NEW STANDARD ACADEMY

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 particle covers each $\dfrac{1}{4}$ of the total distance with V_1, V_2, V_3 and V_4 respectively. Find the average speed.

   (1) $\dfrac{V_1 V_2 V_3 V_4}{V_1 + V_2 + V_3 + V_4}$

   (2) $\dfrac{V_1 + V_2 + V_3 + V_4}{4}$

   (3) $\dfrac{V_1 V_2 V_3 V_4}{(V_1 + V_2 + V_3 + V_4)\,4}$

   (4) $\dfrac{4 V_1 V_2 V_3 V_4}{V_2 V_3 V_4 + V_1 V_3 V_4 + V_1 V_2 V_4 + V_1 V_2 V_3}$

2. The initial velocity of a body is U and the acceleration is $f = 2t^2 + 3t + 4 \text{ m/s}^2$ then

   (1) $V = \dfrac{2t^3}{3} + \dfrac{3t^2}{2} + U$

   (2) $V = \dfrac{2t^3}{3} + \dfrac{3t^2}{2} + (4 + U)t$

   (3) $V = \dfrac{2t^3}{3} + \dfrac{3t^2}{2} + 4t + U$

   (4) $V = \dfrac{3t^3}{2} + \dfrac{2t^2}{3} + 4t + U$

3. Mark the correct statements for a particle going on a straight line –

   (x – position coordinate, v – velocity, a – acceleration)

   (1) If x and v have opposite sign, particle moving towards origin

   (2) If x and v have same sign particle moving towards origin

   (3) If v and a have opposite sign, object is speeding up

   (4) If v is zero then a is also zero for that particular moment

4. A particle moves along X-axis and its position
   $x = U(t - 4) + 2a(t - 4)^2$
   $t \longrightarrow$ time
   (A) The initial velocity (at t = 0) is U
   (B) The acceleration is 4a
   (C) The acceleration is 2a
   (D) At t = 4 second, particle is at origin
   following statements are correct.

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

5. A projectile is thrown with velocity v making an angle θ with the horizontal. It just crosses the top of two poles, each of height h, after 1 sec and 5 sec respectively. The time of flight is

   (1) 1 sec   (2) 6 sec   (3) 4 sec   (4) 7 sec

6. A police van moving with 36 km/h fires a bullet at a thief's car speeding away in the same direction with a speed of 180 km/h. If the muzzle speed of the bullet is 150 m/s, with what speed does the bullet hit the thiefs car-

   (1) 110 m/s   (2) 216 km/h

   (3) 110 km/h   (4) 186 m/s

7. A projectile is projected at an angle α (> 45°) from horizontal with an initial velocity u. The time (t) at which its horizontal component will equal the vertical component in its magnitude
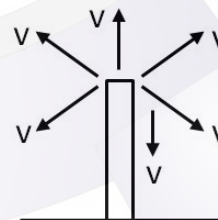
   (1) $\dfrac{u}{g} [\sin^2 \alpha - \cos^2 \alpha]$

   (2) $\dfrac{u}{g} [\cos^2 \alpha - \sin^2 \alpha]$

   (3) $\dfrac{u}{g} [\sin \alpha - \cos \alpha]$

   (4) $\dfrac{u}{g} [\cos \alpha - \sin \alpha]$

8. Particles are projected from the top of a tower with same speed at different angles as shown Which of the following are true

   (1) All the particles would strike the ground with same speed

   (2) All particle strike the ground at the same time

   (3) All particle strike the ground with different speed

   (4) All particle strike the ground with different kinetic energy

9. A river is flowing from west to east at a speed of 10 m/min. A man on south bank of river, capable of swimming at 20 m/min in still water wants to cross the river through the shortest path, in what direction should he swim :-

(1) 30° West of north

(2) 30° East of north

(3) 30° West of south

(4) 30° East of south

10. Raindrops are falling vertically with a velocity of 20 km/h. To a person moving on level ground, raindrops appears to be coming with 40 km/h, the velocity of person is-

(1) $10\sqrt{5}$ km/h (2) $10\sqrt{8}$ km/h

(3) $10\sqrt{12}$ km/h (4) $10\sqrt{20}$ km/h

11. An arrow is shot in air, its time of flight is 5 sec. and horizontal Range is 200 m. The projection angle of the arrow with the horizontal is -

(1) $\tan^{-1}\dfrac{5}{8}$ (2) $\tan^{-1}\dfrac{1}{8}$ (3) $\tan^{-1}\dfrac{8}{5}$ (4) 45°

12. A body falls freely from rest under gravity. It covers as much distance in the last second of its motion as covered in the first three seconds. The body has fallen for a time of

(1) 3 sec. (2) 5 sec. (3) 7 sec. (4) 9 sec.

13. **Assertion (A) -** Two balls of different masses are thrown vertically upward with same speed. They will pass through their point of projection in the downward direction with the same speed.

Reason (R) - Downward velocity attained at the point of projection are independent of the mass of the ball.

(1) Assertion (A) is correct, reason (R) is correct and Reason (R) is correct explaination for assertion.

(2) Assertion (A) is correct, reason (R) is correct and Reason (R) is not correct explaination for assertion.

(3) Assertion (A) is correct, Reason (R) is incorrect

(4) Assertion (A) is incorrect , Reason (R) is correct

14. For a particle acceleration-time graph is given. The corresponding velocity-time curve is – (initial velocity = 0)

(1)

(2)

(3)

(4)
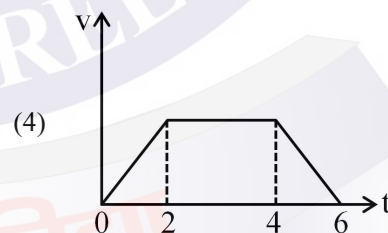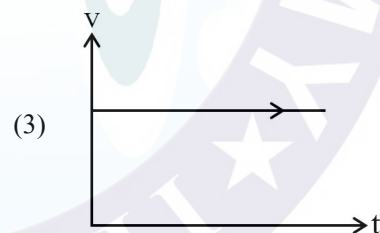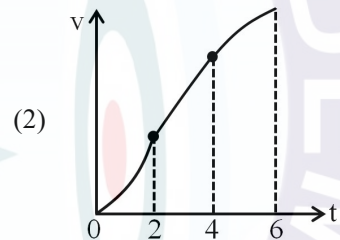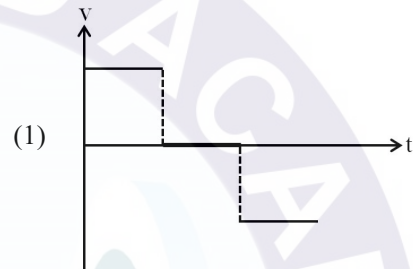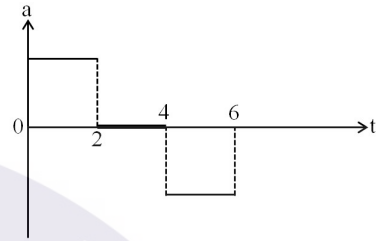
15. A stone is thrown vertically upward with an initial speed u from the top a tower, reaches the ground with a speed 4u, the height of the tower is :

(1) $7.5\dfrac{u^2}{g}$ (2) $7\dfrac{u^2}{g}$

(3) $6.5\dfrac{u^2}{g}$ (4) $6\dfrac{u^2}{g}$

16. Two particles held at different height 8 m and 12 m above the ground are allowed to fall from rest. The ratio of their speeds on reaching the ground is :

    (1) $\sqrt{\dfrac{3}{2}}$ (2) $\dfrac{2}{\sqrt{6}}$ (3) $\dfrac{2}{3}$ (4) $\dfrac{4}{9}$

17. A balloon is moving upward with velocity 20 m/s. It release a stone which comes down to the ground in 15 sec. The height of the balloon from the ground at the moment when the stone was dropped is

    (1) 620 m   (2) 825 m

    (3) 1035 m   (4) 1215 m

18. An α-particle revoles in a circular path of radius one meter with velocity 3.14 m/sec then the current associated with the motion of particle is :-

    (1) 6.4×10^{-19} A

    (2) 4.8×10^{-19} A

    (3) 3.2×10^{-19} A

    (4) 1.6×10^{-19} A

19. Ratio of area of three wires, made of same material and same length is 1 : 2 : 3 then the ratio of resistances of wires is -

    (1) 1 : 2 : 3   (2) 2 3 : 4

    (3) 6 : 3 : 2   (4) 3 4 : 5

20. **Assertion :-** The drift velocity of electron in a metallic wire will decrease, if the temperature of the wire is increased

   **Reason :-** On increasing temp., relaxation time of electrons of metallic wire decreases

    (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.

21. **Assertion :-** The range of voltmeter can be changed.

    Reason :- By adjusting the value of resistance in series with galvanometer, the range of voltmeter can be adjusted.

    (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.

22. In the following circuit, emf is 2V and internal resistance of cell is 1Ω and R = 3Ω then reading of ammeter and voltmeter are respectively :
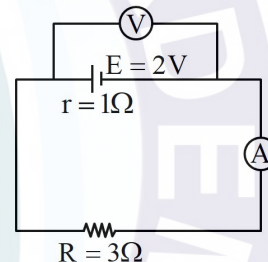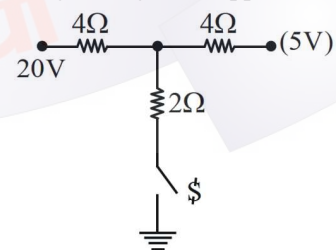

    (1) $\dfrac{1}{2}$A, $\dfrac{3}{2}$V   (2) 1A, 3V

    (3) 2A, 4V   (4) 3A, 3V

23. A student has 10 wires each of 20Ω then which one resistance can not be obtained with the combination of these wires.
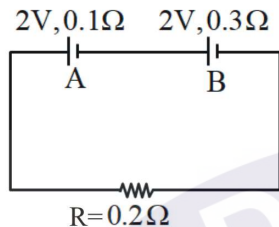
    (1) 1Ω   (2) 170Ω

    (3) 18Ω   (4) 50Ω

24. As the switch S is closed in the circuit in figure current passing through it is approximately -

    (1) 4.5 A   (2) 6.0 A

    (3) 3.0 A   (4) Zero

25. Read carefully the following

The internal resistance of two cells shown are $0.1\,\Omega$ and $0.3\,\Omega$. If $R = 0.2\,\Omega$ then

2V,0.1Ω   2V,0.3Ω
A   B
R=0.2Ω

Statement I : Current in the circuit is 20/3 A.

Statement II : Terminal potential difference of cell A is 4/3 volt.

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

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

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

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

26. Statement I : When a cell is short circuited then Terminal potential difference of cell is zero.

Statement II : Slope of curve drawn between Terminal potential difference of discharging and current is equal to internal resistance (in magnitude)
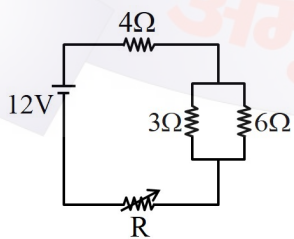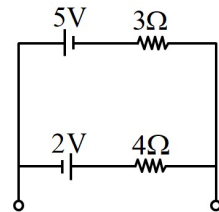
(1) Statement-I and statement-II both are true

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

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

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

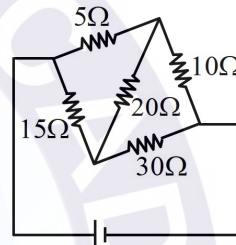**27.** In the given fig, the power loss in load resistance R cannot be :

4Ω
12V
3Ω 6Ω
R

(1) 2W   (2) 3W

(3) 6W   (4) 9W

28. For the given combination of cells, effective emf is

5V   3Ω
2V   4Ω

(1) $\dfrac{26}{7}$ volt   (2) $\dfrac{10}{5}$ volt

(3) $\dfrac{7}{9}$ volt   (4) $\dfrac{2}{3}$ volt

29. In which resistance, power loss is minimum

5Ω
10Ω
20Ω
15Ω
30Ω

(1) $5\,\Omega$ (2) $30\,\Omega$

(3) $20\,\Omega$ (4) $10\,\Omega$

30. In the given figure, the total power loss is –

100V, 100W   100V, 100W
B$_1$ B$_2$
200V
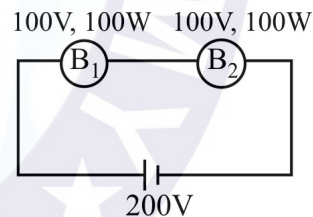
(1) 100 W

(2) 200 W

(3) 150 W

(4) 50 W

31. In the given fig. current i_1, i_2 and i_3 in (A) are –

i_1 2Ω
i_2 4Ω
11A
i_3 6Ω
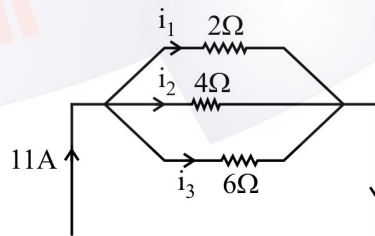
(1) 3, 2, 6   (2) 6, 2, 3

(3) 2, 3, 6   (4) 6, 3, 2

32. Current i in the given circuit is —
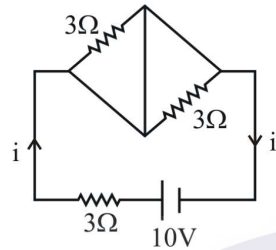
(1) 10 A (2) $\dfrac{10}{3}$ A (3) $\dfrac{10}{9}$ A (4) zero

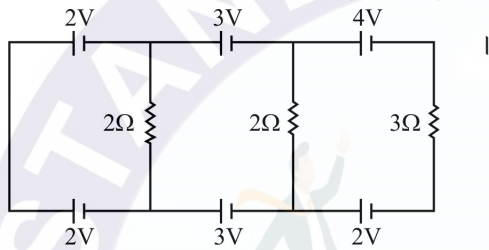**33.** The current in resistance 3Ω in the given fig is —

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

(3) $\dfrac{1}{4}$A   (4) $\dfrac{1}{2}$A

34. How can a galvanometer of range 20 mV and resistance $20\ \Omega$ be converted into a voltmeter of range 10V.

(1) $9980\ \Omega$ in series   (2) $4980\ \Omega$ in series

(3) $9980\ \Omega$ in parallel (4) $4980\ \Omega$ in parallel

35. Two galvanometer A and B require 3 mA and 6 mA current respectively to produce the same deflection of 10 divisions Then —

(1) A is more sensitive than B

(2) B is more sensitive than A

(3) A and B are equally sensitive

(4) Sensitiveness of B is twice that of A

SECTION - B (PHYSICS)

36. Speeds of two cars are 2U and 3U at an instant. The ratio of the respective distances at which the two cars are stopped at the same instant is :

(1) $\dfrac{3}{2}$ (2) $\dfrac{2}{3}$ (3) $\dfrac{4}{9}$ (4) $\dfrac{9}{4}$

37. The coordinates of a moving particle is $x = 2\alpha t^4$ and $y = 4\beta t^4$ (t → times & α, β → constant) The speed at any time t is :

(1) $8t^3\sqrt{\alpha^2 + \beta^2}$ (2) $8t^2\sqrt{\alpha^2 + 4\beta^2}$

(3) $4t^3\sqrt{\alpha^2 + 4\beta^2}$ (4) $8t^3\sqrt{\alpha^2 + 4\beta^2}$

38. The relation between time t and distance x is $t = 2x^2 + 3x$. The acceleration is (v is velocity) :-

(1) $+2v^3$ (2) $-3v^3$ (3) $-4v^3$ (4) $+5v^3$

39. A particle is projected from ground from origin. Its path is given by $y = 10x - 2x^2$. Then time of flight is (Use g = 10 m/s^2) :-

(1) $\sqrt{10}$ sec   (2) 10 sec

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

40. A body is thrown up with relative velocity u in a lift moving upward and the time of flight is t the acceleration with which the lift is moving up is -

(1) $\dfrac{u + gt}{t}$ (2) $\dfrac{u - gt}{t}$

(3) $\dfrac{2u - gt}{t}$ (4) $\dfrac{2u + gt}{t}$

41. The acceleration-displacement graph of a particle moving in a straight line as shown. initial velocity of particle is zero. Find velocity (m/s) of particle when displacement s = 16 m.
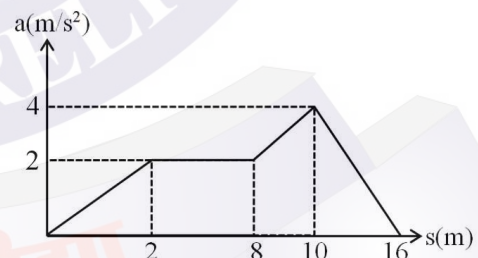
(1) 6   (2) 10   (3) 8   (4) 12

42. Water drops fall at regular intervals from a tap which is 10 m above the ground. The fifth drop is leaving the tap at the instant the first drop touches the ground. How far above the ground is the third drop at that instant. (g = 10 m/s^2)

(1) $\dfrac{15}{2}$m (2) $\dfrac{25}{4}$m (3) 5 m (4) 6 m

43. Match the column for the given figure :

7V 2V
A 1.5Ω B 1Ω
2.5Ω

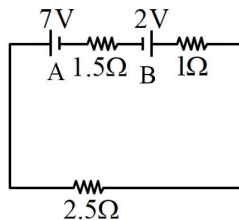Internal resistances of 7V and 2V cell are $1.5 \, \Omega$ and $1 \, \Omega$ respectively :

	Column I		Column II
(A)	Terminal potential difference of cell A	(P)	3 V
(B)	Terminal potential difference of cell B	(Q)	5.5 V
(C)	Powel loss at 1.5 Ω	(R)	1 watt
(D)	Power loss at 1 Ω	(S)	1.5 watt

(1) (A)→(Q); (B)→(P); (C)→(S); (D)→(R)

(2) (A)→(P); (B)→(Q); (C)→(R); (D)→(S)

(3) (A)→(P); (B)→(P); (C)→(R); (D)→(R)

(4) (A)→(Q); (B)→(Q); (C)→(S); (D)→(R)

44. Maximum safe current for a fuse wire of radius r is i. Then for the wire of radius 4r max safe current will be -

(1) i (2) $\dfrac{i}{8}$ (3) 8i (4) 4i

45. A wire of resistance R is compressed so that its length decreases by 10%. The percentage change in its resistance is :

(1) 10% (2) 11% (3) 19% (4) 21%

46. A galvanometer of 50Ω resistance has 25 division. A current of 4×10^{4} A gives a deflection of one division. To convert this galvanometer into a voltmeter whose voltage sensitivity is 1 div/volt, it should be connected with a resistance of -

(1) 2500 Ω (2) 245 Ω

(3) 2550 Ω (4) 2450 Ω

47. In the given fig, if power loss across each resistor is same then relation between R_1, R_2 and R_3 is –
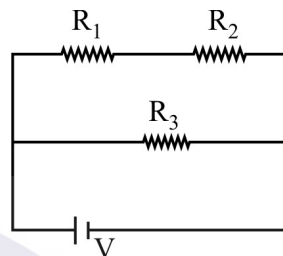
R_1 R_2
R_3
V

(1) $R_1 = 4R_2 = R_3$

(2) $R_1 = R_3 = \dfrac{R_2}{4}$

(3) $R_1 = R_2 = \dfrac{R_3}{4}$

(4) $R_1 = R_2 = R_3$

48. In the given fig, which one bulb will get fused –

200V, 100W 100V, 100W
B_1 B_2
300V
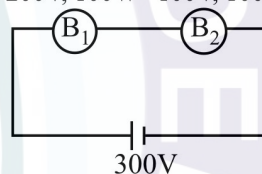
(1) Bulb B_1 (2) Bulb B_2

(3) Both (4) None

49. A potentiometer wire of length 10 m and resistance 30 Ω is connected in series with a battery of emf 2.5 volt and internal resistance 5 Ω and an external resistance R. If the fall of potential along the potentiometer wire is 50 μV/mm then the value of R (in Ω) is –

(1) 115 Ω (2) 80 Ω

(3) 50 Ω (4) 100 Ω

50. For the circuit diagram shown in the fig, the current must not exceed than (maximum sustainable powers of resistances are shown in the diagram) –

10 kΩ 10 kΩ 250 kΩ
1W 1/4W $\dfrac{1}{4}$ W
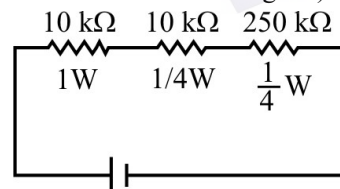
(1) 1 mA (2) 2 mA (3) 5 mA (4) 10 mA

SECTION-A (CHEMISTRY)

51. How many grams of CH_3OH would have to be added to water to prepare 150 ml of a solution that is $2\,M\,CH_3OH$:

(1) 9.6 g

(2) 2.4 g

(3) 9.6×10^3 g

(4) 4.3×10^2 g

52. Calculate the molality of 80% (w/V) H_2SO_4 solution, if the density of the solution is $1.80\,g/m\ell$:-

(1) 8.9   (2) 1.02

(3) 10.8   (4) 8.1

53. What will be the normality of 20 V H_2O_2 solution ?

(1) 1.78   (2) 3.57

(3) 3   (4) 6.66

54. 200 ml, $\dfrac{M}{10}\,H_2SO_4$ is completely neutralized by decinormal NaOH solution, what will be the volume of NaOH required -

(1) 200 ml

(2) 400 ml

(3) 100 ml

(4) 600 ml

55. Higher the value of K_H at a given pressure, suggests that -

(1) The higher is the solubility of the gas in the liquid

(2) The lower is the solubility of the gas in the liquid.

(3) Solubility of gases has no relation with K_H

(4) All gases have same K_H values but different solubilities

56. If an ideal solution is made by mixing 2 moles of benzene ($P^o = 266$ mm of Hg) and 3 moles of another liquid ($P^o = 236$ mm of Hg). The total vapour pressure of the solution at the same temperature would be :

(1) 502 mm of Hg

(2) 248 mm of Hg

(3) 600 mm of Hg

(4) 250.6 mm of Hg

57. If two substances A and B have $P_A{}^\circ : P_B{}^\circ = 1 : 2$ and have mole fraction in solution in the ratio 1 : 2 then mole fraction of A in vapour phase :-

(1) 0.33   (2) 0.25

(3) 0.20   (4) 0.52

58. The boiling point of an azeotropic mixture of water and ethyl alcohol is less than that of theoretical value of water and alcohol mixture. Hence the mixture shows :

(1) that solution is highly saturated

(2) positive deviation from Raoult's law

(3) negative deviation from Raoult's law

(4) none of these

59. If 2 moles of sugar is dissolved in 1 kg of water, the resulting solution will show the boiling point:-

(1) 100°C

(2) 0.52°C

(3) 1.04°C

(4) 101.04°C

60. The relationship between osmotic pressures (π_1, π_2 and π_3) at a definite temperature when 1 g glucose, 1 g urea and 1 g sucrose are dissolved in 1 litre of water separately is :

(1) $\pi_1 > \pi_2 > \pi_3$ (2) $\pi_3 > \pi_1 > \pi_2$

(3) $\pi_2 > \pi_1 > \pi_3$ (4) $\pi_2 > \pi_3 > \pi_1$

61. In which case vant hoff factor is maximum?

   (1) KCl, 50% ionised

   (2) K_2SO_4, 40% ionised

   (3) $SnCl_4$, 20% ionised

   (4) $FeCl_3$, 30% ionised

62. Arrange the following in the increasing order of their boiling points :-
   (i) 10^{-3} M NaCl
   (ii) 10^{-3} M Urea
   (iii) 10^{-3} M $MgCl_2$
   (iv) 10^{-2} M NaCl

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

   (2) (ii) < (i) = (iii) < (iv)

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

   (4) (iv) < (iii) < (i) = (ii)

63. What would be the freezing point of 20% ionized 0.2 molal solution of weak electrolyte XY :- $[K_f(H_2O) = 1.86° C/m]$

   (1) $-0.31° C$

   (2) $-0.45° C$

   (3) $-0.53°C$

   (4) $-0.90° C$

64. Consider 0.1 M solutions of two solutes X and Y. The solute X behaves as a univalent electrolyte while the solute Y dimerises in solution. Which of the following statements are correct regarding these solutions ?
   (a) The boiling point of the solution of X will be higher than that of Y
   (b) The osmotic pressure of the solution of Y will be lower than that of X
   (c) The freezing point of the solution of X will be lower than that of Y
   (d) The relative lowering of vapour pressure of both the solutions will be the same
   Select the correct answer from the given option :-

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

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

65. pH of a 0.1 M monobasic acid is found to be 2. Hence its osmotic pressure at a given temperature T K is–

   (1) 0.1 RT

   (2) 0.11 RT

   (3) 1.1 RT

   (4) 0.01 RT

66. One molal solution of a carboxylic acid in benzene shows the elevation of boiling point of 1.518 K. The degree of association for dimerization of the acid in benzene is (K_b for benzene = 2.53 K kg mol^{-1}) :

   (1) 60%   (2) 70%

   (3) 75%   (4) 80%

67. Phenol associates in benzene as :
   $C_6H_5OH \rightleftharpoons \frac{1}{2} (C_6H_5OH)_2$
   If degree of association of phenol is 30% then Van't hoff factor (i) is :-
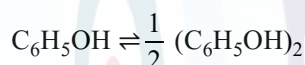
   (1) 1   (2) 0.8   (3) 0.85   (4) 1.15

68. 3% aqueous solution of dextrose (molecular weight = 180) is isotonic with 2% aqueous solution of another covalent solute in water at 25°C. The molar mass of the solute is :-

   (1) 60

   (2) 120

   (3) 180

   (4) 90

69. Among the following least and most polar bonds are respectively :-
   (a) C – I   (b) N – O
   (c) C – F   (d) P – F

   (1) d and c

   (2) a and d

   (3) b and d

   (4) b and c

70. Which among the following is correct order of stability of hydrohalides ?

(1) HI > HBr > HCl > HF

(2) HF > HCl > HBr > HI

(3) HF > HBr HCl > HI

(4) HCl > HF > HBr > HI

71. Match the column

	Column-I		Column-Il
A	Ionisation potential	P	O < F < N
B	Electronegativity	Q	N < O < F
C	Z_{eff}	R	O < N < F
D	Electron affinity	S	N < C < O

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

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

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

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

72. *Assertion (A)* : Atomic radius increases, descending down the group.

Reason (R) : On going down the group EN increase.

(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)**

73. Choose the correct statement–

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

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

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

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

74. The order of size is :

(1) $S^{-2} > Cl^- > O^{-2} > F^-$

(2) $Cl^- > S^{-2} > O^{-2} > F^-$

(3) $S^{-2} > O^{-2} > Cl^- > F^-$

(4) $S^{-2} > O^{-2} > F^- > Cl^-$

75. Consider the following statements :

(i) Atomic radii decreases across a row of the periodic table when we move from left to right.

(ii) Atomic radii increases down the group as we move from top to bottom.

(iii) Although the arrangement elements is based on atomic numbers, vertical families share similar chemical properties.

Which of the statement(s) given above is/are correct?

(1) (i) and (ii)

(2) (i) and (iii)

(3) (ii) and (iii)

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

76. **Assertion (A):** The ionic radii of O^{2-} and Mg^{2+} are same.

Reason (R): Both O^{2-} and Mg^{2+} are isoelectronic species.

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

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

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

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

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

77. The ionization energy of boron is less than that of beryllium because :-

(1) beryllium has a higher nuclear charge than boron

(2) beryllium has a lower nuclear charge than boron

(3) the outermost electron in boron occupies a 2p-orbital

(4) the 2s and 2p-orbitals of boron are degenerate

78. The ionisation energy of nitrogen is more than oxygen because of :-

(1) The size of nitrogen atom is smaller

(2) More penetrating effect

(3) More attraction of electrons by the nucleus

(4) The stability of half filled p-orbital

79. The incorrect statement is

(1) The second ionisation energy of Se is greater than that of second ionisation energy of As

(2) The first ionisation energy of C^{2+} ion is greater than that of first ionisation energy of N^{2+} ion

(3) The third ionisation energy of F is greater than that of third ionisation energy of O.

(4) Halogens have highest I.E. in respective period.

80. Match List I with List II with correct code :-

	List I				List II
	$1E_1$	$1E_2$	$1E_3$		
A	1510	-	-	1	H
B	495	6500	10200	2	Li
C	840	1630	13100	3	Be
D	600	2050	3100	4	B

($1E$ in $KJmol^{-1}$)

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

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

81. Which one of the following statements is incorrect in relation to ionisation enthalpy ?

(1) Ionization enthalpy increases for each successive electron removal

(2) The greatest increase in ionization enthalpy is experienced on removal of electron from core of noble gas configuration.

(3) Determination of valence electrons is marked by a large jump in ionization enthalpy.

(4) Removal of electron from orbitals bearing lower n value is easier than from orbital having higher n value.

82. Electronic configurations of four elements A, B, C and D are given below
Which of the following is the correct order of increasing tendency of gain electron :-

(A) $1s^2 2s^2 2p^6$ (B) $1s^2 2s^2 2p^4$
(C) $1s^2 2s^2 2p^6 3s^1$ (D) $1s^2 2s^2 2p^5$

(1) A < C < B < D   (2) A < B < C < D

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

83. From the following given electronic configuration. Identify the correct order of electron affinity.

(I) [He] $2s^2 2p^5$ (II) [He] $2s^2 2p^3$
(III) [Ne] $3s^2 3p^5$ (IV) [Ne] $3s^2 3p^3$

(1) I > II > III > IV   (2) III > I > IV > II

(3) I < II < III < IV   (4) II > III > IV > I

84. If Electron affinity of an element M is x kJ/mol than ionisation potential of this element :-

(1) More than x   (2) less than x

(3) equal to x   (4) All of these

85. Incorrect statement for the given configuration :- $[Xe]4f^7 5d^1 6s^2$

(1) It placed in d-block IIIB group, 6th period

(2) It is a natural element

(3) It have maximum unpaired e^- in lanthanide

(4) It is Gd

SECTION-B (CHEMISTRY)

86. If mole fraction of sugar in its aqueous solution is 0 4 then its molality will be -

(1) 12 5   (2) 21 5   (3) 37   (4) 24

87. What is the concentration of chloride ion in the mixture of 500 ml.(1M) KCl solution and 500 ml (1M) $MgCl_2$ solution ?

(1) 3 0M   (2) 1.5 M   (3) 2 0M   (4) 0.5 M

88. At 27° C vapour pressure of pure liquid A is 70 torr. This liquid makes ideal solution with liquid B The mole fraction of B is 0.2 and the total pressure of the solution at 27°C has been found to be 84 torr. What is the vapour pressure of pure liquid B at 27°C -

(1) 14 torr   (2) 140 torr

(3) 56 torr   (4) 70 torr

89. Certain amount of urea is dissolved in 200 g of water in order to decrease the vapour pressure of water by 25% The molality of the solution is

(1) 1 85 m   (2) 0 93 m   (3) 185 m   (4) 93 m

90. An aqueous solution containing 5% by weight of urea and 10% by weight of glucose. Freezing point of solution is [K_f for H_2O is 1 86 K mol^{-1} kg]

(1) 2.78° C   (2) –3 04° C

(3) –5 96° C   (4) 5 96° C

91. The solution which has the lowest freezing point is :-

(1) 0.1M potassium chloride

(2) 0.1M potassium sulphate

(3) 0.1M potassium nitrate

(4) 0.1M aluminium sulphate

92. If l molal solution of benzoic acid in benzene has a freezing point depression of 2.56°C.
(K_f = 5.12°C mol^{-1} kg) and boiling point elevation of 2.53°C (K_b = 2.53°C mol^{-1} kg), then select the correct statement/s :

Statement I : there is dimer formation when undergoing freezing.

Statement II : there is no change when undergoing boiling.

Statement III : reverse of Statements I and II

Statement IV : dimer formation during freezing and boiling of solution.

(1) I, II   (2) II, III

(3) III, I   (4) only I

93. Following statements regarding the periodic trends of chemical reactivity of the alkali metals and the halogens are given. Which of these statements gives the correct picture:

(1) The reactivity decreases in the alkali metals but increases in the halogens with increase in atomic number down the group.

(2) In both the alkali metals and the halogens the chemical reactivity decreases with increase in atomic number down the group.

(3) Chemical reactivity increases with increase in atomic number down the group in both the alkali metals and halogens.

(4) In alkali metals the reactivity increases but in the halogens it decreases with increase in atomic number down the group.

94. Statement-I : Na^+ and Al^{3+} are isoelectronic but the magnitude of ionic radius of Al^{3+} is less than that of Na^+.

Statement-II : The magnitude of effective nuclear charge of the outer shell electrons in Al^{3+} is greater than that in Na^+.

Which of the following is correct for these is statements.

(1) Statement-I is True, Statement-II is True; Statement-II is a correct explanation for Statement-I

(2) Statement-I is True, Statement-II is True; Statement-II is not a correct explanation for Statement-I

(3) Statement-I is True, Statement-II is False

(4) Statement-I is False, Statement-II is True

95. The correct order of ionic radii for The ions, P^{3-}, S^{2-}, Ca^{2+}, K^+, Cl^- is :

(1) $P^{3-} > S^{2-} > Cl^- > K^+ > Ca^{2+}$

(2) $Cl^- > S^{2-} > p^{3-} > Ca^{2+} > K^+$

(3) $P^{3-} > S^{2-} > Cl^- > Ca^{2+} > K^+$

(4) $K^+ > Ca^{2+} > P^{3-} > S^{2-} > Cl^-$

96. In given following process :

$M \longrightarrow M^+$ I.P. = 50 eV

$M \longrightarrow M^{+2}$ I.P. = 150 eV
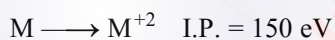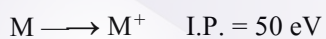
Select correct statement :

(1) IP_1 of M^+ is 50 eV

(2) IP_2 of M is 150 eV

(3) IP_2 of M^+ is 150 eV

(4) IP_2 of M is 100 eV

97. Match list I with list II and then select the correct answer from the codes given below the lists :-

	List I		List II
A	Isoelectronic	a	$A^+ + energy \longrightarrow A^{++}$
B	Half filled orbital	b	Ar, K^+, Ca^+
C	Second ionisation energy	c	Cerium
D	Lanthanide	d	Arsenic

(1) A=c, B=b, C=d, D=a (2) A=b, B=c, C=a, D=d

(3) A=d, B=c, C=a, D=b (4) A=b, B=d, C=a, D=c

98. The electron gain enthalpies (in kJ mol^{-1}) of three halogens, X, Y and Z are respectively -349, -333 and -325. Then X, Y and Z are respectively :-

(1) F, Cl and Br   (2) Cl, F and Br

(3) Cl, Br and F   (4) Br, Cl and F

99. Which is correct :

	Property		KJ/mole
(a)	EA of F	(p)	349
(b)	EA of Cl	(q)	1256
(c)	IP of F	(r)	328
(d)	IP of Cl	(s)	1681

Correct match is :

(1) a = p   b = r   c = q   d = s

(2) a = r   b = q   c = s   d = p

(3) a = r   b = q   c = p   d = s

(4) a = r   b = p   c = s   d = q

100. Which of the following electronic configuration does not represent any block element :-

(1) $(n-1) d^{1-10} ns^{1-2}$ ($n = 4, 5, 6...$)

(2) $(n-2) f^{14} (n-1) d^{2-10} ns\ 1, 2$ ($n = 6$)

(3) $(n-1) d^{1-10} ns^{0,1,2}$ ($n = 4, 5, 6....$)

(4) $(n-1) d^{1-10} ns^{1-2}$ ($n = 3$)

SECTION-A (BOTANY)

101. Function/s of tapetum is/are :-

    (1) Provide protection to developing pollen grains

    (2) Provide nourishment to developing pollen grains.

    (3) Secretion of sporopollenin.

    (4) Both (2) and (3)

102. The microsporangium develop further and become ____.

    (1) Pollen grains   (2) Pollen mother cell

    (3) Pollen sac   (4) Megasporangium

103. What would be the ploidy of the cells of the tetrad.

    (1) Haploid   (2) Diploid

    (3) Tetraploid   (4) Pentaploid

104. When there are more than one pistils may be fused together, this condition is called :-

    (1) Synandrous   (2) Syngenesious

    (3) Syncarpous   (4) Apocarpous

105. Landing platform for pollen grains is :-

    (1) Stigma   (2) Style

    (3) Funicle   (4) Ovary

106. The body of ovule fuses with funicle in the region called :-

    (1) Raphe   (2) Integument

    (3) Hilum   (4) Placenta

107. The method of embryo sac formation from single megaspore is known as :-

    (1) Monosporic development

    (2) Bisporic development

    (3) Tetraporic development

    (4) Eusporangiate development

108. A typical Angiosperm embryo sac, at maturity is :-

    (1) 2-nucleate and 2-celled

    (2) 4-nucleate and 4-celled

    (3) 8-nucleate and 7-celled

    (4) 9-nucleate and 7-celled

109. Viability of pollen grains of wheat and rice is :-

    (1) 30 seconds

    (2) 30 minutes

    (3) 20 hours

    (4) 30 days

110. Egg apparatus consist of :-

    (1) One synergid and one egg cell

    (2) Two synergids and one egg cell

    (3) One egg cell and three synergids

    (4) Two egg cells and one synergid

111. How many meiotic and mitotic division are required for the formation of fully mature male gametophyte in a typical angiosperm ?

    (1) One meiotic and three mitotic divisions

    (2) One meiotic and two mitotic divisions

    (3) Two meiotic and two mitotic divisions

    (4) Three meiotic and one mitotic division

112. How many meiotic and mitotic divisions are required to produce 24 male gametes in a typical angiosperm :

    (1) 24 meiotic and 3 mitotic division

    (2) 3 meiotic and 24 mitotic division

    (3) 12 meiotic and 3 mitotic division

    (4) 3 meiotic and 12 mitotic division

113.
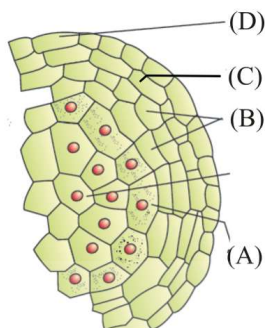
Find out the correct option for A to D in the given above diagram :

	A	B	C	D
(1)	Epidermis	Endothecium	Middle layers	Tapetum
(2)	Epidermis	Middle layers	Endothecium	Tapetum
(3)	Tapetum	Middle layers	Endothecium	Epidermis
(4)	Tapetum	Endothecium	Epidermis	Middle layers

114. Read the following statements carefully.

(1) When the pollen grain is mature it contains two cells i.e. vegetative cell and generative cell.

(2) In 40% of angiosperms pollen grains shed at two celled stage.

(3) Vegetative cell is smaller and generative cell is larger.

(4) In over 60% of angiosperms pollen grain shed at three celled stage.

How many above statement/s are wrong :-

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

115. **Statement-I :** Six of the eight nuclei are surrounded by cell walls and organised into cells in embryosac.

Statement-II : Two polar nuclei situated above the egg apparatus in the large central cell of embryosac.

(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

116. What will be the ploidy of the cells of embryosac, nucellus, pollen mother cell megaspore, pollen grain, synergid, secondary nucleus, respectively.

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

(3) n, 2n, 2n, n, n, n, 2n (4) n, 2n, n, 2n, n, n, n

117. Read the statements carefully :-

(1) Filiform apparatus play an important role in guiding the pollen tube into the synergid.

(2) Two mitotic division are required for the formation of mature female gametophyte in a typical angiosperm.

(3) The terminal end of the filament of stamen is attach to the thalamus.

(4) The megaspore represents the male gametophyte.

How many above statements are incorrect ?

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

118. Read the following statements carefully.

(A) Autogamy not requires synchrony in pollen release and stigma receptivity.

(B) Cleistogamous flowers are invariably autogamous.

(C) Geitonogamy is functionally cross pollination.

(D) Geitonogamy is genetically similar to autogamy.

How many statements is/are correct?

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

119. Match the column I with column II.

	Column - I		Column - II
A.	*Vallisneria*	(i)	Insect pollination
B.	Water hyacinth	(ii)	Water pollination
C.	*Yucca*	(iii)	Tallest flower
D.	*Amorphophallus*	(iv)	Moth pollination

Correct answer is −

(1) A – i, B – ii, C – iii, D – iv

(2) A – ii, B – i, C – iv, D – iii

(3) A – iv, B – iii, C – i, D – ii

(4) A – iii, B – i, C – ii, D – iv

120. **Assertion (A) :** Continued self pollination result in inbreeding depression.

**Reason (R) :** Out breeding devices encourage cross pollination.

(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.

121. **Statement I** – Filiform apparatus present at micropylar part of the synergids guides the entry of pollen tube.

Statement II – Plant breeder manipulate pollen pistil interaction to get desired hybrids.

(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.

122. Given figure showing enlarged view of an egg apparatus and entry of pollen tube into a synergid.
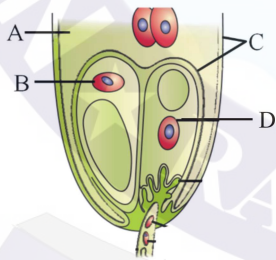
Select the correct option in which A, B, C & D are correctly identified ?

	A	B	C	D
1	Plasma membrane	Central cell	Egg nucleus	Synergid
2	Central cell	Egg nucleus	Plasma membrane	Synergid
3	Cell wall	Central cell	Synergid	Male gametes
4	Central cell	Synergid	Male gametes	Polar nuclei

123. The only type of pollination in which during pollination brings genetically different types of pollen grains to the stigma –

(1) Geitonogamy (2) Xenogamy

(3) Autogamy (4) Syngamy

124. Which of following is correct for wind pollination?

(1) The pollen grains are light and sticky.

(2) Well exposed stamens.

(3) Solitary flower with many ovules in each ovary.

(4) Pollen grains are protected from wetting by mucilaginous covering.

125. _____flowers are not very colourful and do not produce nectar –

(1) Wind pollinated (2) Water pollinated

(3) Animal pollinated (4) 1 & 2 both

126. The dominant biotic pollinating agents among the insect is –

(1) Bees (2) Butterflies

(3) Beetles (4) Moths/wasps

127. How many cells and haploid nuclei are involved to produce primary endosperm cell (PEC), respectively –

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

128. If the female parent produces unisexual flowers, there is :-

(1) Need of emasculation

(2) No need of emasculation

(3) No seed production

(4) No artificial hybridisation

129. How many haploid nuclei are involved in double fertilization is –

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

130. A phenomenon called apomixis is found in some angiosperms, particularly in —

(1) Legumes   (2) Grasses

(3) Orchid   (4) Striga

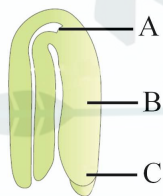131. Initially the embryo in flowering plant is —

(1) Globular   (2) Heart shaped

(3) Filamentous   (4) Torpedo

132. Embryo of monocotyledons possess —

(1) An embryonal axis and only one cotyledon

(2) An embryonal axis and two cotyledons

(3) Epicotyl and testa

(4) Tegmen and Embryonal axis

133. In the given diagram, labelled parts A, B and C are :

	A	B	C
1	Plumule	Cotyledons	Hypocotyl
2	Radicle	Root cap	Hypocotyl
3	Plumule	Hypocotyl	Radicle
4	Plumule	Radicle	Root cap

134. Residual, persistent nucellus in seed of black pepper and beet is —

(1) Endosperm   (2) Perisperm

(3) Pericarp   (4) Albumin

135. In which of the following plants some of the nucellar cells develop into embryos?

(1) Orchid and Datepalm

(2) *Citrus* & Mango

(3) Banana and Wheat

(4) Maize and Rice

SECTION-B (BOTANY)

136. Read the following statements carefully :-

(1) All flowering plants shows sexual reproduction.

(2) Flowers are objects of aesthetics, ornamental and cultural value.

(3) Flowers have always been used as symbols for conveying important human feelings.

(4) Flower is a fascinating organ of Angiosperms.

How many above statements are correct/s ?

(1) One   (2) Two

(3) Three   (4) Four

137. Flower is :-

(1) a modified stem

(2) a modified leaf

(3) a modified shoot

(4) a modified thalamus

138. **Statement-I :** Flowers are morphological and embryological marvels.

Statement-II : Flower is a site of asexual reproduction.

(1) Statement I and II both are correct.

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

(3) Statement I is incorrect and statement II is correct.
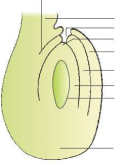
(4) Both statements are incorrect.
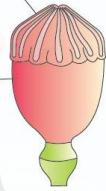
139. Outermost whorl of flower is :-

(1) Calyx   (2) Corolla

(3) Androecium   (4) Gynoecium

140. Typical angiospermic anther is :-

(1) Bilobed and monothecous

(2) Bilobed and tetrathecous

(3) Bilobed, dithecous and tetrasporangiate

(4) Bilobed and bisporangiate

141. Match the columns and select correct option :-

(1)	A dissected Flower of *Hibiscus* showing pistil	(a)	
(2)	Multicarpellary syncarpous gynoecium of Papaver	(b)	
(3)	Multicarpellary apocarpous gynoecium of *Michelia*	(c)	
(4)	Anatropous ovule	(d)	

Options :-

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

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

142. *Assertion (A):* Megasporogenesis result in the production of four megaspores.

Reason (R): Megaspore mother cell undergoes meiotic division.

(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)**

143. Which of the following option is correct regarding apocarpous condition ?

(1) *Hibiscus*, Rose, *Michelia*

(2) Rose, *Michelia*, Lotus

(3) Lotus, Rose, *Hibiscus*

(4) *Hibiscus*, *Papaver*, Rose

144. Read the following statements carefully.

(A) In flowering plants male gamete is motile.

(B) In a normal flower which opens and exposes the anthers and stigma, complete autogamy is rather common.

(C) In autogamy pollination is achieved with in the same flower.

(D) Cleistogamous flowers of *Commelina* produce assured seed-set even in the absence of pollinators.

Which of the following set of statement is correct.

(1) A & B

(2) B & C

(3) A & C

(4) C & D

145. Read the given examples –

Viola, Oxalis, Commelina, Pisum, Helianthus, Hydrilla, Vallisneria , Water lily, Zostera.

How many above plant/s is/are exclusively show pollination by marine water ?

(1) Four

(2) Three

(3) Two

(4) Only one

146. Monoecious plants like castor and maize prevents.

(1) Both autogamy and geitonogamy

(2) Geitonogamy but not autogamy

(3) Autogamy but not geitonogamy

(4) Neither autogamy nor geitonogamy

147. In a typical angiosperm, mature male gametophyte is

(1) One celled

(2) Two celled

(3) Three celled

(4) Four celled

148. Seeds are endospermic in :

(1) Pea, wheat, rice

(2) Maize, rice, bean

(3) Groundnut, wheat, castor

(4) Rice, maize, wheat

149. Incorrect combination with respect to post fertilization events —

(1) Outer integument → Testa

(2) Ovary wall → Pericarp

(3) Ovule → Seed

(4) Endosperm → Embryo sac

150. How many male gametes are produced after one meiosis in microspore mother in a typical angiospermic plant ?

(1) One

(2) Two

(3) Four

(4) Eight

SECTION-A (ZOOLOGY)

151. Seminiferous tubule is lined on its inside by :

(1) Male germ cell

(2) Leydig cell

(3) Simple squamous epithelial cell

(4) Pseudo-stratified columnar epithelium

152. Testis descend into scrotum for :

(1) Maintain the body temperature

(2) Production of seminal plasma

(3) Production of sperm

(4) Development of secondary sex character

153. Identify the A, B and C in given figure :
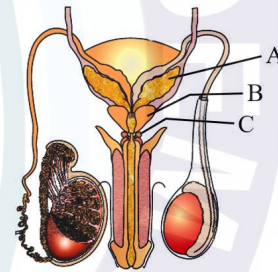
(1) A-Seminal vesicle, B-Prostate, C-Bulbourithral gland

(2) A-Prostate, B-Seminal vesicle, C-Cowpers gland

(3) A-Cowpers, B-Prostate, C-Seminal vesicle

(4) A-seminal vesicle, B-Cowpers, C-Prostate

154. A hormone which stimulate the secret cell to secret some factor which help in process of spermiogenesis :

(1) LH   (2) GnRh (3) FSH   (4) Androgen

155. Which one of the following structure provide the nutrition to developing sperm :

(1) Leydig cell

(2) Ootid

(3) Primary spermatocyte

(4) Sertoli cell

156. Which one of the following structure is not include in male sex accessory duct :

(1) Rete testis   (2) Vasa efferentia

(3) Epididymis   (4) Seminiferous tubule

157. Primary sex organ of male is :

(1) Penis   (2) Testis

(3) Seminal vesicle   (4) Vas-deferens

158. How many of the above technique are include in in-vivo fertilization.
Z.I.F.T., IUT, ICSI, AI, GIFT, Test-tube technique.

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

159. India is the first country in world to initiate family planning programme in _____ .

(1) 1977   (2) 1951   (3) 1941   (4) 1971

160. In Z.I.F.T. zygote transfer into the fallopion tube upto _____ .

(1) 8 cell stage   (2) 16 cell stage

(3) 32 cell stage   (4) 64 cell stage

161. Government of India legalised MTP in _____ year. With some strict conditions to avoid misuse :

(1) 1951   (2) 1977   (3) 1971   (4) 1947

162. The medical termination of pregnancy (Amendment) Act, enacted at year _____ .

(1) 2017   (2) 1971   (3) 1977   (4) 2018

163. How many of the following statements are correct for surgical method/sterilisation :
(A) Reversibility is very high
(B) In vesectomy cut the vasa-efferentia so sperm ejaculation does not occur
(C) It block the gamete transport
(D) It is also know as terminal method of contraception

(1) A and B   (2) B and C

(3) B and D   (4) C and D

164. Which one of the following property are not related to Saheli pill.

(1) Weekly oral pill   (2) Anti-oestrogenic

(3) Steroidal pill   (4) Prevent implantation

165. In which In-vitro technique zygote more then 8 blastomeres are transfer into the uterus.

(1) Z.I.F.T.   (2) I.U.T.

(3) G.I.F.T.   (4) A.I.

166. Given below are two statements :

Statement-I :- Oral contraceptive pills contain small doses of either progesterone or progesterone - oestrogen combination.

Statement-II :- Oral pills are vary effective with lesser side effects and high contraceptive value.

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

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

(2) Statement-I 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

167. Which of the following feature not related to M.T.P. [Medical Termination of pregnancy]

(1) It is safe during Ist trimester

(2) Govt. of India legalised MTP in 1971

(3) Nearly 45-50 million MTP are performed in a year all over the world

(4) If the pregnancy has lasted more than 12 week but fewer than 24 week one registered medical practitioner must be of the opinion

168. Which one of the following gland present only in male :-

(1) Pituitary gland   (2) Sebaceous gland

(3) Mammary gland   (4) Bulbourethral gland

169. Testis communicates with Abdominal cavity through -

    (1) Inguinal canal
    (2) Epididymis
    (3) Spermatic cord
    (4) Vasa efferentia

170. **Statement-I :-** ZIFT-The zygote or early embryo (upto 8 Blastomere) could be transferred into the fallopian tube.
    Statement-II :- IUT-More then 8 blastomeres stage could be transferred into the fallopian tube.

    (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

171. Which of the following is not considered as secondary sexual character in females ?

    (1) Breasts
    (2) Broad pelvis
    (3) Pubic hairs
    (4) Vagina

172. The last part of the oviduct, isthmus has a _____ lumen and joins the _____ .

    (1) Narrow, Cerevics
    (2) Narrow, Uterus
    (3) Broad, Cerevics
    (4) Broad, Uterus

173. Spermatogenesis starts at the age of puberty due to significant increase in the secretion of :

    (1) FSH and LH
    (2) FSH and TSH
    (3) Estrogen and LH
    (4) Estrogen and TSH

174. Acrosomal enzymes help in _____ .

    (1) Movement of sperm
    (2) Respiration of sperm
    (3) Fertilization of ovum
    (4) Nutrition of sperm

175. Tertiary follicle is characterised by a fluid filled cavity called as :

    (1) Centrum
    (2) Antrum
    (3) Secondry oocyte
    (4) Corpus luteum

176. In first meiotic division during oogenesis cytoplasm of primary oocyte is :

    (1) Divided equally
    (2) Divides unequally
    (3) Not divided
    (4) Degenerated

177. Oogonia are formed in female ovary :

    (1) At the time of puberty
    (2) After the birth
    (3) After the puberty
    (4) Before the birth

178. How many chromosomes will be there in a human zygote ?

    (1) 23
    (2) 46
    (3) 92
    (4) 48

179. Cleavage is a special type of division which occurs in :

    (1) Sperm
    (2) Ovum
    (3) Zygote
    (4) Foetus

180. Which of the following is correct ?

    (1) The embryo with 4-8 blastomeres is called morula
    (2) The embryo with 8-16 blastomeres is called morula
    (3) The embryo with 16-32 blastomeres is called morula
    (4) The embryo with 32-64 blastomeres is called morula

181. Which of the following extra embryonic membrane prevents the dessication of embryo :

    (1) Chorion
    (2) Amnion
    (3) Allantois
    (4) Yolk sac

182. Which of the following hormones are not produced by placenta ?

    (1) hCG
    (2) hPL
    (3) hGH
    (4) Estrogen

183. By the end of ____ weeks during pregnancy, the body is covered with fine hairs and eye lids separate :

 (1) 6

 (2) 8

 (3) 12

 (4) 24

184. Signals from fully developed foetus and placenta induce mild uterine contractions called :

 (1) Withdrawal Reflex

 (2) Foetal ejection reflex

 (3) Cranial reflex

 (4) Spinal reflex

185. ____ acts on the uterine muscles and cause stronger uterine contractions :

 (1) Relaxin

 (2) hCG

 (3) Progesteron

 (4) Oxytocin

SECTION-B (ZOOLOGY)

186. Read the following statements carefully and choose the incorrect statements :

 (i) Liberation of sperm from sertoli cells of seminiferous tubule is called spermiation.

 (ii) Sertoli cell synthesize and secrete tisticular hormone called Androgen.

 (iii) Secretions of bulbourithral gland lubricate the penis.

 (iv) Glans penis is covered by a loose fold of skin called hymen.

 (1) (i) and (ii)

 (2) (i) and (iv)

 (3) (iii) and (iv)

 (4) (ii) and (iv)

187. Match the column-I with column-II

	Column-I		Column-II
(i)	Leydig cell	(a)	Provide nutrition to germ cell
(ii)	Seminal vesicle	(b)	Secret Androgen
(iii)	Bulbourithral gland	(c)	Secret fructose
(iv)	Sertoli cell	(d)	Release lubricants

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

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

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

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

188. Ovum and sperm are prevented from physically meeting by :

 (1) MTP

 (2) Diaphragm

 (3) Pills

 (4) Injection-DMPA

189. Read the following statements carefully and choose the incorrect one.

 (1) Total number of seminiferous tubules in each testis is about 750 – 1000.

 (2) Functional maturation of sperm takes place in epididymis.

 (3) Each testicular lobule have 1-3 seminiferous tubules.

 (4) Seminal vesicle contribute 30% part of semen.

190. Match the column I with column II

	Column-I		Column-II
(I)	Cu-releasing IUD	(A)	Lippes loop
(II)	hormone releasing IUD	(B)	LNG-20
(III)	Non-Medicated IUD	(C)	Multiload-375
(IV)	Pills	(D)	Saheli

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

191. Given below are two statements : one is labelled as Assertion A and the other is labelled as a Reason R

Assertion (A) :- Cu releasing IUD prevent the fertilization.

Reason (R) :- Cu releasing IUD suppress the sperm motility and the fertilization capacity of sperm

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

192. Two statements given below :-

Statement-I :- Due to very low sperm count in the ejaculation could be corrected by artificial insemination (AI).

Statement-II :- Artificial insemination (AI) is the example of in-vivo fertilization.

Choose the most appropriate answer from the option give below

(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 correct

193. Which one of the following method are most widely accepted method of contraception in India :

(1) I.U.D.
(2) Condom
(3) Surgical Method
(4) Periodic abstinence

194. Read the following statement carefully and choose the incorrect statements :

(A) Sterilisation method stop the gamet formation.

(B) Hormone releasing IUD make the uterus unsuitable for implantation.

(C) Multiload-375 is the example of Cu releasing IUD.

(D) Lactation amnenorrhoea effective upto 6 month after pregnancy.

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

195. **Statement-I :-** Hormone releasing IUD make the uterus unsuitable for implantation.

Statement-II :- Progestesert and LNG-20 are the example of hormone releasing IUD.

(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

196. Which of the following statements are incorrect ?

(1) A functional mammary gland is a characteristic of all female mammals.

(2) Mammary glands are paired structures.

(3) Mammary glands contain glandular tissue and variable amount of fats.

(4) The alveoli open into lactiferous ducts.

197. Which of the following can not be the reason for lack of menstruation ?

(1) Stress
(2) Poor health
(3) Pregnancy
(4) Poor hygine

198. Identify the label D in the given diagram :
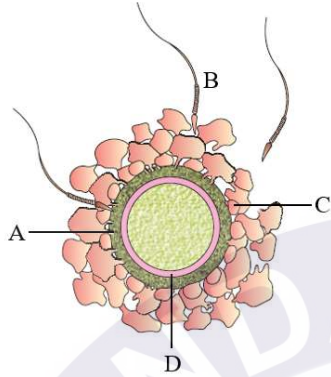
(1) Sperm

(2) Zona pellucida

(3) Corona radiata

(4) Perivitalline space

199. **Assertion (A) :-** Mammary glands start producing milk towards the end of pregnancy.

Reason (R) :- Milk produced during initial few days of lactation is called colostrum.

(1) A is correct and R is wrong

(2) A is wrong and R is correct

(3) Both A and R are correct

(4) Both A and R are correct and R is correct explaination of A

200. Match the column

(A)	Estrogen	(i)	Follicular development
(B)	Relaxin	(ii)	Uterine contraction
(C)	Oxytocin	(iii)	Dialates cervix
(D)	FSH	(iv)	Proliferation of Endometrium

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

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

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

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