

TEST SERIES - NEET**PART TEST - XII/01****TEST CODE PT - XII/01**

Name of the Candidate : _____

Roll No. _____

Time : 3 Hours 20 Minutes

Maximum Marks : 720

Date : _____

Syllabus**PHYSICS** : Electric Charges & Fields, Electrostatic Potential & Capacitance and Current Electricity**CHEMISTRY** : Solutions, Electrochemistry, Chemical Kinetics**BOTANY** : Sexual Reproduction in Flowering Plants**ZOOLOGY** : Human Reproduction, Reproductive Health**INSTRUCTIONS**

1. Immediately fill in the particulars on this page of the Test Booklet with Blue/Black Ball Point Pen only.
2. The test is of 3 hours 20 minutes duration and the test booklet contains 200 Multiple choice questions. Which have four options with a single correct answer.
3. This test consists of Physics, Chemistry, Botany and Zoology questions with equal weightage of 180 marks.
4. Each question is of 4 marks. For each correct response the candidate will get 4 marks. For each incorrect response, 1 mark will be deducted from the total score. The maximum marks are 720.
5. There are four parts in the question paper, consisting Part-I Physics (Q.no.1 to 50), Part-II Chemistry (Q.no. 51 to 100), Part-III Botany (Q. no. 101 to 150) and Part-IV Zoology (Q. no.151 to 200). Each part is divided into two Sections, Section-A consists of 35 multiple choice questions & Section-B consists of 15 Multiple choice questions, out of these 15 questions candidates can choose to attempt any 10 questions.

	Parts		Physics	Chemistry	Botany	Zoology	Total
	Sections						
Questions	Section A	35	35	35	35	140	200
	Section B	15	15	15	15	60	
To Attempt	Section A	35	35	35	35	140	180
	Section B	10	10	10	10	40	

6. Candidates are advised to read all 15 questions in each subject of Section-B before they start attempting the question paper. In the event of a candidate attempting more than ten questions, the first ten questions answered by the candidate shall be evaluated.
7. Use Blue/Black Ball Point Pen only for writing particulars/markings responses on OMR Sheet.
8. Do not fold or make any stray marks on the Answer Sheet. Rough work is to be done on the space provided for this purpose.

PART-I: PHYSICS

Section-A

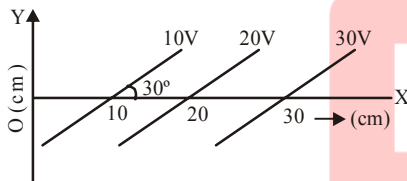
1. The drift velocity of electrons for a conductor connected in an electrical circuit is V_d . The conductor is now replaced by another conductor with same material and same length but double the area of cross section. The applied voltage remains same. The new drift velocity of electrons will be [NCERT Page 86]

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

2. The value of electric potential at any point due to any electric dipole is [NCERT Page 50, 51]

- (1) $k \cdot \frac{\vec{p} \times \vec{r}}{r^2}$ (2) $k \cdot \frac{\vec{p} \times \vec{r}}{r^3}$ (3) $k \cdot \frac{\vec{p} \cdot \vec{r}}{r^2}$ (4) $k \cdot \frac{\vec{p} \cdot \vec{r}}{r^3}$

3. Equipotential surfaces are shown in figure. Then the electric field strength will be [NCERT Page 55]



- (1) 100 Vm^{-1} along X-axis
 (2) 100 Vm^{-1} along Y-axis
 (3) 200 Vm^{-1} at an angle 120° with X-axis
 (4) 50 Vm^{-1} at an angle 120° with X-axis

4. Which of the following statements is incorrect?

- I. The charge q on a body is always given by $q = ne$, where n is any integer, positive or negative.
- II. By convention, the charge on an electron is taken to be negative.
- III. The fact that electric charge is always an integral multiple of e is termed as quantisation of charge.
- IV. The quantisation of charge was experimentally demonstrated by Newton in 1912.

[NCERT Page 4, 5]

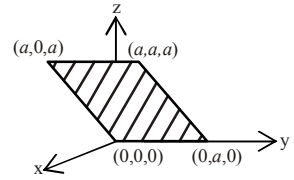
- (1) Only I (2) Only II (3) Only IV (4) Only III

5. A circuit to verify Ohm's law uses ammeter and voltmeter in series or parallel connected correctly to the resistor. In the circuit :

- (1) ammeter is always used in parallel and voltmeter in series
- (2) Both ammeter and voltmeter must be connected in parallel
- (3) ammeter is always connected in series and voltmeter in parallel
- (4) Both, ammeter and voltmeter must be connected in series

6. Consider an electric field $\vec{E} = E_0 \hat{x}$ where E_0 is a constant. The flux through the shaded area (as shown in the figure) due to this field is [NCERT Page 22, 23]

- (1) $2E_0 a^2$ (2) $\sqrt{2} E_0 a^2$
 (3) $E_0 a^2$ (4) $\frac{E_0 a^2}{\sqrt{2}}$



7. Three Charges $2q, -q$ and $-q$ lie at vertices of a triangle. The value of E and V at centroid of triangle will be [NCERT Page 16, 51, 52]

- (1) $E \neq 0$ and $V \neq 0$ (2) $E = 0$ and $V = 0$
 (3) $E \neq 0$ and $V = 0$ (4) $E = 0$ and $V \neq 0$

8. The Gaussian surface [NCERT Page 30, 31]

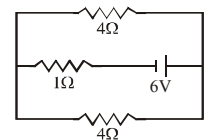
- (1) can pass through a continuous charge distribution.
- (2) cannot pass through a continuous charge distribution.
- (3) can pass through any system of discrete charges.
- (4) can pass through a continuous charge distribution as well as any system of discrete charges.

9. The expression $E = -\frac{dv}{dr}$ implies, that electric field is in that direction in which [NCERT Page 55]

- (1) increase in potential is steepest.
- (2) decrease in potential is steepest.
- (3) change in potential is minimum.
- (4) None of these

10. The current in the 1Ω resistor shown in the circuit is [NCERT Page 83]

- (1) $\frac{2}{3}$ A
 (2) 3A
 (3) 6A
 (4) 2A



11. Match the physical quantities in Column I and their mathematical expressions in Column II.

- | Column I | Column II |
|--|--|
| (A) Current | (1) $\frac{ne^2 \tau}{m}$ |
| (B) Conductivity | (2) $\frac{1}{\rho} \left(\frac{d\rho}{dT} \right)$ |
| (C) Current density | (3) $\vec{j} \cdot \vec{\Delta S}$ |
| (D) Temperature coefficient of resistivity | (4) $nq \vec{v}_d$ |

[NCERT Page 84, 90, 91]

- (1) (A) \rightarrow (2); (B) \rightarrow (1); (C) \rightarrow (3); (D) \rightarrow (4)
 (2) (A) \rightarrow (2); (B) \rightarrow (2); (C) \rightarrow (4); (D) \rightarrow (3)
 (3) (A) \rightarrow (3); (B) \rightarrow (1); (C) \rightarrow (4); (D) \rightarrow (2)
 (4) (A) \rightarrow (2); (B) \rightarrow (1); (C) \rightarrow (4); (D) \rightarrow (3)

12. Two point charges placed in a medium of dielectric constant 5 are at a distance r between them, experience an electrostatic force 'F'. The electrostatic force between them in vacuum at the same distance r will be-

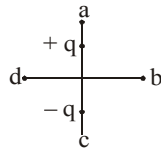
[NCERT Page 7]

- (1) $5F$ (2) F (3) $F/2$ (4) $F/5$

13. Four points a, b, c and d are set at equal distance from the centre of a dipole as shown in figure. The electrostatic potential $V_a, V_b, V_c,$ and V_d would satisfy the following relation:

[NCERT Page 50, 51]

- (1) $V_a > V_b > V_c > V_d$
 (2) $V_a > V_b = V_d > V_c$
 (3) $V_a > V_c = V_b = V_d$
 (4) $V_b = V_d > V_a > V_c$



14. For which of the following dependence of drift velocity v_d on electric field E , is Ohm's law obeyed?

[NCERT Page 86]

- (1) $v_d \propto E^2$ (2) $v_d \propto E^{1/2}$
 (3) $v_d = \text{constant}$ (4) $v_d \propto E$

15. If E_a be the electric field strength of a short dipole at a point on its axial line and E_e that on the equatorial line at the same distance, then

[NCERT Page 24]

- (1) $E_e = 2E_a$ (2) $E_a = 2E_e$
 (3) $E_a = E_e$ (4) None of these

16. The relaxation time in conductors

[NCERT Page 91]

- (1) increases with the increases of temperature
 (2) decreases with the increases of temperature
 (3) it does not depends on temperature
 (4) all of sudden changes at 400 K

17. **Assertion:** The electric potential at any point on the equatorial plane of a dipole is zero.

Reason: The work done in bringing a unit positive charge from infinity to a point in equatorial plane is equal for the two charges of the dipole.

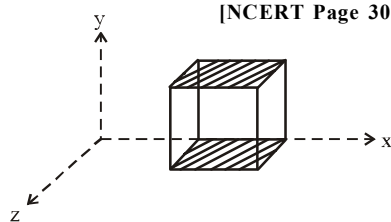
[NCERT Page 50, 51]

- (1) If both Assertion and Reason are correct and the Reason is a correct explanation of the Assertion.
 (2) If both Assertion and Reason are correct but Reason is not a correct explanation of the Assertion.
 (3) If the Assertion is correct but Reason is incorrect.
 (4) If the Assertion is incorrect and Reason is correct.

18. A cube is placed inside an electric field, $\vec{E} = 150y^2\hat{j}$. The side of the cube is 0.5 m and is placed in the field as shown in the given figure. The charge inside the cube is :

[NCERT Page 30]

- (1) $3.8 \times 10^{-11} \text{ C}$
 (2) $8.3 \times 10^{-11} \text{ C}$
 (3) $3.8 \times 10^{-12} \text{ C}$
 (4) $8.3 \times 10^{-12} \text{ C}$



19. If negligibly small current is passed through a wire of length 15 m and resistance of 5Ω , having uniform cross section of $6 \times 10^{-7} \text{ m}^2$, then coefficient of resistivity of material is

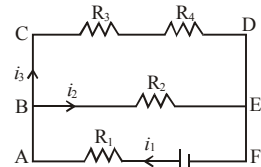
[NCERT Page 84]

- (1) $1 \times 10^{-7} \Omega\text{-m}$ (2) $2 \times 10^{-7} \Omega\text{-m}$
 (3) $3 \times 10^{-7} \Omega\text{-m}$ (4) $4 \times 10^{-7} \Omega\text{-m}$

20. Which of the following is the correct equation when Kirchhoff's loop rule is applied to the loop BCDEB in clockwise direction?

[NCERT Page 97, 98]

- (1) $-i_3 R_3 - i_3 R_4 - i_2 R_2 = 0$
 (2) $-i_3 R_3 - i_3 R_4 + i_2 R_2 = 0$
 (3) $-i_3 R_3 + i_3 R_4 + i_2 R_2 = 0$
 (4) $-i_3 R_3 + i_3 R_4 + i_2 R_2 = 0$



21. A force of 10N acts on a charged particle placed between two plates of a charged capacitor. If one plate of capacitor is removed, then the force acting on that particle will be :

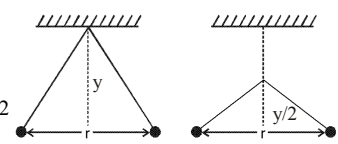
[NCERT Page 67]

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

22. Two pith balls carrying equal charges are suspended from a common point by strings of equal length. The equilibrium separation between them is r . Now the strings are rigidly clamped at half the height. The equilibrium separation between the balls now become

[NCERT Page 7]

- (1) $\left(\frac{r}{\sqrt{2}}\right)$ (2) $\left(\frac{2r}{\sqrt{3}}\right)$
 (3) $\left(\frac{2r}{3}\right)$ (4) $\left(\frac{r}{\sqrt{2}}\right)^2$



23. Consider the following statements :

[NCERT Page 86]

- A. The drift velocity of electrons decreases with the increase in the temperature of conductor.
 B. The drift velocity is inversely proportional to the area of cross-section of given conductor.
 C. The drift velocity does not depend on the applied potential difference to the conductor.
 D. The drift velocity of electron is inversely proportional to the length of the conductor.
 E. The drift velocity increases with the increase in the temperature of conductor.

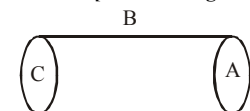
Choose the correct answer from the options given below:

- (1) A and B only (2) A and D only
 (3) B and E only (4) B and C only

24. A hollow cylinder has a charge q coulomb within it. If ϕ_B is the electric flux in units of voltmeter associated with the curved surface B, the flux linked with the plane surface A in units of voltmeter will be

[NCERT Page 30]

- (1) $\frac{q}{2\epsilon_0}$ (2) $\frac{\phi}{3}$
 (3) $\frac{q}{\epsilon_0} - \phi$ (4) $\frac{1}{2} \left(\frac{q}{\epsilon_0} - \phi \right)$



25. If the charge on a capacitor is increased by $2C$, the energy stored in it increases by 44%. The original charge on the capacitor is (in C): [NCERT Page 74]

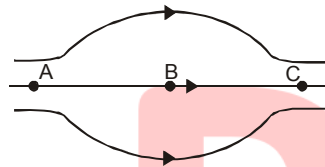
- (1) 10 (2) 20 (3) 30 (4) 40

26. Two conductors have the same resistances at 0°C but their temperature coefficients of resistance are α_1 and α_2 . The respective temperature coefficients for their series and parallel combinations are: [NCERT Page 90]

- (1) $\alpha_1 + \alpha_2, \frac{\alpha_1 + \alpha_2}{2}$ (2) $\frac{\alpha_1 + \alpha_2}{2}, \frac{\alpha_1 + \alpha_2}{2}$
 (3) $\frac{\alpha_1 + \alpha_2}{2}, \alpha_1 + \alpha_2$ (4) $\alpha_1 + \alpha_2, \frac{\alpha_1 \alpha_2}{\alpha_1 + \alpha_2}$

27. Figure shows some of the electric field lines corresponding to an electric field. The figure suggests that [NCERT Page 19, 20]

- (1) $E_A > E_B > E_C$
 (2) $E_A = E_B = E_C$
 (3) $E_A = E_C > E_B$
 (4) $E_A = E_C < E_B$



28. Five cells each of emf E and internal resistance r send the same amount of current through an external resistance R whether the cells are connected in parallel or in series. Then the ratio $\left(\frac{R}{r}\right)$ is [NCERT Page 95]

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

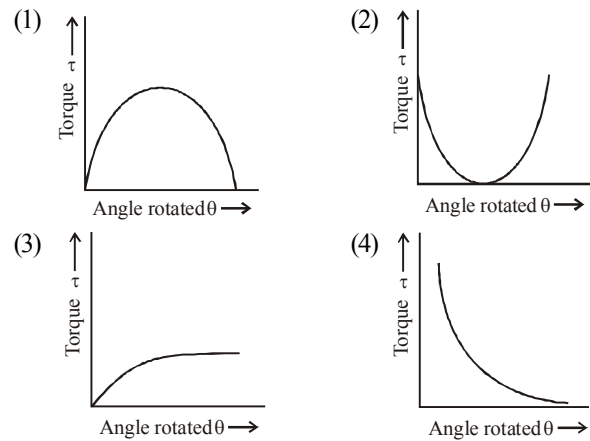
29. In a cuboid of dimension $2L \times 2L \times L$, a charge q is placed at the centre of the surface 'S' having area of $4L^2$. The flux through the opposite surface to 'S' is given by [NCERT Page 30]

- (1) $\frac{q}{12\epsilon_0}$ (2) $\frac{q}{3\epsilon_0}$ (3) $\frac{q}{2\epsilon_0}$ (4) $\frac{q}{6\epsilon_0}$

30. Two parallel plate capacitors of capacitance C and $2C$ are connected in parallel and charged to a potential difference V . The battery is then disconnected, and the region between the plates of C is filled completely with a material of dielectric constant K . The common potential difference across the combination becomes [NCERT Page 72]

- (1) $\frac{2V}{K+2}$ (2) $\frac{V}{K+2}$ (3) $\frac{3V}{K+3}$ (4) $\frac{3V}{K+2}$

31. Which of the following graphs shows the correct variation in magnitude of torque on an electric dipole rotated in a uniform electric field from stable equilibrium to unstable equilibrium? [NCERT Page 27]

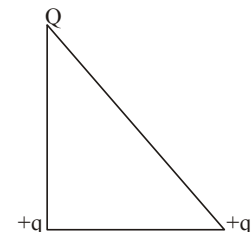


32. In a metre bridge experiment the balance point is obtained if the gaps are closed by 2Ω and 3Ω . A shunt of $X\Omega$ is added to 3Ω resistor to shift the balancing point by 22.5 cm. The value of X is [NCERT Page 101]

- (1) 1 (2) 2 (3) 3 (4) 4

33. Three charges $Q, +q$ and $+q$ are placed at the vertices of a right-angle isosceles triangle as shown below. The net electrostatic energy of the configuration is zero, if the value of Q is: [NCERT Page 56]

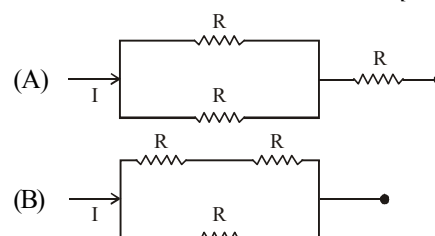
- (1) $+q$
 (2) $\frac{-\sqrt{2}q}{\sqrt{2}+1}$
 (3) $\frac{-q}{1+\sqrt{2}}$
 (4) $-2q$

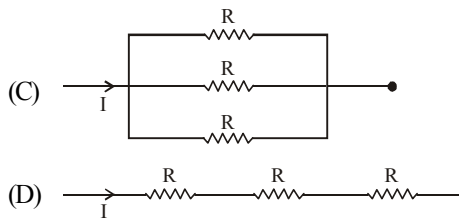


34. Consider the combination of 2 capacitors C_1 and C_2 , with $C_2 > C_1$, when connected in parallel, the equivalent capacitance is $\frac{15}{4}$ times the equivalent capacitance of the same connected in series. Calculate the ratio of capacitors, $\frac{C_2}{C_1}$. [NCERT Page 72]

- (1) $\frac{15}{4}$ (2) $\frac{29}{15}$
 (3) $\frac{111}{80}$ (4) None of these

35. Different combination of 3 resistors of equal resistance R are shown in the figures. The increasing order for power dissipation is: [NCERT Page 92, 93]



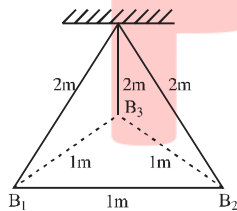


- (1) $P_A < P_B < P_C < P_D$ (2) $P_C < P_D < P_A < P_B$
 (3) $P_B < P_C < P_D < P_A$ (4) $P_C < P_B < P_A < P_D$

Section-B

36. By increasing the temperature, the specific resistance of a conductor and a semiconductor— [NCERT Page 90]
 (1) increases for both.
 (2) decreases for both.
 (3) increases for a conductor and decreases for a semiconductor.
 (4) decreases for a conductor and increases for a semiconductor.

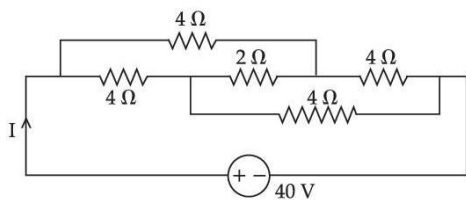
37. Three identical charged balls each of charge $2C$ are suspended from a common point P by silk threads of $2m$ each (as shown in figure). They form an equilateral triangle of side $1m$.
 The ratio of net force on a charged ball to the force between any two charged balls will be : [NCERT Page 12]



- (1) 1 : 1
 (2) 1 : 4
 (3) $\sqrt{3} : 2$
 (4) $\sqrt{3} : 1$

38. **Statement I :** On disturbing an electric dipole in stable equilibrium in an electric field, it returns back to its stable equilibrium orientation.
Statement II : A restoring torque acts on the dipole on being disturbed from its stable equilibrium. [NCERT Page 27]
 (1) Both statement I and II are correct.
 (2) Both statement I and II are incorrect.
 (3) Statement I is correct but statement II is incorrect.
 (4) Statement II is correct but statement I is incorrect.

39. The current I in the given circuit will be : [NCERT Page 97, 98]



- (1) 10A (2) 20A (3) 4A (4) 40A

40. Match the entries of Column I and Column II

[NCERT Page 23, 24]

- | Column I | Column II |
|--|----------------------------|
| (A) Inside a conductor placed in an external electric field. | (1) Potential energy = 0 |
| (B) At the centre of a dipole | (2) Electric field = 0 |
| (C) Dipole in stable equilibrium | (3) Electric potential = 0 |
| (D) Electric dipole perpendicular to uniform electric field. | (4) Torque = 0 |
- (1) (A) → (2); (B) → (4); (C) → (3); (D) → (1)
 (2) (A) → (2); (B) → (3); (C) → (4); (D) → (1)
 (3) (A) → (2); (B) → (3); (C) → (1); (D) → (4)
 (4) (A) → (1); (B) → (3); (C) → (4); (D) → (2)

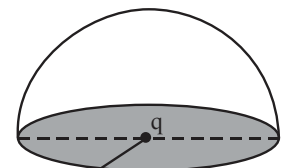
41. Sixty four conducting drops each of radius 0.02 m and each carrying a charge of $5\ \mu\text{C}$ are combined to form a bigger drop. The ratio of surface density of bigger drop to the smaller drop will be : [NCERT Page 28]
 (1) 1 : 4 (2) 4 : 1 (3) 1 : 8 (4) 8 : 1

42. σ is the uniform surface charge density of a thin spherical shell of radius R . The electric field at any point on the surface of the spherical shell is : [NCERT Page 35]
 (1) $\frac{\sigma}{\epsilon_0 R}$ (2) $\frac{\sigma}{2\epsilon_0}$ (3) $\frac{\sigma}{\epsilon_0}$ (4) $\frac{\sigma}{4\epsilon_0}$

43. **Statement I :** The drift velocity of electrons in a metallic wire will decrease, if the temperature of the wire is increased.
Statement II : On increasing temperature, conductivity of metallic wire increases. [NCERT Page 86]
 (1) Both statement I and II are correct.
 (2) Both statement I and II are incorrect.
 (3) Statement I is correct but statement II is incorrect.
 (4) Statement II is correct but statement I is incorrect.

44. If a charge q is placed at the centre of a closed hemispherical non-conducting surface, the total flux passing through the flat surface would be : [NCERT Page 22]

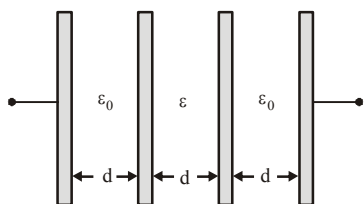
- (1) $\frac{q}{\epsilon_0}$ (2) 0
 (3) $\frac{q}{4\epsilon_0}$ (4) $\frac{q}{2\pi\epsilon_0}$



45. A surface has the area vector $\vec{A} = (2\hat{i} + 3\hat{j})\text{ m}^2$. The flux of an electric field through it if the field is $\vec{E} = 4\hat{i}\ \frac{\text{V}}{\text{m}}$: [NCERT Page 22]
 (1) 8V-m (2) 12V-m (3) 20V-m (4) zero

46. For the configuration of media of permittivities ϵ_0 , ϵ and ϵ_0 between parallel plates each of area A , as shown in Fig. the equivalent capacitance is [NCERT Page 72]

- (1) $\epsilon_0 A/d$
 (2) $\epsilon\epsilon_0 A/d$
 (3) $\frac{\epsilon\epsilon_0 A}{d(\epsilon + \epsilon_0)}$
 (4) $\frac{\epsilon\epsilon_0 A}{(2\epsilon + \epsilon_0)d}$



47. The energy required to charge a parallel plate condenser of plate separation d and plate area of cross-section A such that the uniform electric field between the plates is E , is [NCERT Page 74]

- (1) $\epsilon_0 E^2 Ad$ (2) $\frac{1}{2} \epsilon_0 E^2 Ad$
 (3) $\frac{1}{2} \epsilon_0 E^2 / Ad$ (4) $\epsilon_0 E^2 / Ad$

48. A cell of internal resistance r is connected to an external resistance R . The current will be maximum in R , if

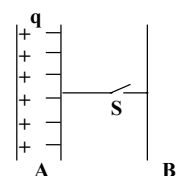
- [NCERT Page 94, 95]
 (1) $R=r$ (2) $R<r$ (3) $R>r$ (4) $R=r/2$

49. Consider the following statements and select the correct statement(s). [NCERT Page 82]

- I. Current is the time rate of flow of charge through any cross-section
 II. For a given conductor current does not change with change in cross-sectional area
 III. The net charge in a current carrying conductor is infinite
 IV. The direction of flow of current through electric circuit is from low potential to high potential.
 (1) I and II (2) II and IV
 (3) I and IV (4) I, II and III

50. Consider the situation shown in the figure. The capacitor A has a charge q on it whereas B is uncharged. The charge appearing on the capacitor B a long time after the switch is closed is [NCERT Page 72]

- (1) zero
 (2) $q/2$
 (3) q
 (4) $2q$



PART-II: CHEMISTRY

Section-A

51. An aqueous solution of alcohol contains 18 g of water and 414 g of ethyl alcohol. The mole fraction of water is [NCERT, Page 3]

- (1) 0.7 (2) 0.9
 (3) 0.1 (4) 0.4

52. The measured osmotic pressure of a solution prepared by dissolving 17.4 mg of K_2SO_4 in 2L of water at $27^\circ C$ is 3.735×10^{-3} bar. [NCERT, Page 24]

- The van't Hoff factor is
 ($R = 0.083 \text{ L bar K}^{-1} \text{ mol}^{-1}$; atomic weights $K = 39$, $S = 32$; $O = 16$)
 (1) 2.84 (2) 3.0
 (3) 2.0 (4) 2.32

53. What will be the mass percentage of aspirin ($C_9H_8O_4$) in acetonitrile (CH_3CN) when 6.5g of $C_9H_8O_4$ is dissolved in 450g of CH_3CN ? [NCERT, Page 2]

- (1) 2.848% (2) 1.424%
 (3) 14.24% (4) 28.48%

54. The standard emf of a galvanic cell can be calculated from: [NCERT, Page 34]

- (1) The size of the electrode
 (2) The pH of the solution
 (3) The amount of metal in the anode
 (4) The E° values of the two half cells

55. **Assertion:** For a zero order reaction rate is independent of the reactant concentration.

Reason: Rate law of a zero order reaction can be written as $r = k[A]^0$. [NCERT, Page 68]

- (1) If both Assertion and Reason are correct and the Reason is a correct explanation of the Assertion.
 (2) If both Assertion and Reason are correct but Reason is not a correct explanation of the Assertion.
 (3) If the Assertion is correct but Reason is incorrect.
 (4) If the Assertion is incorrect and Reason is correct.

56. **Column-I** **Column-II**
(Solute) **(Van't Hoff factor, i)**

- (A) $AlCl_3$ if $\alpha = 0.8$ (p) $i = 3.4$
 (B) $BaCl_2$ if $\alpha = 0.9$ (q) $i = 2.8$
 (C) Na_3PO_4 if $\alpha = 0.9$ (r) $i = 3.8$
 (D) $K_4[Fe(CN)_6]$ if $\alpha = 0.7$ (s) $i = 3.7$ [NCERT, Page 24]
 (1) A – (s), B – (r), C – (p), D – (q)
 (2) A – (r), B – (p), C – (s), D – (q)
 (3) A – (s), B – (r), C – (q), D – (p)
 (4) A – (p), B – (q), C – (s), D – (r)

57. The mole fraction of methanol in its 4.5 molal aqueous solution is : [NCERT, Page 3]

- (1) 0.250 (2) 0.125
 (3) 0.100 (4) 0.075

58. Consider the standard potential of the following cells,

[NCERT, Page 35]

- (i) $\text{Mg}^{2+} + 2\text{e}^- \rightarrow \text{Mg}; E^0 = -2.37 \text{ V}$
 (ii) $\text{Zn}^{2+} + 2\text{e}^- \rightarrow \text{Zn}; E^0 = -0.76 \text{ V}$
 (iii) $\text{Ni}^{2+} + 2\text{e}^- \rightarrow \text{Ni}; E^0 = -0.25 \text{ V}$
 (iv) $\text{Fe}^{3+} + 3\text{e}^- \rightarrow \text{Fe}; E^0 = -0.04 \text{ V}$

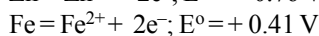
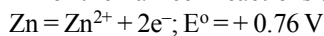
Which is the strongest reducing agent:

- (1) Mg^{2+} (2) Mg (3) Fe^{3+} (4) Fe

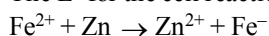
59. A solution containing components A and B follows Raoult's law when [NCERT, Page 10]

- (1) A-B attraction force is greater than A-A and B-B
 (2) A-B attraction force is less than A-A and B-B
 (3) A-B attraction force remains same as A-A and B-B
 (4) volume of solution is different from sum of volume of solute and solvent

60. E^0 for the half cell reactions are as, [NCERT, Page 34]



The E^0 for the cell reaction



- (1) -0.35 V (2) $+0.35 \text{ V}$ (3) $+1.17 \text{ V}$ (4) -0.17 V

61. Which of the following conditions are correct for real solutions showing negative deviation from Raoult's law? [NCERT, Page 14]

- (1) $\Delta H_{\text{Mix}} < 0; \Delta V_{\text{Mix}} > 0$ (2) $\Delta H_{\text{Mix}} > 0; \Delta V_{\text{Mix}} > 0$
 (3) $\Delta H_{\text{Mix}} > 0; \Delta V_{\text{Mix}} < 0$ (4) $\Delta H_{\text{Mix}} < 0; \Delta V_{\text{Mix}} < 0$

62. The vapour pressure of a pure liquid A is 70 torr at 300 K. It forms an ideal solution with another liquid B. The mole fraction of B is 0.2 and total vapour pressure of the solution is 84 torr at the same temperature. The vapour pressure of pure liquid B (in torr) is [NCERT, Page 10]

- (1) 140 (2) 90 (3) 120 (4) 80

63. **Assertion :** Molecularity has no meaning for a complex reaction. [NCERT, Page 69]

Reason : The overall molecularity of a complex reaction is equal to the molecularity of the slowest step.

- (1) If both Assertion and Reason are correct and the Reason is a correct explanation of the Assertion.
 (2) If both Assertion and Reason are correct but Reason is not a correct explanation of the Assertion.
 (3) If the Assertion is correct but Reason is incorrect.
 (4) If the Assertion is incorrect and Reason is correct.

64. **Statement I:** KCl/NaCl/ NH_4Cl etc. cannot be used in the salt bridge of a cell containing silver.

Statement II: A salt bridge contains concentrated solution of an inert electrolyte like KCl, KNO_3 , NH_4NO_3 etc. or solidified solution of such an electrolyte in agar-agar and gelatine. [NCERT, Page 33]

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

65. Match the following.

List-I

- (A) Ideal solution
 (B) Negative deviation
 (C) Positive deviation
 (D) Azeotropic mixture

List-II

- (p) Chloroform and acetone
 (q) 95% Alcohol
 (r) n-hexane & n-pentane
 (s) Carbon disulphide & acetone

The correct answer is

[NCERT, Page 14]

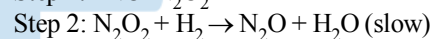
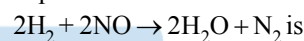
- (1) A-(s), B-(q), C-(p), D-(r)
 (2) A-(p), B-(q), C-(r), D-(s)
 (3) A-(r), B-(p), C-(s), D-(q)
 (4) A-(s), B-(q), C-(r), D-(p)

66. Vapour pressure (in torr) of an ideal solution of two liquids A and B is given by: $P = 52X_A + 114$ where X_A is the mole fraction of A in the mixture. The vapour pressure (in torr) of equimolar mixture of the two liquids will be:

[NCERT, Page 10]

- (1) 166 (2) 83
 (3) 140 (4) 280

67. A possible mechanism for the gaseous reaction



The rate law for this reaction is

[NCERT, Page 70]

- (1) $R = k[\text{NO}]^2 [\text{H}_2]^2$
 (2) $R = k[\text{NO}] [\text{H}_2]^2$
 (3) $R = k[\text{NO}]^{1/2} [\text{H}_2]$
 (4) $R = k[\text{NO}]^2 [\text{H}_2]$

68. Faraday's first law of electrolysis can be expressed as:

[NCERT, Page 51]

- (1) $W \propto Q$ (2) $W \propto 1/Q$
 (3) $W \propto Q^2$ (4) $W \propto Q^3$

69. The amount of urea to be dissolved in 500 c.c. of water ($K = 1.86^\circ\text{C mol}^{-1}$) to produce a depression of 0.186°C in the freezing point is : [NCERT, Page 19]

- (1) 9 g (2) 6 g
 (3) 3 g (4) 0.3 g

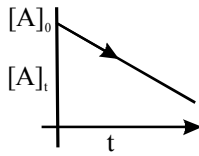
70. Which is the correct representation for Nernst equation:

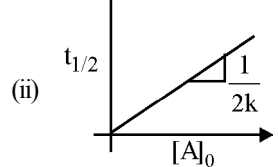
[NCERT, Page 38]

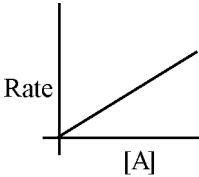
- (1) $E_{RP} = E_{RP}^0 + \frac{0.059}{n} \log \frac{[\text{oxidant}]}{[\text{reductant}]}$
 (2) $E_{OP} = E_{OP}^0 - \frac{0.059}{n} \log \frac{[\text{oxidant}]}{[\text{reductant}]}$
 (3) $E_{OP} = E_{OP}^0 + \frac{0.059}{n} \log \frac{[\text{reductant}]}{[\text{oxidant}]}$
 (4) All of these

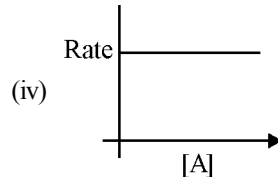
71. The ebullioscopic constant depends upon

[NCERT, Page 17]

- (A) the molar mass of the solute in the solution
 (B) the molar mass of the solvent in the solution
 (C) the enthalpy of vaporisation of the solvent
 (D) the boiling point of solvent
 (1) Only B (2) A, B and C
 (3) B, C and D (4) All of these
72. Which one is correct: [NCERT, Page 37]
 (1) Ni displaces zinc from its solution
 (2) Zn displaces iron from its solution
 (3) Ag displaces copper from its solution
 (4) Cu displaces nickel from its solution
73. Assuming degree of ionization to be unity in each case, which of the following equimolal solutions would freeze at the lowest temperature? [NCERT, Page 19]
 (1) $[\text{Pt}(\text{NH}_3)_6]\text{Cl}_4$ (2) $[\text{Pt}(\text{NH}_3)_5\text{Cl}]\text{Cl}_3$
 (3) $[\text{Pt}(\text{NH}_3)_4\text{Cl}_2]\text{Cl}_2$ (4) $[\text{Pt}(\text{NH}_3)_3\text{Cl}_3]\text{Cl}$
74. In a salt bridge, KCl is used because: [NCERT, Page 33]
 (1) It is an electrolyte
 (2) It is good conductor of electricity
 (3) The transport number of K^+ and Cl^- ions are nearly same or both have same ionic mobility.
 (4) It is ionic compound
75. Given that $E^0_{\text{Fe}^{3+}|\text{Fe}}$ and $E^0_{\text{Fe}^{2+}|\text{Fe}}$ are -0.36 V and -0.439 V , respectively. The value of $E^0_{\text{Fe}^{3+}|\text{Fe}^{2+}|\text{Pt}}$ would be: [NCERT, Page 34]
 (1) $(-0.36 - 0.439)\text{ V}$
 (2) $[3(-0.36) + 2(-0.439)]\text{ V}$
 (3) $(-0.36 + 0.439)\text{ V}$
 (4) $[3(-0.36) - 2(-0.439)]\text{ V}$
76. Consider a gas phase reaction which occurs in a closed vessel
 $2\text{A} \rightarrow 4\text{B} + \text{C}$ [NCERT, Page 65]
 The concentration of B is found to be increased by $5 \times 10^{-3}\text{ mol L}^{-1}$ in 10 seconds.
 The rate of disappearance of A (in $\text{mol L}^{-1}\text{ s}^{-1}$) is
 (1) 4.75×10^{-4} (2) 7.5×10^{-4}
 (3) 1.25×10^{-4} (4) 2.5×10^{-4}
77. Match Column-I with Column-II. [NCERT, Page 69]
- | Column-I
(Reaction order) | Column-II
(Unit of rate constant) |
|------------------------------|--|
| (A) 0 | (p) $\text{mol}^{-2}\text{L}^2\text{s}^{-1}$ |
| (B) 1 | (q) $\text{mol}^{-1}\text{Ls}^{-1}$ |
| (C) 2 | (r) $\text{mol L}^{-1}\text{s}^{-1}$ |
| (D) 3 | (s) s^{-1} |
- (1) A – (s), B – (r), C – (p), D – (q)
 (2) A – (s), B – (q), C – (r), D – (p)
 (3) A – (r), B – (p), C – (q), D – (s)
 (4) A – (r), B – (s), C – (q), D – (p)
78. The rate constant, k for a first order reaction, $\text{C}_2\text{H}_5\text{I}(\text{g}) \rightarrow \text{C}_2\text{H}_4(\text{g}) + \text{HI}(\text{g})$ is $x\text{ s}^{-1}$ at 600 K and $4x\text{ s}^{-1}$ at 700 K. [NCERT, Page 73]
 The energy of activation of the reaction (in kJ mol^{-1}) is
 (1) 48.54 (2) 58.16 (3) 38.16 (4) 28.16
79. Specific conductance of 0.1 M sodium chloride solution is $1.06 \times 10^{-2}\text{ ohm}^{-1}\text{ cm}^{-1}$. Its molar conductance in $\text{ohm}^{-1}\text{ cm}^2\text{ mol}^{-1}$ is [NCERT, Page 45]
 (1) 1.06×10^2 (2) 1.06×10^3
 (3) 1.06×10^4 (4) 5.3×10^2
80. The resistance of 0.01 M solution of an electrolyte was found to be 220 ohm at 298 K using a conductivity cell with a cell constant of 0.88 cm^{-1} . The value of Molar conductance of solution is – [NCERT, Page 45]
 (1) 400 $\text{mho cm}^2\text{ mol}^{-1}$ (2) 295 $\text{mho cm}^2\text{ mol}^{-1}$
 (3) 419 $\text{mho cm}^2\text{ mol}^{-1}$ (4) 425 $\text{mho cm}^2\text{ mol}^{-1}$
81. Which is correct representation for a cell at equilibrium: [NCERT, Page 40]
 (1) $\Delta G^\circ = -2.303RT \log K_{\text{eq}}$
 (2) $E^\circ = \frac{2.303RT}{nF} \log K_{\text{eq}}$
 (3) $-\Delta G^\circ = RT \ln K_{\text{eq}}$
 (4) All
82. A reaction has rate constant $k = 2.4 \times 10^{-4}\text{ s}^{-1}$. Then, find the ratio of $t_{99.9}$ to t_{50} . [NCERT, Page 65]
 (1) 1 (2) 5 (3) 10 (4) 15
83. The standard oxidation potentials, E° for the half reactions are [NCERT, Page 35]
 $\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}^-; E^\circ = +0.76\text{ V}$
 $\text{Ag} \rightarrow \text{Ag}^+ + \text{e}^-; E^\circ = -0.77\text{ V}$
 The standard emf of the cell,
 $\text{Ag}^+ + \text{Zn} \rightarrow \text{Zn}^{2+} + \text{Ag}$ is
 (1) +1.53 (2) -1.53 (3) -0.01 (4) +0.01
84. Which of the following are the correct representations of a zero order reaction, where A represents the reactant?
- (i) 

(ii) 

(iii) 

(iv) 
- (1) i, ii, iii (2) i, ii, iv
 (3) ii, iii, iv (4) i, iii, ii

85. **Statement I:** $H_2 - O_2$ fuel cell gives a constant voltage throughout its life. [NCERT, Page 45]

Statement II: In this fuel cell, H_2 reacts with OH^- ions yet the overall concentration of OH^- ions does not change.

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

Section-B

86. **Statement I:** According to Arrhenius equation rate of reaction increases with increase in the temperature.

Statement II: Rate of reaction decreases with increase in the activation energy. [NCERT, Page 79]

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

87. Consider the following statements: [NCERT, Page 83]

- I. Increase in concentration of reactant increases the rate of a zero order reaction.
- II. Rate constant k is equal to collision frequency A , if $E_a = 0$.
- III. Rate constant k is equal to collision frequency A if $E_a = \infty$.
- IV. $\ln k$ Vs T is a straight line.
- V. $\ln k$ Vs $1/T$ is a straight line.

Correct statements are

- (1) I and IV
- (2) II and V
- (3) III and IV
- (4) II and III

88. **Statement I:** Kohlrausch law of independent migration of ions applicable for free ions only.

Statement II: Ions of electrolyte are responsible for conduction of electricity. [NCERT, Page 49]

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

89. The standard oxidation potentials of the electrodes $Ag|Ag^+$, $Sn|Sn^{2+}$, $Ca|Ca^{2+}$, $Pb|Pb^{2+}$ are -0.8 , 0.136 , 2.866 and 0.126 V respectively. The most powerful oxidising agent among these metal ions is:

- (1) Pb^{2+}
- (2) Ca^{2+}
- (3) Sn^{2+}
- (4) Ag^{2+}

90. The unit of electrochemical equivalent is:

- (1) gram
- (2) gram/ampere
- (3) gram/coulomb
- (4) coulomb/gram

91. **Statement I:** Raoult's Law is applicable to all types of solution. Regardless of their ideal and non-ideal Behaviour.

Statement II: According to Raoult's Law partial pressure of each volatile component is directly proportional to its mole fraction in the solution. [NCERT, Page 10]

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

92. A binary liquid solution is prepared by mixing n-heptane and ethanol. Which one of the following statements is correct regarding the behaviour of the solution? [NCERT, Page 13]

- (1) The solution is non-ideal, showing -ve deviation from Raoult's Law.
- (2) The solution is non-ideal, showing +ve deviation from Raoult's Law.
- (3) n-heptane shows +ve deviation while ethanol show s-ve deviation from Raoult's Law.
- (4) The solution formed is an ideal solution.

93. The depression in freezing point is directly proportional to: [NCERT, Page 19]

- (1) Mole fraction
- (2) Molality
- (3) Molarity
- (4) None

94. The molal cryoscopic constant for water is:

- (1) $1.8 \text{ K molality}^{-1}$
- (2) $5.26 \text{ K molality}^{-1}$
- (3) $55.5 \text{ K molality}^{-1}$
- (4) $0.52 \text{ K molality}^{-1}$

95. The most suitable method for the determination of molecular weight of oxyhaemoglobin, a compound of high molecular weight is: [NCERT, Page 21]

- (1) Osmotic pressure method
- (2) Vapour pressure lowering method
- (3) Elevation of boiling point method
- (4) None

96. Osmotic pressure of a solution containing 0.1 mole of solute per litre at 273 K is: [NCERT, Page 21]

- (1) $\frac{0.1}{1} \times 0.08205 \times 273 \text{ atm}$
- (2) $0.1 \times 2 \times 0.08205 \times 273 \text{ atm}$
- (3) $\frac{1}{0.1} \times 0.08205 \times 273 \text{ atm}$
- (4) $\frac{0.1}{1} \times \frac{273}{0.08205} \text{ atm}$

97. Van't Hoff factor (i): [NCERT, Page 24]

- (1) Is less than one in case of dissociation
- (2) Is more than one in case of association
- (3) $i = \frac{\text{normal molecular mass}}{\text{observed molecular mass}}$
- (4) $i = \frac{\text{observed molecular mass}}{\text{normal molecular mass}}$

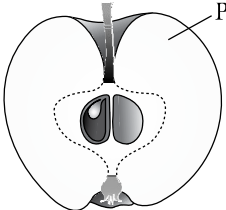
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NEET

98. Limiting molar conductivity of Mg^{2+} and Cl^- ions in water is 106.0 and 76.3 $S\ cm^{-2}\ mol^{-1}$. The limiting molar conductivity of magnesium chloride (in $S\ cm^2\ mol^{-1}$) in water is [NCERT, Page 47]
- (1) 182.3 (2) 258.6
(3) 288.3 (4) 364.6
99. The cell potential for the following cell notation is approximately
 $M(s)|M^{3+}(aq, 0.01M)||N^{2+}(aq, 0.1M)|N(s)$
 $E_{M^{3+}/M}^0 = 0.6\ V$ and $E_{N^{2+}/N}^0 = 0.1\ V$ [NCERT, Page 38]
- (1) 0.51 V (2) 1.5 V
(3) 2.0 V (4) 2.5 V
100. If the activation energy for the forward reaction is 150 $kJ\ mol^{-1}$ and that of the reverse reaction is 260 $kJ\ mol^{-1}$, what is the enthalpy change for the reaction? [NCERT, Page 79]
- (1) 410 $kJ\ mol^{-1}$ (2) -110 $kJ\ mol^{-1}$
(3) 110 $kJ\ mol^{-1}$ (4) -410 $kJ\ mol^{-1}$

PART-III: BOTANY

Section-A

101. Which of the following is false? [NCERT Page 3, 4]
- (1) Flowers do not exist only for us to be used for our own selfishness
(2) All flowering plants show sexual reproduction
(3) To a biologist, flowers are morphological and embryological marvels and the sites of asexual reproduction.
(4) Flowers are objects of aesthetic, ornamental, social, religious and cultural value
102. Identify the part P [NCERT Page 21]
- 
- (1) Membranous part around a seed
(2) Mesocarp
(3) Thalamus
(4) Seed
103. One sporogenous cell produce how many number of microspore tetrad? [NCERT Page 6]
- (1) 2 (2) 1
(3) 4 (4) 8
104. More than one ovule in an ovary is found in: [NCERT Page 9]
- (1) Watermelon, Paddy, Wheat
(2) Maize, Mango, Wheat
(3) Wheat, Paddy, watermelon
(4) Papaya, Watermelon, Orchids
105. Match the columns: [NCERT Page 9, 12, 13]
- | Column-I | Column-II |
|---------------------|----------------------|
| A. Syncarpous | I. Chasmogamous |
| B. <i>Oxalis</i> | II. <i>Papaver</i> |
| C. Apocarpous | III. <i>Michelia</i> |
| D. Marine-sea grass | IV. <i>Zostera</i> |
- Choose the correct answer from the options given below:
- (1) A – I, B – III, C – IV, D – II
(2) A – II, B – III, C – I, D – IV
(3) A – III, B – II, C – I, D – IV
(4) A – II, B – I, C – III, D – IV
106. Water pollination commonly occur in- [NCERT Page 13]
- (1) Water hyacinth
(2) Lily
(3) *Vallisneria and Hydrilla*
(4) Corn
107. Given below are two statements: [NCERT Page 5, 11]
- Statement I:** The typical angiosperm embryo sac, at maturity, though 8-nucleate is 7-celled.
Statement II: Tapetum nourishes the developing pollen grains.
In the light of the above statements, choose the correct answer from the options given below:
- (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.
108. A mature embryo sac possesses: [NCERT Page 10]
- (1) Egg, synergids, polar nuclei and antipodals
(2) Egg, synergids, central cell and tertiary wall
(3) Egg, synergids and secondary cells
(4) Egg, synergids, and secondary wall
109. Moth passes its larval stage in plant pollinated by it. The plant is [NCERT Page 14, 15]
- (1) *Ficus* (2) *Tagetes*
(3) *Cosmos* (4) *Yucca*
110. In which part of a flower do both meiosis and fertilization occur? [NCERT Page 10, 18]
- (1) ovule (2) stigma
(3) anther (4) petal
111. Read the following statements. [NCERT Page 9, 11]
- A. The ovule is attached to the placenta by means of a stalk called filament.
B. The ovule fuses with stalk in the region called hilum.

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11

- C. The one or two protective envelopes of ovule are called integuments.
 D. The large opening in the tip of ovule is called germ pore.
 E. The egg apparatus consists of one synergid and two egg cells.

Choose the correct answer from the options given below:

- (1) Only A and D (2) Only A and E
 (3) Only B and D (4) Only B and C

112. Which process is more dependable on water?

[NCERT Page 21]

- (1) Pollination (2) Double fertilisation
 (3) Gametogenesis (4) Seed formation

113. Match List-I with List-II [NCERT Page 15, 20]

- | List-I | List-II |
|----------------|------------------------------|
| A. Monoecious | I. Papaya |
| B. Dioecious | II. Castor |
| C. Coleoptile | III. Undifferentiated sheath |
| D. Coleorrhiza | IV. Hollow foliar structure |

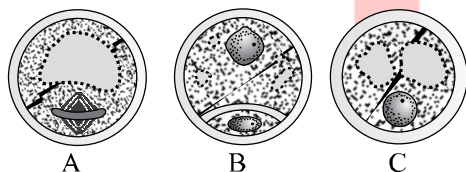
Choose the correct answer from the options given below:

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

114. Occurrence of more than one embryo in a seed is referred to as– [NCERT Page 23]

- (1) Apomixis (2) Parthenocarpy
 (3) Polyembryony (4) All of them

115. Arrange the following diagrams according to developmental stages. [NCERT Page 7]



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

116. Which of the following is a potential advantage of introducing apomixis into hybrid crop species?

[NCERT Page 23]

- (1) Cultivators would be better able to cope with a rapidly changing environment.
 (2) They would have a larger potential genome than inbred crops.
 (3) All of the desirable traits of the cultivator would be passed on to offspring.
 (4) They would benefit from positive mutations in their DNA

117. Which of the following statement is false?

[NCERT Page 20, 21, 22]

- A. Some 2000 years old variable seeds of *Phoenix dactylifera* were discovered during archaeological excavation of King Herod's palace near Dead Sea.
 B. Record of 10,000 years of dormancy of seeds has been estimated in *Lupinus arcticus*.

C. The number of seeds in each fruit in case of orchid and some parasitic forms like *Orobanche* and *Striga* is one.

D. Many fruits have evolved mechanisms for dispersal of seeds

E. Fruits that develop only from ovary are called true fruits.

- (1) A and B only (2) D and E only
 (3) C only (4) All of these

118. Given below are two statements:

Statement I: Human beings have had an intimate relationship with flowers since time immemorial.

Statement II: Flowers are morphological and embryological marvels and the sites of sexual reproduction.

In the light of the above statements, choose the correct answer from the options given below: [NCERT Page 3, 4]

- (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.

119. In some species floral rewards are in providing safe places to lay eggs, an example is– [NCERT Page 14]

- (1) *Amorphophallus* (2) Maize
 (3) Mango (4) Papaya

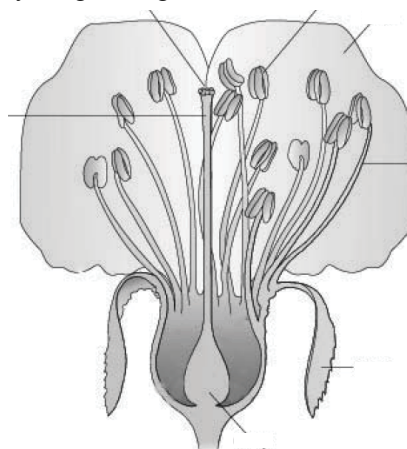
120. Go through the following statements– [NCERT Page 13]

- A. Quite common in grasses.
 B. Flowers are colourless, nectarless and odourless
 C. Well exposed stamens
 D. Pollen grains-produced in large number, light, non-sticky
 E. Flowers often have a single ovule in each ovary

The above Statements favour–

- (1) Self pollination
 (2) Pollination by wind
 (3) Pollination by birds
 (4) Pollination by insects

121. Identify the given figure. [NCERT Page 4]



- (1) T.S. of a fruit (2) T.S. of a flower
 (3) L.S. of a flower (4) L.S. of a fruit

- 122.** Given below are two statements: [NCERT Page 11]
Statement I: Embryo sac of angiosperms contains 3-celled egg apparatus, 3 antipodal cells and 2 polar nuclei.
Statement II: Nucleus of megaspore divides mitotically to form 2 nuclei which move to opposite poles and later form an embryo sac which is 8-nucleate.
 In the light of the above statements, choose the correct answer from the options given below:
 (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.
- 123.** Read the following statements and find out the incorrect statements. [NCERT Page 14, 15]
 A. Majority of flowering plants produce hermaphrodite flowers.
 B. Continued self-pollination results in inbreeding depression.
 C. In several species such as papaya, male and female flowers are present on same plants.
 D. Majority of insect-pollinated flowers are large, colourful and rich in nectar.
 E. Among the animals, particularly birds are the dominant biotic pollinating agents.
 Choose the correct answer from the options given below:
 (1) A and B only (2) A and E only
 (3) C and E only (4) B, C and D only
- 124.** A recent record of 2000 years old viable seed is of the – [NCERT Page 22]
 (1) date palm (2) lupine
 (3) papaya (4) All of these
- 125.** Tapetum layer is responsible for [NCERT Page 5]
 (1) protection of delicate embryo
 (2) nourishment of the developing pollen grain
 (3) transfer of enzyme to cotyledons
 (4) it also called scutellum
- 126.** Read the following statements about seed and choose set of correct statements. [NCERT Page 20]
 A. In angiosperms, the seed is the final product of sexual reproduction.
 B. It is often described as a fertilised ovule.
 C. They are formed inside fruits.
 D. Albuminous seeds have no residual endosperm.
 E. In some seeds such as black pepper and beet, remnants of nucellus are absent.
 Choose the correct answer from the options given below:
 (1) A, B, C and D only (2) B, C, D and E only
 (3) A, C, D and E only (4) A, B and C only
- 127.** The viability of pollen grains depends upon– [NCERT Page 8]
 (1) Prevailing temperature only
 (2) Prevailing humidity only
 (3) Both prevailing temperature and humidity
 (4) None of them
- 128.** Match the columns: [NCERT Page 8, 9]

Column-I	Column-II
A. Megasporangium	I. ovule
B. Female gametophyte	II. locule
C. Junction between ovule and funicle	III. embryo sac
D. Ovarian cavity	IV. hilum

 Choose the correct answer from the options given below:
 (1) A – I, B – III, C – IV, D – II
 (2) A – II, B – III, C – I, D – IV
 (3) A – III, B – II, C – I, D – IV
 (4) A – II, B – I, C – III, D – IV
- 129.** Given below are two statements: [NCERT Page 9, 17]
Statement I: Cells of the nucellus have abundant reserve food materials.
Statement II: Commonly the pollen tube enters the ovule through micropyle.
 In the light of the above statements, choose the correct answer from the options given below:
 (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.
- 130.** What will happen to the population of *Yucca* plants if the population of moths in that area decreases? [NCERT Page 14, 15]
 (1) The population of *Yucca* plants will increase.
 (2) The population of *Yucca* plants will decrease.
 (3) The population of *Yucca* plants will remain same.
 (4) The population of *Yucca* plants will first increase and then decrease.
- 131.** The female gametophyte / embryo sac of typical dicot (*Polygonum*) or monosporic embryo sac is– [NCERT Page 11]
 (1) 7-celled and 7-nucleate
 (2) 8-celled and 8-nucleate
 (3) 7-celled and 8-nucleate
 (4) 8-celled and 7-nucleate
- 132.** Microsporangium is generally surrounded by 4 wall layers. Which of the following 3 wall layers perform the function of protection and help in the dehiscence of anther to release the pollen? [NCERT Page 5]
 (1) Epidermis, tapetum, endothecium
 (2) Epidermis, mesocarp, endothecium
 (3) Epidermis, endodermis, mesocarp
 (4) Epidermis, middle layer and endothecium
- 133.** Read the following statements carefully. Identify and mark the pre-fertilisation events. [NCERT Page 6, 7, 8, 9]
 A. A haploid parent produces gamete by mitosis.
 B. Zygote undergoes cell division during embryogenesis.
 C. In seed plants, pollen grains are the carriers of male gamete and ovule have the egg.
 D. Formation of male and female gametes.
 E. Ovary wall proliferates to form pericarp.

Choose the correct answer from the options given below:

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

134. Match List-I with List-II [NCERT Page 12, 13, 14]

List-I	List-II
A. Common pansy	I. <i>Amorphophallus</i>
B. Marine sea-grass	II. <i>Viola</i>
C. Tallest flower	III. <i>Vallisneria</i>
D. Fresh water plant	IV. <i>Zostera</i>

Choose the correct answer from the options given below:

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

135. Endosperm may persist in the mature seed of –

[NCERT Page 19]

- (1) castor
- (2) Bean
- (3) Groundnut
- (4) None

Section-B

136. Match List-I with List-II [NCERT Page 19, 20]

List-I	List-II
A. Albuminous seed	I. Barley
B. Non-albuminous seed	II. Groundnut
C. Perisperm	III. Black pepper
D. Scutellum	IV. Grass family

Choose the correct answer from the options given below:

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

137. In corn-cob the tassels are the – [NCERT Page 13]

- (1) Meant for fruit dispersal
- (2) Meant for attracting insects
- (3) Meant for protecting seeds
- (4) Styles and stigma

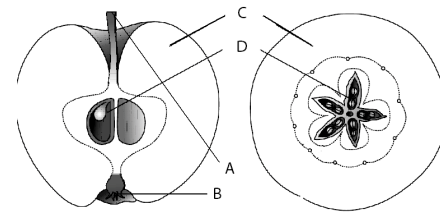
138. Match the columns: [NCERT Page 18, 20]

Column-I	Column-II
A. Ovule	I. Endosperm
B. Double fertilisation	II. PEC
C. Nucellus	III. Seed
D. Polar nuclei	IV. Perisperm

Choose the correct answer from the options given below:

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

139. Given figure is labelled as A, B, C and D. Which of the labelling represent thalamus? [NCERT Page 21]



- (1) B → Endocarp
- (2) C → Thalamus
- (3) D → Seed
- (4) A → Mesocarp

140. Which is the most common type of embryo sac in flowering plants? [NCERT Page 10, 11]

- (1) Bisporic with two sequential mitotic divisions
- (2) Tetrasporic with one mitotic stage of divisions
- (3) Monosporic with three sequential mitotic divisions
- (4) Monosporic with two sequential mitotic divisions

141. Match List-I with List-II [NCERT Page 9]

List-I	List-II
A. Multicarpellary syncarpous pistil	I. Orchids
B. Multicarpellary apocarpous pistil	II. <i>Michelia</i>
C. One ovule in an ovary	III. Paddy
D. Many ovules in an ovary	IV. <i>Papaver</i>

Choose the correct answer from the options given below:

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

142. Select incorrect statement- [NCERT Page 18, 19]

- (1) The central cell becomes primary endosperm cell (PEC).
- (2) Embryo development is termed as pre-fertilisation event.
- (3) Endosperm persists in mature seed of Castor.
- (4) Scutellum lies lateral of the embryonal axis in grass family.

143. Which of the following statements is false? [NCERT Page 22, 23]

- A. Hybrid varieties of several of our food and vegetables crops are being extensively cultivated
- B. Cultivation of hybrids has tremendously increased productivity
- C. A few flowering plants e.g. some species of *Asteraceae* and grasses have evolved apomixis
- D. Occurrence of more than one embryo in a seed is referred to as apomixis.
- E. The mechanism to produce seeds without fertilisation is known as polyembryony.

Choose the correct answer from the options given below:

- (1) A and B only
- (2) B and C only
- (3) C and D only
- (4) D and E only

144. Match the columns. [NCERT Page 6, 7]

Column-I	Column-II
A. Sporogenous tissue	I. Meiosis
B. Pollen grain	II. Mitosis
C. <i>Parthenium</i>	III. Male gametophyte
D. Microspore tetrad	IV. Pollen allergy

Choose the correct answer from the options given below:

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

145. Given below are two statements: [NCERT Page 13]

Statement I: In *Vallisneria*, the male flower reach the surface of water by the long stalk.

Statement II: *Zostera* and *Vallisneria* are pollinated by water.

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

- (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.

146. Pollination is essential in angiosperm plants because:-

[NCERT Page 11]

- (1) It decreases the time required for fertilization
- (2) Both of the male and female gametes are non-motile and they need to be brought together for fertilization
- (3) The egg cell in embryo sac is located at the micropylar end
- (4) Embryo sac contains 7 haploid cells

147. In double fertilization total number of male nuclei and total number of female nuclei involved are–

[NCERT Page 18]

(1) 3, 2 respectively (2) 2, 3 respectively

(3) 2, 2 respectively (4) 3, 3 respectively

148. Match List-I with List-II [NCERT Page 20-22]

List-I	List-II
A. Oldest viable seed	I. Groundnut
B. Seedless fruit	II. Guava
C. Fleshy fruit	III. Lupine
D. Dry fruit	IV. Banana

Choose the correct answer from the options given below:

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

149. As the anther develops, the cells of the sporogenous tissue undergo meiotic division to form [NCERT Page 5]

- (1) microspore diad (2) microspore pentad
- (3) microspore triad (4) microspore tetrad.

150. Match List-I with List-II [NCERT Page 19]

List-I	List-II
A. Epicotyl terminates with	I. Radicle
B. The root tip is covered with a	II. Plumule
C. Hypocotyl terminates at its lower end in	III. Scutellum
D. In the grass family the cotyledon is	IV. Root cap

Choose the correct answer from the options given below:

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

PART-IV: ZOOLOGY

Section-A

151. During ovulation, the ovary releases [NCERT Page 33]

- (1) Oogonia (2) Ootid
- (3) Primary oocyte (4) Secondary oocyte

152. Whose secretions are essential for maturation and motility of sperms? [NCERT Page 32]

- (1) epididymis and prostate only
- (2) vas deferens and seminal vesicle only
- (3) seminal vesicle and prostate only
- (4) All of these

153. Reproductive health in society can be improved by–

[NCERT Page 42, 43]

- A. Introduction of sex education in schools.
- B. Increased medical assistance
- C. Awareness about contraception and STDs
- D. Equal opportunities to male and female child.
- E. Ban on amniocentesis for sex determination.

Choose the correct answer from the options given below:

- (1) B and E only
- (2) A, B and D only
- (3) A, B, C and D only
- (4) All of these

154. One such method in which the couples avoid or abstain from coitus from day 10 to 17 of the menstrual cycle when ovulation could be expected? [NCERT Page 44]

- (1) MTP
- (2) Lactational amenorrhea
- (3) Periodic abstinence
- (4) All of these

155. Prostate gland is present. [NCERT Page 27]

- (1) In seminiferous tubules
- (2) Side of bulbourethral gland
- (3) Below seminal vesicles
- (4) Below seminiferous tubules

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156. Choose the correct statements – [NCERT Page 41, 42]

- A. According to the WHO, reproductive health is total well-being in the physical, social, emotional, behavioural aspects of reproduction
- B. India was among last countries in the world to initiate action plans and programmes at a national level to attain total reproductive health as social goal.
- C. A reproductively healthy society has people with physically and functionally normal reproductive organs
- D. Reproductively healthy societies have abnormal sex-related emotional and behavioural interactions

Choose the correct answer from the options given below:

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

157. Match the columns: [NCERT Page 32]

Column-I	Column-II
A. Sperm head	I. Cap like structure
B. Middle piece	II. Sperm motility
C. Acrosome	III. Mitochondria
D. Sperm tail	IV. Elongated haploid nucleus.

Choose the correct answer from the options given below:

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

158. Which among the following is not the component of mammary gland. [NCERT Page 31]

- A. Mammary duct
- B. Fallopian tube
- C. Alveoli
- D. Uterus
- E. Mammary tubules

Choose the correct answer from the options given below.

- (1) B and D only
- (2) A only
- (3) C only
- (4) E only

159. Which of the following statement is correct?

[NCERT Page 36, 37]

- (1) 2, 4, 8, 16 daughter cells are called morula.
- (2) Morula continues to divide and transforms into zygote.
- (3) The mitotic division starts as the zygote moves through the isthmus towards the uterus.
- (4) None of these

160. Choose the correct Statement? [NCERT Page 47]

- A. Condoms should be used during coitus to prevent STIs
- B. Hepatitis-B and HIV infections are completely curable.

- C. STIs are a major threat to a healthy society.
- D. Infections which are transmitted through pathogens are called sexually transmitted infections.
- E. HIV infection is the least dangerous and easily curable.

Choose the correct answer from the options given below:

- (1) B and C only
- (2) A and E only
- (3) A and C only
- (4) A and D only

161. Match the columns: [NCERT Page 36, 37]

Column I	Column II
A. Trophoblast	I. Embedding of blastocyst in the endometrium of the uterus
B. Cleavage	II. Differentiated as embryo
C. Inner cell mass	III. Outer layer of blastocyst attached to the endometrium
D. Implantation	IV. Mitotic division of zygote

Choose the correct answer from the options given below:

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

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

Assertion A: For normal fertility at least 40% ejaculated sperm must have normal shape and size and at least 60% of them must show vigorous motility. [NCERT Page 32]

Reason R: Seminal plasma along with sperms called semen.

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.

163. Match the columns: [NCERT Page 27, 28]

Column-I	Column-II
A. Rete testis	I. Spermatogonia
B. Urethral meatus	II. Accessory duct
C. Male germ cell	III. External opening
D. Seminal vesicle	IV. Accessory gland

Choose the correct answer from the options given below:

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

164. Match the columns: [NCERT Page 48]

Column-I	Column-II
A. IVF	I. 8 celled embryo into oviduct
B. GIFT	II. Test tube baby programme
C. AI	III. Transfer ovum into fallopian tube
D. ZIFT	IV. Artificially introducing semen either into vagina or into uterus

Choose the correct answer from the options given below:

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

165. Match the columns: [NCERT Page 27, 29]

Column I (Structure)	Column II (Shape)
A. Testis	I. Inverted pear like
B. Infundibulum	II. Oval
C. Uterus	III. Finger-like projections
D. Fimbriae	IV. Funnel shaped

Choose the correct answer from the options given below:

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

166. Which of the following statement is correct about artificial insemination? [NCERT Page 48]

- (1) Transfer of sperms of husband to a test tube containing ova
- (2) Artificial introduction of sperms of husband or a healthy donor into the vagina or uterus
- (3) Introduction of sperms of healthy donor directly into the ovary
- (4) Transfer of sperms of a healthy donor directly into the ova.

167. Match the columns: [NCERT Page 47, 48]

Column-I	Column-II
A. Syphilis	I. Not completely curable
B. Hepatitis-B	II. Pelvic inflammatory diseases
C. ART	III. Completely curable if detected early
D. PID	IV. Infertile couples are assisted to have children through this special technique.

Choose the correct answer from the options given below:

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

168. Match the columns: [NCERT Page 38]

Column-I	Column-II
A. Formation of heart	I. By the end of second month of pregnancy
B. Formation of limbs and digits	II. After one month
C. Major organs system	III. By the end of 12 weeks
D. Eyelids separate	IV. By the end of 24 weeks

Choose the correct answer from the options given below:

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

169. Cu released by CuTs plays a role in– [NCERT Page 44]

- (1) Increasing phagocytosis of ova
- (2) Suppressing sperm motility
- (3) Increase fertilising capacity of sperms
- (4) Both (1) and (2)

170. Which part of the fallopian tube is close to ovary?

[NCERT Page 29]

- (1) Ampulla
- (2) Isthmus
- (3) Uterus
- (4) Infundibulum

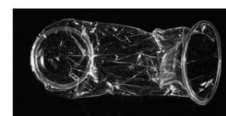
171. Match List-I with List-II. [NCERT Page 44, 45, 46]

List-I	List-II
A. Tubectomy	I. Inhibit ovulation and implantation
B. Contraceptive Pills	II. Increase phagocytosis of sperm within Uterus
C. IUDs	III. Prevents sperms reaching cervix.
D. Condom	IV. Removal of fallopian tube

Choose the correct answer from the options given below:

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

172. Refer the given figure below and answer the question. Which feature is correctly associated with the given figure? [NCERT Page 44]



- (1) It is a male condom which is used to cover the penis just before the coitus to prevent the entry of ejaculated semen into the female reproductive tract.
- (2) It is a female condom which is used to cover the cervix and vagina just before the coitus.

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- (3) It is a condom which is used to cover penis in male and vagina and cervix in female.
 (4) It is one type of IUDs which makes the uterus unsuitable for implantation and cervix hostile to the sperms.

173. Match List-I with List-II [NCERT Page 48]

List-I	List-II
A. ICSI	I. Artificially introduction of semen into the vagina or uterus.
B. IUI	II. Fertilisation outside the body
C. ART	III. Formation of an embryo by directly injecting sperm into the ovum
D. IVF	IV. Couples could be assisted to have children.

Choose the correct answer from the options given below:

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

174. Extrusion of second polar body from egg nucleus occurs: [NCERT Page 35, 36]

- (1) After entry of sperm before completion of fertilisation
 (2) After completion of fertilisation
 (3) Before entry of sperm
 (4) Without any relation of sperm entry

175. Select the correct sequence of events: [NCERT Page 35, 36, 37, 38]

- (1) Gametogenesis → Gamete transfer → Fertilisation → Zygote → Cell differentiation → Cell division (Cleavage) → Organ formation.
 (2) Gametogenesis → Gamete transfer → Fertilisation → Zygote → Cell division (Cleavage) → Cell differentiation → Organ formation.
 (3) Gametogenesis → Gamete transfer → Fertilisation → Zygote → Cell division (Cleavage) → Organ formation Cell differentiation.
 (4) Gametogenesis → Fertilisation → Gamete transfer → Zygote → Cell division (Cleavage) → Cell differentiation → Organ formation.

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

Assertion A: Gamete intra fallopian transfer is actually *in vivo* fertilization and not *in vitro* fertilization.**Reason R:** In gamete intra fallopian transfer, ovums are collected from the donor and placed into the fallopian tube of another female who cannot produce one.

[NCERT Page 48]

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.

177. Choose the correct statements from the following [NCERT Page 33, 34]

- A. Mitochondria in middle piece of sperm produces energy for the mobility of mature sperm.
 B. Ovulatory phase is the shortest duration phase of the menstrual cycle.
 C. In menstrual cycle of 28 / 29 days, ovum is released during end of the cycle.
 D. Loss of reproductive capacity in woman around age of 50 years is called Menopause.

Choose the correct answer from the options given below:

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

178. Match List-I with List-II. [NCERT Page 27, 28, 29]

List-I	List-II
A. Length of testis	I. 2-3 cm
B. Width of testis	II. 2-4 cm
C. Length of ovary	III. 4-5 cm
D. Length of oviduct	IV. 10-12 cm

Choose the correct answer from the options given below:

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

179. Given below are two statements: [NCERT Page 44]
Statement I: Diaphragm, cervical caps and vaults are not reusable.**Statement II:** They cover vagina and cervix permanently. In the light of the above statements, choose the correct answer from the options given below:

- (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.

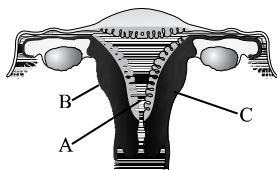
180. Match Column-I with Column-II – [NCERT Page 42, 43, 44]

Column-I	Column-II
A. LNG-20	I. Reproductive Health
B. Saheli	II. Non-medicated IUDs
C. Normal functioning of reproductive organs	III. CDRI, Lucknow
D. Lippes loop	IV. Hormone releasing IUD

Choose the correct answer from the options given below:

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

181. The given figure shows female reproductive system. Which wall of the uterus (A, B or C) sloughs off during menstruation? [NCERT Page 29]



- (1) A
- (2) B
- (3) C
- (4) None of these

182. Match List-I with List-II [NCERT Page 48]

List-I	List-II
A. GIFT	I. Transfer of ovum from a donor into the fallopian tube of another female.
B. IUT	II. Test tube baby.
C. ZIFT	III. Transfer of embryos with more than 8 blastomeres into the uterus.
D. IVF	IV. Transfer of early embryos into the fallopian tube.

Choose the correct answer from the options given below:

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

183. Match column-I with column-II. [NCERT Page 27]

Column-I	Column-II
A. Sertoli cell	I. Male sex accessory duct
B. Vas deferens	II. Highly coiled structure within testicular lobules
C. Seminiferous tubules	III. Nourishment to spermatozoa
D. Leydig cells	IV. Androgens

Choose the correct answer from the options given below:

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

184. Given below are two statements: [NCERT Page 35]

Statement I: During pregnancy all events of the menstrual cycle stop and there is no menstruation.

Statement II: Progesterone is essential for maintenance of the endometrium.

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

- (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.

185. Match List-I with List-II [NCERT Page 38]

List-I	List-II
A. Outer layer	I. Ectoderm
B. Inner layer	II. Stem cells
C. Middle layer	III. Endoderm
D. Inner cell mass	IV. Mesoderm

Choose the correct answer from the options given below:

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

Section-B

186. Reproductive tract infections can spread through

[NCERT Page 47]

- A. Infected mother to foetus
- B. Inheritance.
- C. Using sterile needles.
- D. By sharing food
- E. Transfusion of blood from infected person.

Choose the correct answer from the options given below

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

187. Match List-I with List-II. [NCERT Page 33, 37]

List-I	List-II
A. Chorionic villi	I. Placenta is connected to the embryo through
B. Umbilical cord	II. Finger-like projections on trophoblast
C. Graafian follicle	III. Relaxin
D. Ovary	IV. Mature follicle

Choose the correct answer from the options given below:

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

188. Given below are two statements:

Statement I: Infertility due to low sperm count can be corrected by artificial insemination.

Statement II: In artificial insemination sperm is directly injected into ovum. [NCERT Page 48]

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

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- (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.

189. What are the functions played by placenta?

[NCERT Page 37]

- (1) Removal of carbon dioxide and excretory material produced by embryo.
- (2) Supply of food to mother
- (3) Supply of oxygen and nutrients to the embryo
- (4) Both (1) and (3)

190. Given below are two statements: [NCERT Page 31, 32]

Statement I: Some factors released by Sertoli cells help in the process of spermiogenesis

Statement II: FSH acts on Sertoli cell.

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

- (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.

191. Given below are two statements:

Statement I: Oral contraceptive pills inhibit ovulation.

Statement II: It contains progestogen-estrogen combinations.

[NCERT Page 45]

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

- (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.

192. Which of the following statements are correct with respect to hormones secreted by placenta? [NCERT Page 37]

- A. Placenta acts as an endocrine tissue and produces several hormones.
- B. Placenta secretes high amount of FSH during pregnancy.
- C. Placenta secretes relaxin during initial stage of pregnancy.
- D. Placenta secretes hCG and hPL during pregnancy.
- E. The placenta stops the supply of oxygen and nutrients to the embryo.

Choose the correct answer from the options given below:

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

193. Match List-I with List-II

[NCERT Page 44, 45]

- | List-I | List-II |
|-----------|--------------------------|
| A. Pills | I. Prevents conception |
| B. Condom | II. Copper releasing IUD |

- | | |
|-----------|--|
| C. LNG-20 | III. Alter the quality of cervical mucus to prevent entry of sperms. |
| D. Cu7 | IV. Hormone releasing IUD |

Choose the correct answer from the options given below:

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

194. Match column-I with column-II. [NCERT Page 46, 47]

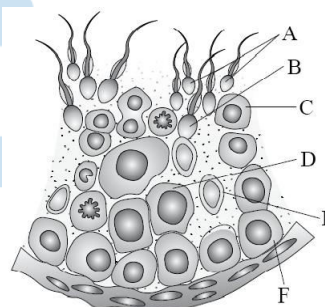
- | Column-I | Column-II |
|----------------|------------------------------------|
| A. MTP | I. Syphilis |
| B. RTI | II. Inflammation of pelvic region |
| C. Hepatitis-B | III. Induced abortion |
| D. PID | IV. Completely non-curable disease |

Choose the correct answer from the options given below:

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

195. Identify spermatogonium and Sertoli cells respectively.

[NCERT Page 31]



- (1) F and B
- (2) A and C
- (3) D and E
- (4) F and E

196. Match List-I with List-II.

[NCERT Page 46, 47]

- | List-I | List-II |
|---|--------------------|
| A. MTP performed in a year all over the world | I. First trimester |
| B. MTP is safe during | II. In 1971 |
| C. STIs reported to be very high among persons in age group | III. 45-50 million |
| D. Government of India legalised MTP | IV. 15-24 years |

Choose the correct answer from the options given below:

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

197. Read the following statements and find out the incorrect statement(s). [NCERT Page 26, 27, 35]

- A. Humans are sexually reproducing and viviparous.
 B. Transfer of sperm in female genital tract (vagina) is called ejaculation.
 C. There are remarkable differences between the reproductive events in the male and in the female.
 D. Sperm formation continues even in old men, but formation of ovum ceases in women around the age of fifteen years.
 E. The male and female reproductive systems are located in the pelvic region.

Choose the correct answer from the options given below:

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

198. Match List-I with List-II

[NCERT Page 31, 32]

- | List-I | List-II |
|---|---------------------|
| A. Release of sperm from seminiferous tubules | I. Spermiogenesis |
| B. Transformation of spermatids to sperms | II. Spermatogenesis |
| C. Production of sperms | III. Spermiation |
| D. Formation of a mature female gamete | IV. Oogenesis |

Choose the correct answer from the options given below:

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

199. Given below are two statements:

Statement I: Ovulation occurs 25 days before menses, regardless of cycle length.

Statement II: Ovulation occurs as a result of estrogen induced LH – surge. [NCERT Page 34, 35]

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

- (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.

200. Match List-I with List-II

[NCERT Page 38]

- | List-I | List-II |
|----------------|---|
| A. Parturition | I. The mammary glands of the female starts producing milk towards the end of pregnancy. |
| B. Gestation | II. Duration of human pregnancy. |
| C. Lactation | III. Milk produced during the initial few days of lactation |
| D. Colostrum | IV. Expulsion of the baby out of the uterus through the birth canal. |

Choose the correct answer from the options given below:

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