what is the least count of the travelling microscope ?

(1) 0.001 cm

(2) 0.002 mm

(3) 0.002 cm

(4) 0.001 mm

40. If vibration frequency f of the star is given by the following equation : $f = KR^a \rho^b G^c$ where R is the radius of star, ρ is the density of star, G is the universal gravitational constant and K is a dimensionless constant, then (b + c) is equal to -

(1) 2

(2) 2.5

(3) 1

(4) 1.5

41. Two full turns of the circular scale of a screw gauge covers a distance of 1 mm on its main scale. The total number of divisions on the circular scale is 50. Further, it is found that the screw gauge has a zero error of –0.03 mm. While measuring the diameter of a thin wire, a student notes the main scale reading of 3 mm and the number of circular scale divisions in line with the main scale as 35. The diameter of the wire is :

(1) 3.32 mm (2) 3.73 mm

(3) 3.67 mm (4) 3.38 mm

42. Trajectory of a particle in a projectile motion is given by:

$y = x - \frac{x^2}{80}$

Here, x and y are in metres. For this projectile motion, match the entries of column I with the entries of column II.

(Given $g = 10 m/s^2$)

	Column-I		**Column-II**
(A)	Angle of projection	(P)	20 m
(B)	Angle of velocity with horizontal after 4s	(Q)	80m
(C)	Maximum height	(R)	45°
(D)	Horizontal range	(S)	$\tan^{-1}\left(\frac{1}{2}\right)$

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

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

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

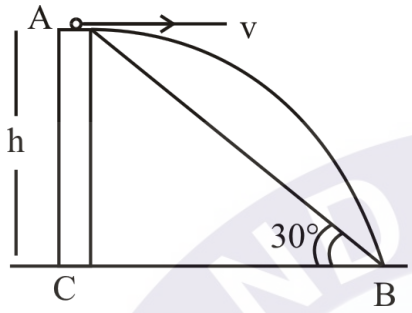
(4) A-S, B-S, C-P, D-Q

43. Two bodies of mass m_1 and m_2 are connected by a light string which passes over a frictionless, massless pulley. If the pulley is moving upward with uniform acceleration $\frac{g}{2}$, then tension in the string will be :

(1) $\frac{3m_1m_2}{m_1+m_2}g$ (2) $\frac{m_1+m_2}{4m_1m_2}g$

(3) $\frac{2m_1m_2}{m_1+m_2}g$ (4) $\frac{m_1m_2}{m_1+m_2}g$

44. An object is thrown from a point A horizontally from a tower and hits the ground 3 sec later at point B. The line from A to B makes an angle 30° with the horizontal. The initial velocity of the object is (Take $g = 10\ m/sec^2$)



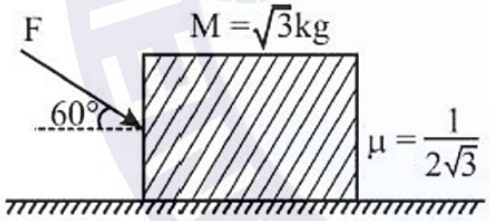
(1) $15\sqrt{3}\ m/sec$

(2) $15\ m/sec$

(3) $10\sqrt{3}\ m/sec$

(4) $25\sqrt{3}\ m/sec$

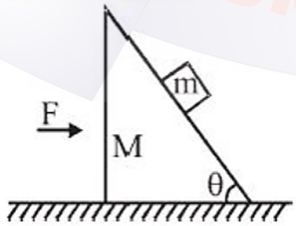
45. If the block shown in figure does not move then the maximum value of F is :



(1) 20 N (2) 10 N

(3) 15 N (4) 12 N

46. A block is kept on a frictionless inclined surface with angle of inclination θ. Value of applied force F for which the block remains at rest with respect to incline -



(1) $\frac{(M+m)g}{\tan\theta}$ (2) $\frac{(M+m)g}{\cos\theta}$

(3) $(M+m)g\tan\theta$ (4) $Mg\tan\theta$

47. **Statement-1 :** Systematic errors tend to occur in one direction, either positive or negative.

Statement-2 : Instrumental error, Random error, least count error, personal error are systematic error.

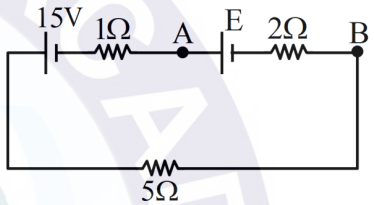
(1) Both statement-1 and statement-2 are true

(2) Both statement-1 and statement-2 are false

(3) Statement-1 is true but statement-2 is false

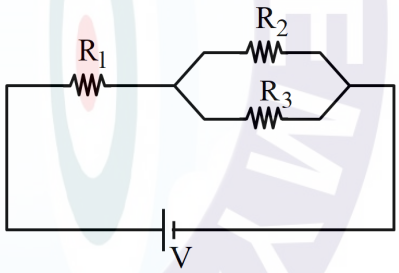
(4) Statement-1 is false but statement-2 is true

48. For what value of E the potential of point A is equal to the potential of point B ?



(1) 2V (2) 4V (3) 5V (4) 10V

49.

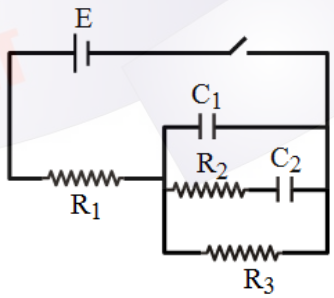


For what ratio of R_1, R_2 and R_3, equal power is developed across each resistor.

(1) 1 : 1 : 1 (2) 4 : 4 : 1

(3) 4 : 1 : 1 (4) 1 : 4 : 4

50. Current through the battery just after closing key is :



(1) $\frac{E}{R_1+R_2}$ (2) $\frac{E}{R_1}$

(3) $\frac{E}{R_1+R_3}$ (4) None

Topic : Some Basic Concepts of Chemistry, Atomic Structure, Chemical Kinetics, Equilibrium, Periodic Table, Chemical bonding and Molecular Structure

SECTION - A (CHEMISTRY)

51. **Statement I :** AlF_4 does not exist

Statement II : AlF_3 is a covalent compound.

(1) Statement I and statement II are correct

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

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

(4) Statement I and statement II are incorrect.

52. **Assertion :** At room temperature O_2 and N_2 are stable molecule but S_2 and P_2 are less stable.

Reason : $2p_\pi$ $2p_\pi$ collateral overlapping is effective but $3p_\pi$ $3p_\pi$ overlapping is weak.

(1) Both assertion and reason are correct and reason is the correct explanation of assertion.

(2) Both assertion and reason are correct but reason is not correct explanation of assertion.

(3) Assertion is correct, reason is incorrect

(4) Both assertion and reason are incorrect.

53. Incorrect order of size is

(1) $H > Li^+ > Be^{+2} > B^{+3}$

(2) $I > Br > Cl > Li$

(3) $Mg > Al > Mg^{+2} > Al^{+3}$

(4) $La^{+3} > Ce^{+3} > Gd^{+3} > Lu^{+3}$

54. Correct order of I^{st} ionisation potential of boron family is :-

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

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

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

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

55. Which of the following process is maximum exothermic :

(1) $P \longrightarrow P^{\ominus}$ (2) $Si \longrightarrow Si^{\ominus}$

(3) $O \longrightarrow O^{\ominus}$ (4) $S \longrightarrow S^{\ominus}$

56. Correct (O O) bond length order in following is :

(1) $O_3 < O_2 < H_2O_2$

(2) $O_2 < O_3 < H_2O_2$

(3) $H_2O_2 < O_3 < O_2$

(4) $H_2O_2 < O_2 < O_3$

57. Incorrect order of bond energy is :

(1) $F_2 > Cl_2 > Br_2 > I_2$

(2) $-\overset{|}{\underset{|}{C}}-\overset{|}{\underset{|}{C}}- > -\overset{|}{\underset{|}{Si}}-\overset{|}{\underset{|}{Si}}- > -\overset{|}{\underset{|}{Ge}}-\overset{|}{\underset{|}{Ge}}-$

(3) $\equiv C - C \equiv > \overset{|}{\underset{|}{=C}}-\overset{|}{\underset{|}{C}}=$

(4) $HF > H_2O > NH_3$

58. Which of the following molecule has identical bond length ?

(1) PCl_5 (2) SF_4 (3) ClF_3 (4) XeF_2

59. Which of the following molecule has both $p\pi - p\pi$ and $p\pi - d\pi$ bond.

(1) $POCl_3$ (2) XeO_3 (3) SO_3 (4) CO_2

60. Which of the following is non-planar species

(1) BrF_3 (2) XeF_5

(3) N_3 (4) XeF_6

61. Hybrid state of central atom in $PBr_5(s)$ is :-

(1) sp (2) sp^2 (3) sp^3 (4) sp^3d

62. Correct order of bond angle is :

(1) $OF_2 < H_2O < OCl_2$

(2) $H_2O < OF_2 < OCl_2$

(3) $OCl_2 < OF_2 < H_2O$

(4) $H_2O < OCl_2 < OF_2$

63. Radius of which of the following orbit is same as that of first Bohr's orbit of H-atom : -

(1) He^{+} (n = 2) (2) Li^{+2} (n = 2)

(3) Li^{+2} (n = 3) (4) Be^{+3} (n = 2)

64. An impure $CaCO_3$ sample upon heating produces 1.76 g CO_2, if sample is 80% pure, then mass of impure sample is -

(1) 4 g (2) 3.2 g

(3) 2 g (4) 5 g

65. 0.1 mole of hydrocarbon C_nH_{2n-2} requires 0.7 moles of oxygen gas for complete combustion Then hydrocarbon is

(1) C_4H_6 (2) C_5H_8

(3) C_6H_{10} (4) C_7H_{12}

66. For a 1st order reaction R $\longrightarrow$ P half life is 69.3 sec, and initial concentration of R is 1M, then rate of reaction at time t, when 87.5% of reactant is consumed :

(1) $8\,75 \times 10^{-3}$ M sec^{-1}

(2) 10^{-2} M sec^{-1}

(3) $1\,25 \times 10^{-3}$ M sec^{-1}

(4) $6\,93 \times 10^{-3}$ M sec^{-1}

67. Slope of graph between log k v/s $\frac{1}{T}$ is :

(1) $\frac{-Ea}{R}$ (2) $\frac{-Ea}{2.303R}$

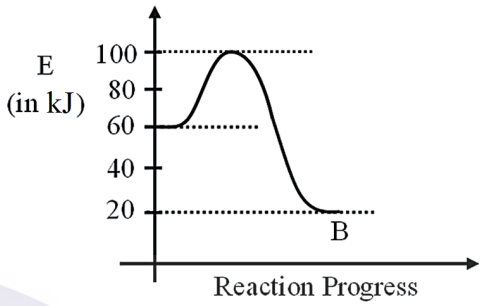
(3) log A (4) ln A

68. For reaction, $2SO_3(g) \rightleftharpoons 2SO_2(g) + O_2(g)$ equilibrium concentration of SO_2, O_2 and SO_3 are 0.1 M, 0.2 M and 0.1 M respectively. If volume of vessel is now increased 4 times, then new value of K_c will be :

(1) 0 05 (2) 0.2

(3) 0 1 (4) 0.8

69. For a reaction A $\longrightarrow$ B, following graph is plotted :



then which is incorrect.

(1) E_a = 60 kJ/mol

(2) E_a = 40 kJ/mol

(3) $\Delta H = -40$ kJ/mol

(4) $E_{Threshold}$ = 100 kJ/mol

70. For which reaction relation $K_C = K_P(RT)^{-1}$ is correct.

(1) $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$

(2) $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$

(3) $2NO(g) \rightleftharpoons N_2(g) + O_2(g)$

(4) $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$

71. Which of the following is true regarding equilibrium constant :

(A) Value of equilibrium constant is independent of initial concentration of the reactants and products

(B) Equilibrium constant of reverse reaction is equal to the inverse of the equilibrium constant for the forward reaction.

(C) Expression of equilibrium constant is applicable only when concentration of the reactants and products have attained constant value at equilibrium state.

(D) Value of equilibrium constant cannot be used to predict the direction of reaction.

(E) Equilibrium constant is temperature dependent having one unique value for a particular reaction. represented by a balanced equation.

Choose the correct answer from the options given below :

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

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

72. **Assertion (A) :** Rate of a zero order reaction is independent of temperature.

Reason (R) : Half life of a zero order reaction is directly proportional to initial concentration of reactant.

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

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

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

(3) A is correct but R is incorrect.

(4) A is incorrect but R is correct.

73. Half life of a radioactive substance is 15 hours, then what fraction of substance remain undecayed after 45 hours

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

74. For reaction $2N_2O_5(g) \longrightarrow 4NO_2(g) + O_2(g)$ at time t, rate of reaction is 1.02×10^{-4} M sec^{-1} and rate constant is 3.4×10^{-5} sec^{-1}, then concentration of reactant at time t is :

(1) 1.732 M (2) 3 M

(3) 1.02×10^{-4} M (4) 3.5×10^{5} M

75. Molar solubility of $Ni(OH)_2$ in 0.01 M NaOH (aq.) solution is :-
(Given $K_{sp}[Ni(OH)_2] = 2 \times 10^{-15}$)

(1) 2×10^{-13} M

(2) 2×10^{-11} M

(3) 5×10^{-11} M

(4) 5×10^{-12} M

76. Solubility product of a salt having formula MX_2 in water is 4×10^{-12}, then concentration of X ions in the aqueous solution of the salt is :-

(1) 1×10^{-4} M (2) 2×10^{-4} M

(3) 4×10^{-4} M (4) 2×10^{-6} M

77. Match List-I with List-II

	List-I (Quantum Number)		List-II (Information provided)
(A)	ℓ	(I)	Shape of orbital
(B)	m_s	(II)	Size of orbital
(C)	n	(III)	Orientation of orbital
(D)	m_ℓ	(IV)	Orientation of spin of electron

Choose the correct answer from the option given below :

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

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

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

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

78. In which case, equilibrium mixture has appreciable concentrations of both reactants and products :-

(1) $N_2(g) + O_2(g) \rightleftharpoons 2NO(g)$
$K_C = 4.8 \times 10^{-31}$ at 298 K

(2) $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$
$K_C = 57$ at 700 K

(3) $H_2(g) + Cl_2(g) \rightleftharpoons 2HCl(g)$
$K_C = 4 \times 10^{31}$ at 300 K

(4) $3O_2(g) \rightleftharpoons 2O_3(g)$
$K_C = 2 \times 10^{-50}$ at 298 K

79. Wave number for the longest wavelength transition in the paschen series of atomic hydrogen is :

(1) $\frac{144}{7R}$ (2) $\frac{7R}{144}$

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

80. Match List-I with List-II

	List-I (Set of quantum numbers)		**List-II (Maximum no. of electrons in an atom)**
(A)	$n = 4, m_s = \frac{1}{2}$	(I)	3
(B)	$n = 3, \ell = 0$	(II)	16
(C)	$n = 2, \ell = 1, m_s = +\frac{1}{2}$	(III)	10
(D)	$n = 4, \ell = 2$	(IV)	2

Select the correct answer from the options given below :

(1) A II, B I, C–III, D IV

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

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

(4) A II, B III, C–I, D IV

81. Number of g-atoms of element X present in 0.4 kg of its sample, if mass of one atom of X is 6.64×10^{-23} g.

(1) $100\ N_A$ (2) 100

(3) 10 (4) $10\ N_A$

82. pH of which solution does not depends upon its concentration

(A) HCN(aq.)

(B) NaCl(aq.)

(C) NH_4OH(aq.)

(D) CH_3COONH_4(aq.)

(E) KBr (aq.)

Choose the correct answer from options given below :-

(1) Only B

(2) B and E only

(3) B, D and E

(4) D and E only

83. Match List-I with List-II

	List-I		**List-II**
(A)	KCl(aq.)	(I)	Anionic hydrolysis
(B)	KCN(aq.)	(II)	Cationic hydrolysis
(C)	NH_4Cl(aq.)	(III)	No hydrolysis
(D)	$C_6H_5COONH_4$(aq.)	(IV)	Both cationic and anionic hydrolysis

Select the correct answer from the options given below :

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

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

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

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

84. Given below are two statements :

Statement-I : When pressure is applied on equilibrium $H_2O(\ell) \rightleftharpoons H_2O(g)$; more vapour condenses to water.

Statement-II : At equilibrium $H_2O(\ell) \rightleftharpoons H_2O(g)$, pressure exerted by vapour molecules at a given temperature remains constant and is called equilibrium vapour pressure.

In light of above statements, select the correct option :

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

(2) Both statement-I and statement-II are false

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

(4) Statement-I is false but statement-II is true

85. 10^{-3} moles of KOH is dissolved in 1L water to prepare an aqueous solution, then pH of this solution at 25°C is :

(1) 5 (2) 3 (3) 9 (4) 11

SECTION - B (CHEMISTRY)

86. Which of the following statement is incorrect.

(1) For lanthanoids atomic radius gradually decreases from left to right with an exception of Eu and Yb.

(2) Actinoid contraction is more dominant than lanthanoid contraction

(3) Outer electronic configuration of Thorium is [Rn] $7s^2$ $6d^1$ $4f^1$.

(4) Element having atomic number 57 belongs to d block

87. Match the column :

	Compound		Molecular Geometry
(1)	$SOCl_2$	(P)	Angular
(2)	$XeOF_4$	(Q)	Triangular Pyramidal
(3)	S_3^{-2}	(R)	Tetrahedral
(4)	BF_4^-	(S)	Square pyramidal

(1) 1⟶Q, 2⟶S, 3⟶R, 4⟶P

(2) 1⟶Q, 2⟶S, 3⟶P, 4⟶R

(3) 1⟶S, 2⟶Q, 3⟶R, 4⟶P

(4) 1⟶S, 2⟶Q, 3⟶P, 4⟶R

88. Incorrect order of Basic nature is :

(1) $N_2O_3 < P_2O_3 < As_2O_3$

(2) $CO_2 < TiO < K_2O$

(3) $NaOH < Mg(OH)_2 < Al(OH)_3$

(4) $BeO < MgO < CaO$

89. Which order is incorrect for the property mentioned :

(1) $N_2 < N_2^+$ (Bond length)

(2) $NO^+ < NO$ (Magnetic moment)

(3) $O_2^{2} < O_2 < O_2 < O_2^+$ (Bond order)

(4) $O_2^+ < O_2$ (Bond strength)

90. Which of the following statement is correct :

(1) I_2Cl_6 is nonpolar species

(2) CH_3F is more polar than CH_3Cl

(3) CO_2 cannot act as Lewis acid

(4) Urea has intramolecular H-bond

91. Average molar mass of a gaseous mixture of O_3 and O_2 is 40 g/mol, then mass % of O_3 in gaseous mixture is :-

(1) 50 % (2) 40 %

(3) 60 % (4) 80 %

92. Select the incorrect statement :

(1) Reactant which gets first consumed and limit the amount of product formed is limiting reagent.

(2) An empirical formula represent the exact number of different types of atoms present in a molecule of compound.

(3) Mass of one mole of substance in grams is called its molar mass.

(4) 4 moles of N_2 and 14 moles of H_2 produces 8 moles of NH_3 as per Haber's process.

93. A first order reaction R ⟶ P is 50% completed in 20 minutes, then time taken for 87.5 % completion is -

(1) 60 minutes

(2) 80 minutes

(3) 40 minutes

(4) 50 minutes

94. For reaction A + 2B ⟶ C, rate law is given as, r = k[A][B] if concentration of B is doubled keeping concentration of A constant, then value of rate constant will be :

(1) same (2) doubled

(3) quadrupled (4) halved

95. Dissociation constant of a weak acid HX at 25°C is 10^{-4}, then pH of 0.01 M solution of its sodium salt is :

(1) 3

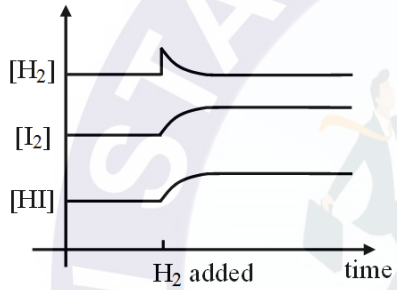
(2) 8

(3) 10

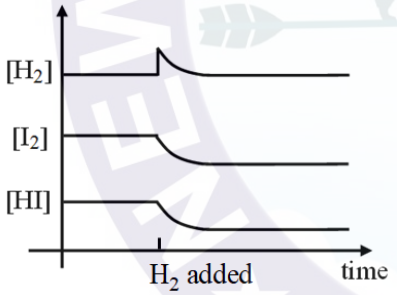
(4) 13

96. For the reaction $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$
Which graph correctly represent the effect of addition of $H_2(g)$ on equilibrium

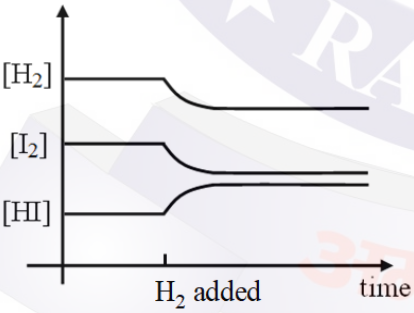
(1)



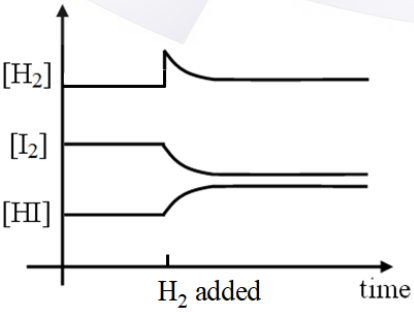
(2)



(3)



(4)



97. Which of the following reaction shift in forward direction upon increasing the pressure at equilibrium :

(1) $COCl_2(g) \rightleftharpoons CO(g) + Cl_2(g)$

(2) $CO_2(g) + C(s) \rightleftharpoons 2CO(g)$

(3) $2H_2(g) + CO(g) \rightleftharpoons CH_3OH(g)$

(4) $CaCO_3(s) \rightleftharpoons CaO(s) + CO_2(g)$

98. Urea (NH_2CONH_2) is a nitrogen fertilizer that is manufactured from NH_3 and CO_2 as per reaction.

$2NH_3 + CO_2 \longrightarrow NH_2CONH_2 + H_2O$

if 176 g CO_2 and 102 g NH_3 are reacted then mass of urea produced is :-

(1) 240 g

(2) 180 g

(3) 60 g

(4) 278 g

99. 1 gram of carbonate (M_2CO_3) on reaction with excess HCl produces 0.01186 moles of CO_2 then molar mass of M_2CO_3 is :-

(1) 84.3 g/mol

(2) 118.6 g/mol

(3) 11.86 g/mol

(4) 1186 g/mol

100. 200 ml of 0.1 M CH_3COONa (aq.) and 100 ml of 0.1 M HCl(aq.) solutions are mixed, then pH of resulting solution is :-

($Ka(CH_3COOH) = 2 \times 10^{-5}$)

(1) 5

(2) 4.7

(3) 10.3

(4) 9

SECTION - A (BOTANY)

101. Find the incorrect from the following statements.

(1) To know about diversity and relationship of organism is systematics

(2) The scope of systematics was later enlarged to include identification, nomenclature and classification of organisms

(3) Systematics takes into account evolutionary relationships among organisms

(4) The earliest classifications of organisms were based on evolutionary relationships in organisms

102. As we go higher from Species to Kingdom in taxonomic hierarchy the number of common characters :

(1) Decreases

(2) Increases

(3) Neither increases nor decreases

(4) Increases in the members of Kingdom Plantae only

103. Given below is the scientific name of mango. Identify the correctly written name.

(1) *Mangifera Indica Linn.*

(2) *Mangifera indica*

(3) Mangifera Indica

(4) *Mangifera indica* Linn.

104. Which of the following is an unicellular fungi ?

(1) *Penicillium*

(2) *Neurospora*

(3) *Aspergillus*

(4) *Saccharomyces*

105. Which of the following statements is correct ?

(1) Viroids were discovered by W M. Stanley

(2) Prions caused cardiac disorder in humans

(3) Fusion of cytoplasm of two motile gametes is called karyogamy

(4) *Anabena* and *Nostoc* can fix atmospheric nitrogen by specialised cells called heterocyst

106. Identify the asexual and sexual reproductive structure associated with *Penicillium* respectively :

(1) Conidia & Basidiospores

(2) Basidiospores & Ascospores

(3) Oospores & Basidiospores

(4) Conidia & Ascospores

107. In , spores are produced exogenously after karyogamy and meiosis.

(1) *Neurospora*

(2) *Alternaria*

(3) *Agaricus*

(4) *Saccharomyces*

108. Which of the following statement is correct ?

(1) Most of protists are unicellular and prokaryotic

(2) Kingdom protista include multicellular organisms.

(3) All members of protista have cell wall

(4) Members of protista have nuclear membrane

109. Identify the pair of plants that produces naked seeds from followings :

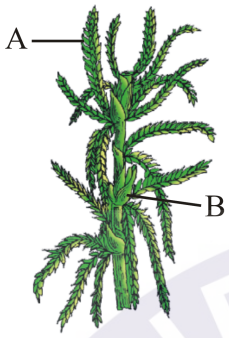
(1) *Pinus, Pisum*

(2) *Cycas, Cedrus*

(3) *Cycas, Wolffia*

(4) *Selaginella, Salvinia*

110. Identify the part A and B respectively in the given diagram :-



(1) Archegonial branch and antheridial branch

(2) Antheridial branch and Archegonial branch.

(3) Sporophytic branch and Gametophytic branch

(4) Gametophytic branch and sporophytic branch

111. Match the column-A with column-B :-

	Column-A		**Column-B**
(a)	Gemmae	(i)	Mosses
(b)	Protonema	(ii)	Male gametophyte
(c)	Megaspore	(iii)	Female gametophyte
(d)	Microspore	(iv)	Liverwort

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

112. **Statement-I :** In pteridophytes, prothallus develops male and female sex organs called antheridia and archegonia respectively.

Statement-II : Sporophyte of pteridophytes is multicellular, well-differentiated dominant plant body.

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

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

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

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

113. Pteridophyta differs from Bryophyta in having :-

(1) Vascular tissue

(2) Archegonia

(3) Alternation of generations

(4) Motile male gametes

114. Select the wrong match :-

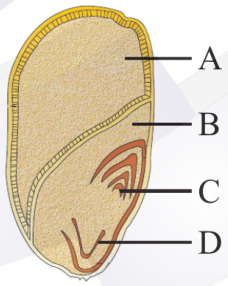
(1) Marginal placentation - Pea

(2) Free central placentation - Primrose

(3) Basal placentation - Marigold

(4) Axile placentation - *Argemone*

115. Identify A, B, C and D in the given figure showing L.S. of a monocot seed and select the correct option:-



	A	**B**	**C**	**D**
1	Endosperm	Scutellum	Plumule	Radicle
2	Endosperm	Scutellum	Radicle	Plumule
3	Scutellum	Endosperm	Radicle	Plumule
4	Plumule	Radicle	Scutellum	Endosperm

116. In which of the following plant, flower can not be divided into two similar halves by any vertical plane ?

(1) Mustard (2) *Cassia*

(3) *Canna* (4) Datura

117. Which of the following statement is not true for leaves?

(1) Leaf is a lateral and flat structure

(2) All leaves consist of three part that are stipule, bracteoles and bract

(3) Lamina of a simple leaf could be either entire or incised

(4) Arrangement of leaves on a branch of stem is called phyllotaxy

118. If a fruit is formed without fertilisation, it is called as :-

(1) Parthenogenesis

(2) Multiseeded fruit

(3) Aggregate fruit

(4) Parthenocarpic fruit

119. **Statement-I :** Stomata are the structures which are present in the epidermis of leaves.
Statement-II : Stomata regulate the process of transpiration and gaseous exchange.

(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.

120. Which of the following statement is not correct for monocot stem ?

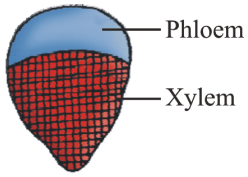
(1) It has parenchymatous hypodermis

(2) Vascular bundle are conjoint & closed

(3) Phloem parenchyma is absent

(4) Water containing cavity present within the vascular bundle

121.



Which of the following is **correct** for given diagramatic sketch ?

(1) Found in stems of grasses

(2) Presence of intra-fascicular cambium

(3) Found in stems of sunflower

(4) Presence of secondary xylem and secondary phloem

122. The parenchymatous cells which lie between the xylem and phloem in dicot roots are called:-

(1) Complimentary cells

(2) Bulliform cells

(3) Conjuctive tissue

(4) Passage cells

123. What is a position of xylem in the vascular bundle of dorsiventral leaf?

(1) Abaxial

(2) Adaxial

(3) Central

(4) Abaxial and adaxial both

124. **Assertion :** *Cycas* is an example of dioecious plant.
Reason : In *Cycas* male cone and megasparophylls are produced on different plant.

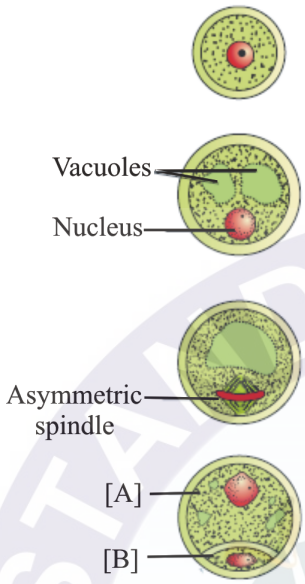
(1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

(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.

128. Stages of a microspore maturing into a pollen grain are given in the diagrams. Identify labelled cells [A] and [B] of given diagram :-



(1) [A] Generative cell, [B] Vegetative cell

(2) [A] Generative cell, [B] Tube cell

(3) [A] Vegetative cell, [B] Tube cell

(4) [A] Vegetative cell, [B] Generative cell

129. White kernel in coconut represents the :-

(1) Free nuclear endosperm

(2) Cellular endosperm

(3) Partially nuclear endosperm and partially cellular endosperm

(4) Embryo

130. Both *Citrus* and mango are examples of :-

(1) One seeded fruits

(2) Multiple seeded fruits

(3) Nucellar polyembryony

(4) Parthenocarpic fruits

131. Which of the following is **not** an example of ex-albuminous seed ?

(1) Groundnut (2) Castor

(3) Bean (4) Pea

137. Find the feature which is shown by both livings and non-livings :

(A) Growth

(B) Metabolism

(C) Cellular organization

(D) Reproduction

(E) Consciousness

Options :

(1) B, C and E (2) only A

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

138. How many of the following are characteristic features of *Polytrichum* ?

(A) Attached to the substratum by multicellular rhizoids.

(B) Sex organs are unicellular and non jacketed.

(C) Male sex organ is antheridium.

(D) Produce biflagellated antherozoids.

(1) (A), (B) and (C)

(2) (B), (C) and (D)

(3) (A), (B) and (D)

(4) (A), (C) and (D)

139. Identify the correct match from the column I, II and III and select the correct option :-

Column-I		Column-II		Column-III	
A	Actinomorphic Flower	i	Bilateral symmetry	a	Mustard
B	Perigynous Flower	ii	Inferior ovary	b	Rose
C	Zygomorphic Flower	iii	Radial symmetry	c	Pea
D	Epigynous Flower	iv	Half-inferior ovary	d	Guava

(1) A-i-a; B-ii-b; C-iii-c; D-iv-d

(2) A-iii-c; B-iv-d; C-i-a; D-ii-b

(3) A-iii-a; B-iv-b; C-i-c; D-ii-d

(4) A-i-c; B-ii-d; C-iii-a; D-iv-b

140. Match the column I with column II :-

Column-I Aestivation in Corolla		Column-II Example	
A	Valvate	i	China rose, Lady's finger
B	Imbricate	ii	*Cassia*, Gulmohur
C	Twisted	iii	*Calotropis*, Mustard
D	Vexillary (Papilionaceous)	iv	Pea, Beans

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

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

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

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

141. Which of the given set of character is related to the family having vexillary aestivation of corolla ?

(1) Epiphyllous stamen and axile placentation

(2) Diadelphous stamen and marginal placentation

(3) Syngenesious stamen and basal placentation

(4) Scutellum as cotyledon and basal placentation

142. If gynoecium is situated in the centre and other floral parts are located on the rim of the thalamus almost at the same level, then the flower is said to be :-

(1) Perigynous

(2) Epigynous

(3) Hypogynous

(4) Protogynous

143. Which one of the following option gives the correct categorisation of stem, root and leaves ?

	A Dicot stem	B Monocot stem	C Dicot root	D Dicot leaves
(1)	Starch sheath	Vascular bundle conjoint and open	2 to 4 xylem	Spongy parenchyma
(2)	Vascular bundle are conjoint and open	Vascular bundle and conjoint and open	5 to 6 xylem	Spongy parenchyma
(3)	Spongy parenchyma	5 to 6 xylem	Vascular bundle are conjoint and open	Closed vascular bundle
(4)	Starch sheath	Vascular bundle are conjoint and closed	2 to 4 xylem	Palisade and spongy mesophyll cells

144. Match the Column-I with Column-II :-

	Column-I		Column-II
(A)	Bulliform cells	(P)	Stomata
(B)	Subsidiary cells	(Q)	Phloem
(C)	Complimentary cells	(R)	Isobilateral leaf
(D)	Companion cells	(S)	Lenticel
		(T)	Dorsiventral leaf

	A	B	C	D
(1)	P	Q	R	S
(2)	T	P	S	Q
(3)	R	S	Q	P
(4)	R	P	S	Q

145. A feature common to leaf, stem and root is presence of :

(1) Cortex

(2) Hypodermis

(3) Stomata

(4) Epidermis

146. In each somatic cell of a particular plant species there are 46 chromosomes. How many should be in a (i) mature egg (ii) embryo (iii) endosperm (iv) ovule (v) pollen grain (vi) ovary ?

	i	ii	iii	iv	v	vi
(1)	23	46	69	23	23	46
(2)	23	46	46	46	23	46
(3)	23	46	69	46	46	46
(4)	23	46	69	46	23	46

147. Match the column I with column-II and select the correct option from given below :-

	Column-I		Column-II
A	Tapetal cells	(i)	nourishes the developing pollen grains
B	Synergid cells	(ii)	nourishes the developing embryosac
C	Nucellus cells	(iii)	guiding the pollen tube
D	Primary endosperm cell	(iv)	develops into triploid tissue

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

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

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

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

148. Ploidy of endosperm will be _____if the male and female parents are hexaploid and tetraploid respectively :-

(1) 8x

(2) 7x

(3) 16x

(4) 10 x

149. Read the following five statements (A-E) and answer as asked next to them:

(A) Pollination by water is more common amongst abiotic pollinations.

(B) Pollination by water is quite rare in flowering plants.

(C) In water hyacinth and water lily, the flowers emerge above the level of water and are pollinated by water.

(D) In wind polinated plants numerous flowers are packed into an inflorescene.

(E) Self incompatibility is an out breeding device which prevents inbreeding.

How many of the above statements are correct ?

(1) Four

(2) One

(3) Two

(4) Three

150. Which of the following is correct sequence with respect to development of embryo in dicots ?

(1) Zygote → Globular → Proembryo → Mature embryo → Heart shaped

(2) Zygote → Proembryo → Globular → Heart shaped → Mature embryo

(3) Globular → Proembryo → Heart shaped → Zygote → Mature embryo

(4) Both (2) and (3)

SECTION - A (ZOOLOGY)

151. Which of the following is exclusively marine :-

(1) Sea walnut (2) *Amphioxus*

(3) *Ascidia* (4) All above

152. In which phylum the cells performing the same function are arranged into tissues ?

(1) Porifera (2) Coelenterata

(3) Platyhelminthes (4) Aschelminthes

153. Examples of economically beneficial insect is

(1) Limulus (2) Apis

(3) Anopheles (4) Locusta

154. Which of the following pair of animals are jawless fishes ?

(1) Magur & flying fish (2) Lamprey & Eel

(3) Rohu & Dog fish (4) Hag fish & Lamprey

155. **Assertion :-** Neries have parapodia.
Reason :- Neries is dioecious.

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

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

(3) A is correct but R is not correct

(4) A is not correct but R is correct

156. **Statement–I :-** Most of Platyhelminthes are endoparasites.
Statement–II :- Tapeworm is member of platyhelminthese.

(1) Both the statements are correct

(2) Both the statements are incorrect

(3) Only statements I is correct

(4) Only statements II is correct

157. Cilia are found in which tissue ?

(1) Epithelial tissue (2) Connective tissue

(3) Muscular tissue (4) Neural tissue

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

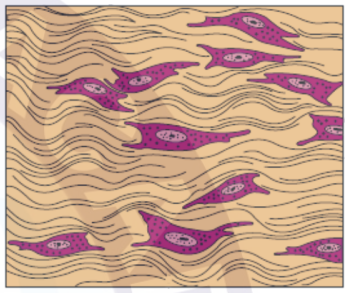
(1) Cuboidal epithelium

(2) Squmous epithelium

(3) Columnar epithelium

(4) Compound epithelium

159. Following diagram represent which type of connective tissue ?



(1) Areolar connective tissue

(2) Adipose connective tissue

(3) Dense regular connective tissue

(4) Dense irregular connective tissue

160. Spiracles found in cockroach are :-

(1) 8 pairs (2) 9 pairs

(3) 10 pairs (4) 11 pairs

161. Mark the false statement with respect to frog -

(1) Frog is ureotelic

(2) Bidder's canal is present in kidney and transport sperms.

(3) In female frog the ovaries are structurally and functionally associated with kidneys.

(4) Fertilisation is external.

162. Which event does not happen during muscle contraction ?

(1) Actin filaments move towards H-zone

(2) Decrease in length of myosin filament

(3) Decrease in length of sarcomere

(4) Length of A-band remains unchanged

163. Match column I and column II and select correct option from followings :-

	Column-I		Column-II
A	Floating ribs	i	Last 7 pairs
B	True ribs	ii	First 7 pairs
C	Vertebrochondral ribs	iii	Last 2 pairs
		iv	3 pairs

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

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

164. Pectoral girdle consists of :-

(1) Scapula + Sternum (2) Sternum + Ribs

(3) Scapula + Ribs (4) Scapula + Clavicle

165. Which one is U-shaped bone ?

(1) Frontal (2) Hyoid

(3) Temporal (4) Sphenoid

166. Globular head of myosin acts as an active :-

(1) ATPase enzyme (2) Invertase enzyme

(3) Amylase enzyme (4) Lysozyme enzyme

167. Each coxal bone is formed by fusion of :-

(1) 2 bones (2) 3 bones

(3) 1 bone (4) 4 bones

168. Cup shape bone is ?

(1) Vomer (2) Scapula

(3) Patella (4) Frontal

169. Arrange the following vertebrae in correct order from superior to inferior

(I) Sacrum (II) Thoracic (III) Cervical
(IV) Lumbar (V) Coccyx

(1) I $\longrightarrow$ II $\longrightarrow$ III $\longrightarrow$ IV $\longrightarrow$ V

(2) II $\longrightarrow$ IV $\longrightarrow$ I $\longrightarrow$ III $\longrightarrow$ V

(3) IV $\longrightarrow$ I $\longrightarrow$ II $\longrightarrow$ V $\longrightarrow$ III

(4) III $\longrightarrow$ II $\longrightarrow$ IV $\longrightarrow$ I $\longrightarrow$ V

170. **Statement-I :** Each organised skeletal muscles in our body is made up of a number of muscle bundles or fascicles.
Statement-II : Fascicles are held together by a common collagenous connective tissue layer called fascia.

(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

171. Which of the following cells secrete factors, which help in spermiogenesis ?

(1) Interstitial cells

(2) Follicular cells

(3) Sertoli cells

(4) Cells of corona radiata

172. How many second polar bodies has produced by a 45 years virgin female in her life :-

(1) 480 (2) 45 (3) 0 (4) 90

173. Which hormone is responsible for maintainance of corpus luteum during pregnancy ?

(1) Progestrone (2) Estrogen

(3) LH (4) hCG

174. Which structure of ovary in mammals acts as endocrine gland after ovulation.

(1) Graafian follicle (2) Corpus luteum

(3) Corpus albicans (4) Trophoblast cells

175. The process of child birth is called parturition which is induced by a complex neuroendocrine mechanism involving :-

(1) Cortisol (2) Estrogen

(3) Oxytocin (4) All

176. The male accessory ducts include :-

(1) Penis, Testis and ureter

(2) Rete testis, vasa efferentia, epididymis and vas deferens

(3) Ureter, urinary bladder and urethra

(4) Ureter, urethra and penis

177. During implantation -

(1) The uterine cells divide before attachment of blastocyst.

(2) The uterine cells divide after attachment of blastocyst.

(3) The uterine cell do not divide.

(4) The uterine cells divide during attachment of blastocyst.

178. Match the column I with column II :-

Column-I		Column-II	
(i)	Testis	(A)	Androgen secretion
(ii)	Seminiferous tubules	(B)	Sperm formation
(iii)	Leydig cells	(C)	Primary sex-organ
(iv)	Cowper's gland	(D)	Provide energy to sperms
		(E)	Lubricates the penis

Choose the correct option :-

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

179. Match the column-I with column-II and choose the correct option :-

	Column-I		Column-II
A.	After one month of pregnancy	i.	Most of major organ system formed
B.	End of 2nd month of pregnancy	ii.	Body covered with fine hairs and eye lashes are formed
C.	At the end of 12 week of pregnancy	iii.	Embryo heart formed
D.	End of second trimester	iv.	Foetus develops limbs and digits

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

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

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

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

180. After invitro fertilization :

(1) Embryo with more than 8 cells are implanted in uterus.

(2) Embryo with more than 16 cells are implanted in vagina.

(3) Embryo with less than 8 cells can be implanted in uterus.

(4) Embryo with more than 16 cell is implanted in fallopian tube.

181. Which of the following is hormone releasing IUD?

(1) Lippes loop

(2) Cu-7

(3) LNG-20

(4) Multiload-375

182. Which method of contraception has high failure rate ?

(1) Barrier method

(2) IUD

(3) Diaphram

(4) Natural method

183. In assisted reproductive technologies IUI is performed and IUI stands for :-

(1) Intra-uterine injection

(2) Inter-uterine injection

(3) Intra-uterine insemination

(4) Inter-uterine insemination

184. Select the correct statement :-

(1) MTPs are safe during the first trimester

(2) SAHELI oral contraceptive pills are non-steroidal

(3) Natural methods of contraception work on the principle of avoiding chances of ovum and sperms meeting

(4) All of above are correct

185. Read the following statement (a - d) :-

(a) Sterilisation procedure with male is called tubectomy.

(b) Amniocentesis for sex determination is banned in our country

(c) Medical termination of pregnancy (MTP) is legalised in our country

(d) surgical method of contraception also called sterilisation.

How many statements is/are correct?

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

SECTION - B (ZOOLOGY)

186. **Statement-I :** Presense of mammary gland is a most unique feature of mammals.

Statement-II : In mammals, limbs help in walking, running, Climbing, burrowing, swimming or flying.

(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.

187. In which of the following body-coelom is absent ?

(1) Limulus (2) Taenia

(3) Chiton (4) Nereis

188. An anterior proboscis, a collar and a long trunk are body parts of :-

(1) Mollusca (2) Echinodermata

(3) Arthropoda (4) Hemichordata

189. Which of the following is an example of Dense regular connective tissue ?

a. Adipose tissue b. Areolar tissue

c. Tendons d. Ligaments

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

(3) c and d (4) a and d

190. Skeletal muscle attached with bone by

(1) Areolar connective tissue

(2) Tendon

(3) Brown fat

(4) Blood

191. Number of vasa efferentia arise from testes of frog are -

(1) 10 - 12 (2) 15 - 20

(3) 30 - 40 (4) 40 - 45

192. Which type of cells of epithelium get specialised for secretion and are called glandular epithelium :-

(a) Squamous (b) Cuboidal

(c) Columnar

(1) Only a (2) Only b

(3) Only c (4) b and c

193. Decreased levels of estrogen in female is a common cause of :-

(1) Arthritis

(2) Osteoporosis

(3) Gout

(4) Muscular-dystrophy

194. In the given four statements (a-d), select the options, which includes all the correct ones only :-

(a) Fibula is bone of hind limb.

(b)Tarsal bones are 7 in number.

(c) Scapula situated dorsally in thoracic region between 2nd and 7th rib.

(d) Two half of the pelvic girdle meet dorsally to form the pubis symphisis containing fibrous cartilage.

(1) Statement (a), (b), (c)

(2) Statement (a), (c), (d)

(3) Statement (b), (c), (d)

(4) Statement (a), (b), (c), (d)

195. Joint between carpals is -

(1) Hinge joint (2) Saddle joint

(3) Plain joint (4) Gliding joint

196. Choose the correct match -

(1) Fibrous joint ⟶ Knee joint

(2) Pivot joint ⟶ Sutures

(3) Saddle joint ⟶ Between atlas and axis vertebrae

(4) Ball & socket joint ⟶ Between humerus & pectoral girdle

197. Choose the structure, which get attached to the endometrium, during pregnancy :-

(1) Inner cell mass

(2) Trophoblast

(3) Embryonal knob

(4) Umbilical cord

198. Choose the correct option for pathway of sperm movement :

(1) Seminiferous tubule ⟶ Rete testis ⟶ Vasa efferentia ⟶ Epididymis

(2) Seminiferous tubule ⟶ Epididymis ⟶ Vasa efferentia ⟶ Vas deferens

(3) Seminiferous tubule ⟶ Rete testes ⟶ Vas deferense ⟶ Vasa efferentia

(4) Seminiferous tubule ⟶ Vasa efferentia ⟶ Epididymis ⟶ Rete testes

199. Relaxin is produced by -

(1) Ovary (2) Adrenal cortex

(3) Pituitary gland (4) Thyroid gland

200. If the vas-deferens of a man are surgically cut or blocked.

(1) Semen will be without sperms

(2) Spermatogenesis will not take place

(3) Testosterone will disappear from blood

(4) Sperms in the semen become nonmotile