

NEET TEST SERIES 2023

TEST CODE : NT - 06

Candidate's Name																			
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Important Instructions

- Darken one circle deeply for each questions in the OMR Answer Sheet, as faintly darkened, half darkened circle might be rejected by the Optical Scanner.

Wrong Marking **Correction Marking**

- Use blue/black ball point pen to record the answer.
- Rough work must not be done on the answer sheet.
- Please do not make any stray marks on the answer sheet.

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PHYSICS				
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Section B (Attempt Any 10)				
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CHEMISTRY				
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BOTANY				
Section A				
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Section B (Attempt Any 10)				
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BIOLOGY				
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NEET Part Test-06

TOPIC COVERED

Physics:	Electric Charges and Fields, Electrostatics Potential and Capacitance, Current Electricity
Chemistry:	The Solid State, Solutions, Electrochemistry, Chemical Kinetics
Botany:	Reproduction in Organisms, Sexual Reproduction in Flowering Plants
Zoology:	Human Reproduction, Reproductive Health

Duration: 3 hr 20 min

Max Marks: 720

General Instructions:

- The test will contain 200 Questions of Physics, Chemistry, Botany, and Zoology & The test will be objective type. (Attempt only 180).
- Every subject contains two Part A-35 Questions and Part B-15 Questions (Attempt only 10).
- All 35 Questions of Part-A are Compulsory to attempt
- Time given for test is 200 minutes.
- Marking is +4 for every correct answer, -1 for every wrong answer.
- You can reattempt the test in case of any technical issue.
- Test will start at 2:00 pm and students can attempt test at any time of their own preferences

PHYSICS

SECTION - A

1. Two metallic identical spheres A and B carrying equal positive charge $+q$ are a certain distance apart. The force of repulsion between them is F . A third uncharged sphere of the same size is brought in contact with sphere A and removed. It is then brought in contact with sphere B and removed. What is the new force of repulsion between A and B ?
 - (1) F
 - (2) $\frac{3F}{8}$
 - (3) $\frac{F}{8}$
 - (4) $\frac{F}{4}$

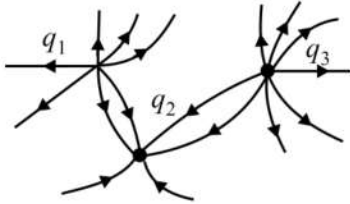
2. Two charges $9e$ and $3e$ are placed at a distance r . the distance of the point where the electric field intensity will be zero is
 - (1) $\frac{r}{(\sqrt{3} + 1)}$ from $9e$ charge
 - (2) $\frac{r}{1 + \sqrt{1/3}}$ from $9e$ charge
 - (3) $\frac{r}{(1 - \sqrt{3})}$ from $3e$ charge
 - (4) $\frac{r}{1 + \sqrt{1/3}}$ from $3e$ charge

3. Two point charges placed at a certain distance r in air exert a force F on each other. Then the distance r' at which these charges will exert the same force in a medium of dielectric constant k is given by
 - (1) r
 - (2) r/k
 - (3) r/\sqrt{k}
 - (4) $r\sqrt{k}$

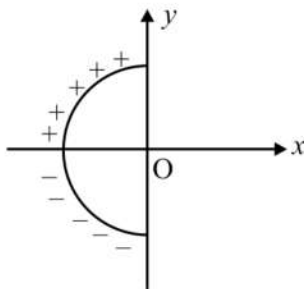
4. An electron is projected as in fig. with kinetic energy K , at an angle $\theta = 45^\circ$ between two charged plates. The magnitude of the electric field so that the electron just fails to strike the upper plate, should be greater than-

 - (1) $\frac{K}{qd}$
 - (2) $\frac{2K}{qd}$
 - (3) $\frac{K}{2qd}$
 - (4) Infinite

5. From the given diagram find charges q_2 and q_3 if $q_1 = 21\mu C$



- (1) $q_2 = -18\mu C, q_3 = +24\mu C$
 (2) $q_2 = -15\mu C, q_3 = +24\mu C$
 (3) $q_2 = -12\mu C, q_3 = +24\mu C$
 (4) $q_2 = +18\mu C, q_3 = +24\mu C$
6. Charge q and $-q$ are uniformly distributed on the two halves of a semi-circular ring, as shown in the figure. Radius of the ring R , electric field at its centre is

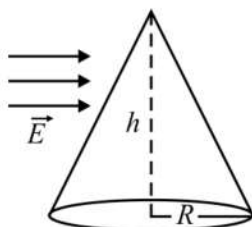


- (1) $\frac{q}{\sqrt{2}\pi^2\epsilon_0 R^2}(-j)$ (2) $\frac{-q}{\pi^2\epsilon_0 R^2}j$
 (3) $\frac{-q}{\sqrt{2}\pi^2\epsilon_0 R^2}(-j)$ (4) $\frac{\sqrt{q}}{\sqrt{2}\pi^2\epsilon_0 R^2}(-j)$

7. In a uniformly charged sphere, the ratio of electric field at a distance $2R$ and $R/2$ is

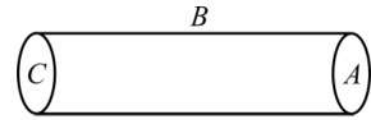
- (1) $\frac{1}{8}$ (2) $\frac{1}{16}$
 (3) $\frac{1}{2}$ (4) $\frac{1}{4}$

8. A cone of base radius R and height h is located in a uniform electric field parallel to its base as shown in fig. The electric flux entering the cone is-



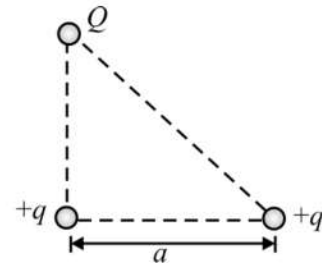
- (1) EhR
 (2) $2EhR$
 (3) $\frac{EhR}{2}$
 (4) None

9. A hollow cylinder has a charge ' q ' coulomb at its centre. If ϕ is the electric flux in units of volt-meter associated with the curved surface B , the flux linked with the plane surface A in units of volt-meter will be



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

10. Three charges $Q, +q$ and $+q$ are placed at the vertices of a right-angled isosceles triangle as shown. The net electrostatic energy of the configuration is zero if Q is equal to

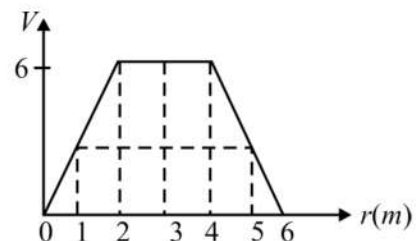


- (1) $\frac{-q}{1+\sqrt{2}}$ (2) $\frac{-\sqrt{2}q}{1+\sqrt{2}}$
 (3) $-2q$ (4) $+q$

11. If the distance of separation between two charges is increased, the electrical potential energy of the system

- (1) May increase or decrease
 (2) Decreases
 (3) Increase
 (4) Remain the same

12. The variation of potential with distance r from a fixed point is shown in figure. The electric field at $r = 5$ m is:



- (1) 3 volt/m
 (2) -3 volt/m
 (3) $\frac{1}{3}$ volt/m
 (4) $-\frac{1}{3}$ volt/m

13. A uniform electric field pointing in the positive x -direction exists in a region. Let A be the origin and B be the point on x -axis at $x = +1$ cm and C be the point on the y -axis at $y = +1$ cm. Then the potential at the points A , B and C satisfy.

- (a) $V_A = V_B$ (b) $V_A > V_B$
 (c) $V_A = V_C$ (d) $V_C > V_B$
 (1) (b), (c) (2) (b), (c), (d)
 (3) (a), (c) (4) (c), (d)

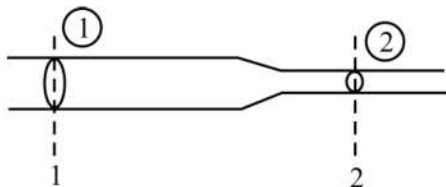
14. Ratio of magnitude of intensity of electric field at same distance axial line and on equatorial line of a given dipole is

- (1) 1 : 2 (2) 2 : 1
 (3) 1 : 1 (4) 1 : 2^{1/3}

15. A source of e.m.f. $E = 15$ V and having negligible internal resistance is connected to a variable resistance so that the current in the circuit increases with time as $i = 1.2t + 3$. Then, the total charge that will flow in first five second will be

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

16. The area of cross-section of a current carrying conductor is A_0 and $A_0/4$ at section (1) and (2) respectively. If V_1 , V_2 and E_1 , E_2 be the drift velocity and electric field at section 1 and 2 respectively then



- (1) $V_1 : V_2 = 1 : 4$ and $E_1 : E_2 = 4 : 1$
 (2) $V_1 : V_2 = 4 : 1$ and $E_1 : E_2 = 1 : 2$
 (3) $V_1 : V_2 = 2 : 1$ and $E_1 : E_2 = 1 : 4$
 (4) $V_1 : V_2 = 1 : 4$ and $E_1 : E_2 = 1 : 4$

17. A straight conductor of uniform cross-section carries a current I . Let s = specific charge of an electron. The momentum of all the free electrons per unit length of the conductor, due to their drift velocities only, is:

- (1) Is (2) I/s
 (3) $2I/s$ (4) $(I/s)^2$

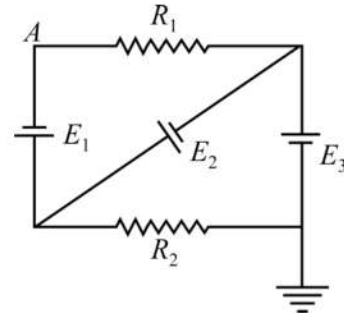
18. All the edges of a block with parallel faces are unequal. The longest edge is twice its shortest edge. The ratio of the maximum to minimum resistance between its parallel faces is:

- (1) 2
 (2) 4
 (3) 8
 (4) Indeterminate unless the length of the third edge is specified

19. The colour sequence in a carbon resistor is red, brown, orange and silver. The resistance of the resistor is

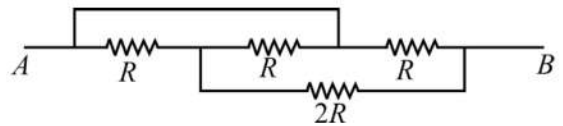
- (1) $21 \times 10^3 \pm 10\%$ (2) $23 \times 10^1 \pm 10\%$
 (3) $21 \times 10^3 \pm 5\%$ (4) $12 \times 10^3 \pm 5\%$

20. For the circuit shown in the figure, $R_1 = 5$, $R_2 = 9$, $E_1 = 8V$, $E_2 = 6V$ and $E_3 = 4V$. Find the potential of the point A.



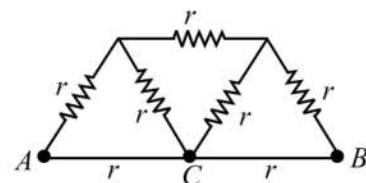
- (1) 2V (2) 1V
 (3) 4V (4) 0V

21. The effective resistance between A and B is



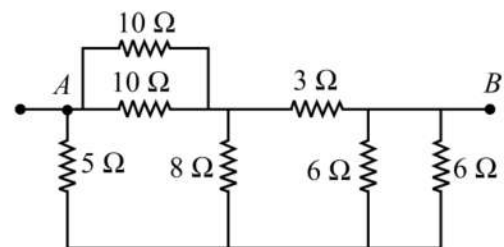
- (1) $\frac{7}{5}R$ (2) $\frac{5}{7}R$
 (3) $\frac{3R}{7}R$ (4) $\frac{5}{3}R$

22. The equivalent resistance between A and B in the circuit shown will be



- (1) $\frac{5}{4}r$ (2) $\frac{6}{5}r$
 (3) $\frac{7}{6}r$ (4) $\frac{8}{7}r$

23. Seven resistances are connected as shown in figure. The equivalent resistance between A and B is



- (1) 3 Ohm (2) 4 Ohm
 (3) 4.5 Ohm (4) 5 Ohm

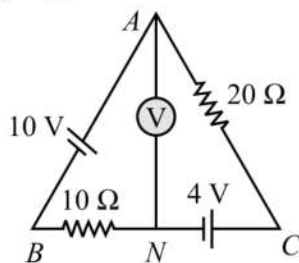
24. The potential difference in open circuit for a cell is 2.2 volt. When a 4 ohm resistor is connected between its two electrodes the potential difference becomes 2 volt. The internal resistance of the cell will be:

- (1) 1 ohm (2) 0.2 ohm
 (3) 2.5 ohm (4) 0.4 ohm

25. Two batteries each of emf E and internal resistance r are connected turn by turn in series and in parallel, and are used to find current in an external resistance R . If the current in series is equal to that in parallel, the internal resistance of each battery is:

- (1) R (2) $R/2$
 (3) $R/3$ (4) $R/4$

26. The reading of the ideal voltmeter in the adjoining diagram will be



- (1) 4 V (2) 8 V
 (3) 12 V (4) 14 V

27. A galvanometer of 50 ohm resistance has 25 divisions. A current of 4×10^{-4} ampere gives a deflection of one division. To convert this galvanometer into a voltmeter having a range of 25 volts, it should be connected with a resistance of

- (1) 2500 Ω as a shunt
 (2) 2450 Ω as a shunt
 (3) 2550 Ω in series
 (4) 2450 Ω in series

28. A potentiometer wire of length 100 cm has a total resistance of 10 Ω . It is connected in series with a resistance R and a cell of emf 2 volts and of negligible internal resistance. A cell of emf 10 mV is balanced against a length of 40 cm of potentiometer wire. What is the value of the external resistance R ?

- (1) 609 Ω (2) 760 Ω
 (3) 500 Ω (4) 790 Ω

29. In a potentiometer experiment, the galvanometer shows no deflection when a cell is connected across 60 cm of the potentiometer wire. If the cell is shunted by a resistance of 6 Ω , the balance is obtained across 50 cm of the wire. The internal resistance of the cell is

- (1) 0.5 Ω (2) 0.6 Ω
 (3) 1.2 Ω (4) 1.5 Ω

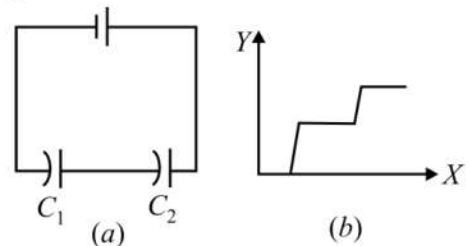
30. n drops each of capacitance C , coalesce to form a single drop. The capacitance of the single drop is,

- (1) C/n (2) nC
 (3) $n^{1/3}C$ (4) $n^{2/3}C$

31. A 40 μF capacitor in a defibrillator is charged to 3000 V. The energy stored in the capacitor is sent through the patient during a pulse of duration 2 ms. The power delivered to the patient is

- (1) 45 kW (2) 90 kW
 (3) 180 kW (4) 360 kW

32. Figure (a) shows two capacitors connected in series and joined to a battery. The graph in figure (b) shows the variation in potential as one moves from left to right on the branch containing the capacitors, if

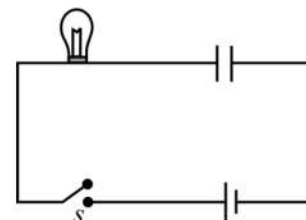


- (1) $C_1 > C_2$
 (2) $C_1 = C_2$
 (3) $C_1 < C_2$
 (4) The information is not sufficient to decide the relation between C_1 and C_2

33. Two capacitors of value C_1 and C_2 are charged to potentials V_1 and V_2 respectively. On connecting them in parallel, there will not be any exchange of energy, provided

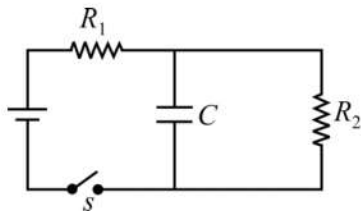
- (1) $C_1 = C_2$
 (2) $C_1 V_1 = C_2 V_2$
 (3) $V_1 = V_2$
 (4) $C_1/V_1 = C_2/V_2$

34. A light bulb, a capacitor and a battery are connected together as shown here, with switch S initially open. When the switch S is closed, which one of the following is true



- (1) The bulb will light up for an instant when the capacitor starts charging
 (2) The bulb will light up when the capacitor is fully charged
 (3) The bulb will not light up at all
 (4) The bulb will light up and go off at regular intervals

35. For the circuit shown in figure, when the switch is closed at $t = 0$.



- (1) voltage drop across the capacitor is E
 (2) current through the battery is $\frac{E}{R_1 + R_2}$
 (3) current through the battery is $\frac{E}{R_1}$
 (4) current through the battery is $\frac{E}{R_2}$

SECTION-B

(ATTEMPT ANY 10 QUESTIONS)

36. A charge Q floats in air under the influence of gravity and upward electric field E , on rotating the direction of electric field by 60° the acceleration of charge is

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

37. A particle of charge $-q$ and mass m moves in a circle of radius r around an infinitely long the charge of linear charge density $+\lambda$. Then time period will be.

- (1) $T = 2\pi r \sqrt{\frac{m}{2k\lambda q}}$ (2) $T = 2\pi r \sqrt{\frac{m}{k\lambda q}}$
 (3) $T = 2\pi r \sqrt{\frac{k\lambda q}{m}}$ (4) $T = \pi r \sqrt{\frac{2k\lambda q}{m}}$

38. A thin, metallic spherical shell contains a charge Q on it. A point charge q is placed at the centre of the shell and another charge q_1 is placed outside it. All the three charges are positive. The force on the central charge due to the shell is:

- (1) towards charge q_1
 (2) away from charge q_1
 (3) zero
 (4) data is not sufficient to reach any conclusion

39. A small electric dipole is placed at origin with its dipole moment directed along positive X -axis. The direction of electric field at a point $(2, 2\sqrt{2}, 0)$ is:

- (1) along positive Z -axis
 (2) Y -axis
 (3) along negative Y -axis
 (4) along negative Z -axis

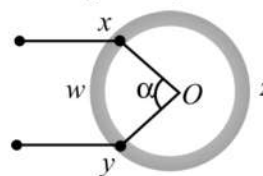
40. A dipole is placed in the electric field of a point charge. which of the following statements is/are true

- (a) force on dipole may be zero
 (b) force on dipole must not be zero
 (c) Torque on dipole may be zero
 (d) Torque on dipole must not be zero
 (1) (a), (c) (2) (b), (c)
 (3) (a), (d) (4) (b), (d)

41. Masses of three wires are in the ratio $1 : 3 : 5$ and their lengths are in the ratio $5 : 3 : 1$. The ratio of their electrical resistance is:

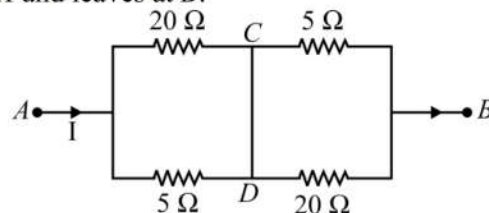
- (1) $1 : 3 : 5$ (2) $5 : 3 : 1$
 (3) $1 : 15 : 125$ (4) $125 : 15 : 1$

42. A wire of resistor R is bent into a circular ring of radius r . Equivalent resistance between two points X and Y on its circumference, when angle XOY is α , can be given by



- (1) $\frac{R\alpha}{4\pi^2} (2\pi - \alpha)$ (2) $R/2\pi (2\pi - \alpha)$
 (3) $R/(2\pi - \alpha)$ (4) $4\pi/R\alpha(2\pi - \alpha)$

43. When some potential difference is maintained between A and B , current I enters the network at A and leaves at B .



Then the correct statements is/are:

- (a) The equivalent resistance between A and B is 8Ω
 (b) C and D are at the same potential
 (c) No current flows between C and D
 (d) Current $3I/5$ flows from D to C
 (1) (b), (c) (2) (a), (b) (c)
 (3) (a), (b), (d) (4) (a), (b)

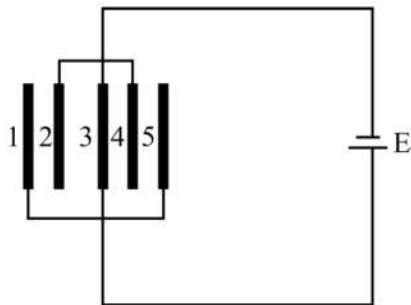
44. A current of two amperes is flowing through a cell of e.m.f. 5 volts and internal resistance 0.5 ohm from negative to positive electrode. If the potential of negative electrode is 10 V, the potential of positive electrode will be

- (1) 5 V
 (2) 14 V
 (3) 15 V
 (4) 16 V

45. A 100 W, 220 V bulb is operated on a 110 V line. The power consumed is
- (1) 25 W
 (2) 50 W
 (3) 75 W
 (4) 90 W

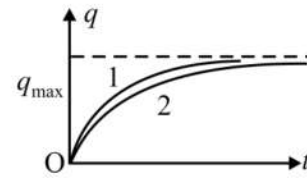
46. n identical light bulbs, each designed to draw P power from a certain voltage supply, are joined in series across that supply. The total power which they will draw is
- (1) nP
 (2) P
 (3) P/n
 (4) P/n^2

47. Five identical plates each of area A are joined as shown in the figure. The distance between the plates is d . The plates are connected to a potential difference of V volts. The charge on plates 1 and 4 will be:



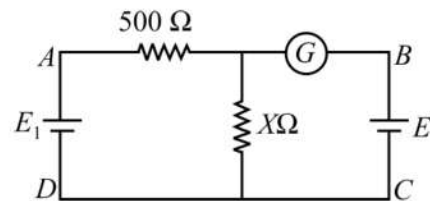
- (1) $\frac{\epsilon_0 AV}{d}, \frac{2\epsilon_0 AV}{d}$
 (2) $\frac{-\epsilon_0 AV}{d}, \frac{2\epsilon_0 AV}{d}$
 (3) $\frac{\epsilon_0 AV}{d}, \frac{-2\epsilon_0 AV}{d}$
 (4) $\frac{-\epsilon_0 AV}{d}, \frac{-2\epsilon_0 AV}{d}$

48. The charge on the capacitor in two different RC circuits 1 and 2 are plotted as shown in figure. If only one parameter out of E, R, C can be different in two circuits then Choose the correct statement related to the two circuits.



- (1) $E_1 < E_2$
 (2) $R_1 < R_2$
 (3) $C_1 < C_2$
 (4) data insufficient

49. In the adjoining circuit, the battery E_1 has an e.m.f of 12 volt and zero internal resistance while the battery E has an e.m.f of 10 volt. If the galvanometer G reads zero, then the value of the resistance x in ohm is



- (1) 100
 (2) 2500
 (3) 500
 (4) 200

50. If electric flux through a Gaussian surface is zero then which of the following statement(s) will be true
- (a) net charge enclosed must be zero
 (b) electric field at the surface must be zero at all points
 (c) electric field at the surface must be zero atleast at one or more points
 (d) electric field at the surface may be zero
- (1) Only (a)
 (2) (a), (c), (d)
 (3) (a), (d)
 (4) All of these

CHEMISTRY

SECTION-A

51. Which of the following is an amorphous solid?
 (1) Graphite (C)
 (2) Quartz glass (SiO₂)
 (3) Chrome alum
 (4) Silicon carbide (SiC)
52. Which of the following is true about the value of refractive index of quartz glass?
 (1) Same in all directions
 (2) Different in different directions
 (3) Cannot be measured
 (4) Always zero
53. The rate law for a reaction between the substances *A* and *B* is given by rate $K[A]^n [B]^m$. On doubling the concentration of *A* and halving the concentration of *B*, the ratio of the new rate to the earlier rate of the reaction will be as:
 (1) $1/2^{m+n}$ (2) $(m+n)$
 (3) $(n-m)$ (4) $2^{(n-m)}$
54. For a certain reaction of order '*n*' the time for half change $t_{1/2}$ is given by; $t_{1/2} = \frac{2-\sqrt{2}}{K} \times c_0^{1/2}$, where *K* is rate constant and c_0 is initial concentration. The value of *n* is:
 (1) 1 (2) 2
 (3) 0 (4) 0.5
55. A compound X₄Y₃ crystallises with ccp lattice of Y atoms. What fraction of tetrahedral void occupy in the compound
 (1) $\frac{3}{4}$ (2) $\frac{2}{3}$
 (3) $\frac{1}{2}$ (4) $\frac{1}{8}$
56. If mercury is used as cathode in the electrolysis of aqueous NaCl solution, the ions discharged at cathode are:
 (1) H⁺ (2) Na⁺
 (3) OH⁻ (4) Cl⁻
57. Blocks of magnesium metal are often strapped to the steel hulls of ocean going ships in order to:
 (1) provide cathodic protection
 (2) protect oxidation of steel
 (3) both (1) and (2) are correct
 (4) neither (1) nor (2) is correct
58. Sodium has a bcc structure with nearest neighbour distance 365.9 pm. Calculate its density. (Atomic mass of Na = 23)
 (1) 1.51 (2) 2.51
 (3) 3.51 (4) 4.51
59. 1 mole of urea is dissolved in 9 mole of water. If vapour pressure of pure water is 40 mm. The vapour pressure of solution is:
 (1) 32.6 mm (2) 36 mm
 (3) 42 mm (4) 34.8 mm
60. Which of the following on addition in 1.0 molal KI solution will give rise to increase a vapour pressure?
 (1) addition of NaCl
 (2) addition of Na₂SO₄
 (3) addition of 1.00 molal KI
 (4) addition of water
61. Given
 $E_{Cr^{3+}/Cr}^{\circ} = -0.74 V$; $E_{MnO_4^-/Mn^{2+}}^{\circ} = 1.51 V$
 $E_{Cr_2O_7^{2-}/Cr^{3+}}^{\circ} = 1.33 V$; $E_{Cl/Cl^-}^{\circ} = 1.36 V$
 Based on the data given above, the strongest oxidising agent will be:
 (1) Mn²⁺ (2) MnO₄⁻
 (3) Cl⁻ (4) Cr³⁺
62. How many Faradays are needed to reduce 1 mole of MnO₄⁻ to Mn²⁺?
 (1) 2 (2) 5
 (3) 4 (4) 3
63. Hydrogen electrode are immersed in two solutions of pH = 3 and pH = 8 respectively linked through a salt bridge. The operative emf of the working cell would be:
 (1) 0.327 V (2) 0.208 V
 (3) 0.295 V (4) 0.250 V
64. A solution containing 8.6 g urea in one litre was found to be isotonic with a 5% (mass/volume) solution of an organic non-volatile solute. The molar mass of latter is:
 (1) 348.9
 (2) 34.89
 (3) 3489
 (4) 861.2

65. The amount of ice that will separate out on cooling a solution containing 50 g of ethylene glycol in 200 g water to -9.3°C is: ($K'_f = 1.86 \text{ K molality}^{-1}$)

- (1) 38.71 g (2) 38.71 mg
(3) 42 g (4) 42 mg

66. Which is correct relation in between $\frac{dc}{dt}$, $\frac{dn}{dt}$ and $\frac{dP}{dt}$, where c, n, p, represents concentration, mole and pressure terms for gaseous phase reactant $A(g) \rightarrow \text{product}$?

(1) $-\frac{dc}{dt} = -\frac{1}{V} \frac{dn}{dt} = -\frac{1}{RT} \frac{dP}{dt}$

(2) $\frac{dc}{dt} = \frac{dn}{dt} = -\frac{dP}{dt}$

(3) $\frac{dc}{dt} = \frac{RT}{V} \frac{dn}{dt} = -\frac{dP}{dt}$

(4) All of these

67. E° for $\frac{1}{2} \text{Cl}_2 + e \rightarrow \text{Cl}^-$ is 1.36 V. What is E° for $2\text{Cl}^- \rightarrow \text{Cl}_2 + 2e$?

- (1) -1.36 V
(2) 0.68 V
(3) -0.68 V
(4) $+1.36 \text{ V}$

68. For an endothermic reaction where ΔH represents the enthalpy of the reaction in kJ/mol, the minimum value for the energy of activation will be:

- (1) less than ΔH (2) zero
(3) more than ΔH (4) equal to ΔH

69. For a reaction for which the activation energies of forward and reverse reactions are equal?

- (1) $\Delta H = 0$
(2) $\Delta S = 0$
(3) The order is zero
(4) There is no catalyst.

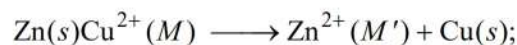
70. The correct order of the packing efficiency in different types of unit cells is _____.

- (1) fcc < bcc < simple cubic
(2) fcc > bcc > simple cubic
(3) fcc < bcc > simple cubic
(4) bcc < fcc > simple cubic

71. A absolute zero, Si acts as:

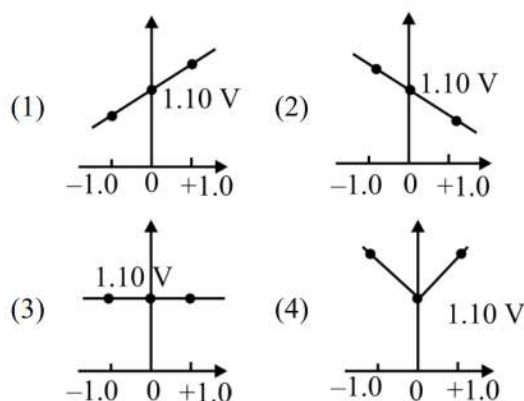
- (1) non metal
(2) metal
(3) insulator
(4) none of these

72. Which graph correctly correlates E_{cells} as function of concentrations for the cells (for differences values of M and M')?



$$E_{\text{cell}}^{\circ} = 1.10 \text{ V}$$

X-axis; $\log_{10} \frac{[\text{Zn}^{2+}]}{[\text{Cu}^{2+}]}$, Y-axis; E_{cell}



73. A current is passed through two voltmeters connected in series. The first voltmeter contains $\text{XSO}_4(\text{aq})$ while second voltmeters contains $\text{YSO}_4(\text{aq})$. The relative atomic masses of X and Y are in the ratio 2:1. The ratio of the mass of X liberated to the mass of Y liberated is:

- (1) 1 : 1
(2) 1 : 2
(3) 2 : 1
(4) none of these

74. On dissolving sugar in water at room temperature solution feels cool to touch. Under which of the following cases dissolution of sugar will be most rapid?

- (1) Sugar crystals in cold water
(2) Sugar crystals in hot water
(3) Powdered sugar in cold water
(4) Powdered sugar in hot water

75. Considering the formation, breaking and strength of hydrogen bond, predict which of the following mixtures will show a positive deviation from Raoult's law?

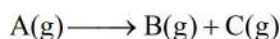
- (1) Methanol and acetone
(2) Chloroform and acetone
(3) Nitric acid and water
(4) Phenol and aniline

76. An unripe mango placed in a concentrated salt solution to prepare pickle, shrivels because:

- (1) it gains water due to osmosis.
(2) It gains water due to reverse osmosis
(3) it loses water due to reverse osmosis
(4) it loses water due to osmosis.

77. Activation energy of a chemical reaction can be determined by:
- (1) determining the rate constant at standard temperature.
 - (2) determining the rate constant at two temperatures
 - (3) determining probability of collision
 - (4) using catalyst.

78. Consider a first order gas phase decomposition reaction given below:



The initial pressure of the system before decomposition of A was P_i . After lapse of time ' t ', total pressure of the system increased by x units and became ' P_t '.

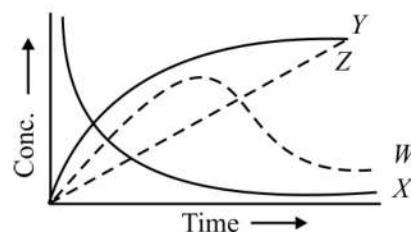
The rate constant k for reaction is given as:

- (1) $k = \frac{2.303}{t} \log \frac{P_i}{P_i - P_t}$
 - (2) $k = \frac{2.303}{t} \log \frac{P_i}{2P_i - P_t}$
 - (3) $k = \frac{2.303}{t} \log \frac{P_i}{2P_i + P_t}$
 - (4) $k = \frac{2.303}{t} \log \frac{P_i}{P_i + x}$
79. Half life of a first order reaction is 10 minutes. What percentage of reaction will be complete in 100 minute?
- (1) 25%
 - (2) 50%
 - (3) 99.9%
 - (4) 75%

80. Which of the following statements is correct?
- (1) E_{cell} and ΔG of cell reaction both are extensive properties.
 - (2) E_{cell} and ΔG of cell reaction both are intensive properties.
 - (3) E_{cell} is an intensive properties while ΔG of cell is an extensive property.
 - (4) E_{cell} is an extensive properties while ΔG of cell is an intensive property.

81. An electrochemical cell can behave like an electrolytic cell when:
- (1) $E_{\text{cell}} = 0$
 - (2) $E_{\text{cell}} = E_{\text{ext}}$
 - (3) $E_{\text{ext}} > E_{\text{cell}}$
 - (4) $E_{\text{cell}} > E_{\text{ext}}$

82. For the reaction $A + B \rightarrow C + D$. The variation of the concentration of the products is given by the curve:



- (1) X
 - (2) Y
 - (3) Z
 - (4) W
83. On cooling a sugar solution of 1 M to -1°C :
- (1) Sugar + water freezes
 - (2) only water freezes and ice separates out
 - (3) ice containing sugar + water separates out
 - (4) sugar is separated out from solution.
84. Graphite cannot be classified as:
- (1) Conducting solid
 - (2) Ionic solid
 - (3) Covalent solid
 - (4) Network solid
85. In which pair most efficient packing is present?
- (1) hcp and bcc
 - (2) hcp and ccp
 - (3) bcc and ccp
 - (4) bcc and simple cubic cube

SECTION-B

(ATTEMPT ANY 10 QUESTIONS)

86. The number of tetrahedral and octahedral holes in hexagonal primitive unit cell are
- (1) 8, 4
 - (2) 12, 6
 - (3) 6, 12
 - (4) 2, 1
87. Oxide ion in spinel MgAl_2O_4 is replaced by $(\text{F}^{-8/3})$ ion. Thus number of anionic vacancy per unit cell is
- (1) 0.75
 - (2) 3.00
 - (3) 1.00
 - (4) 2.00
88. The ionic radius of Mn^{2+} ion is 0.080 nm and that of S^{2-} ion is 0.184 nm. Thus, structure of the cubic unit cell of MnS is of the type
- (1) NaCl
 - (2) ZnS
 - (3) CsCl
 - (4) All of these
89. If the radiator of an automobile contains 12 L of water, how much would the freezing point be lowered by the addition of 5 kg of prestone (glycol, $\text{C}_2\text{H}_4(\text{OH})_2$)? $K_f(\text{H}_2\text{O}) = 1.86 \text{ molal}^{-1}$
- (1) 12.5°
 - (2) 6.25°
 - (3) 1.86°
 - (4) 3.72°

90. Mass of urea required to prepare 2.5 kg of 0.25 molal aqueous solution is

- (1) 38.12 g (2) 39.20 g
(3) 36.95 g (4) 37.50 g

91. One mole each of the following solutes are taken in 5 moles of water.

- I. NaCl II. K₂SO₄
III. Na₃PO₄ IV. Glucose

Assume 100% ionisation of the electrolyte. Thus, relative lowering of vapour pressure will be in order.

- (1) I < II < III < IV (2) IV < III < II < I
(3) IV < I < II < III (4) I = II = III = IV

92. Solubility of H₂S gas in water at STP is 0.195 mol kg⁻¹. Thus, Henry's law constant K_H for H₂S is

- (1) 285.9 (2) 282
(3) 284 (4) 384

93. A solution of Ni (NO₃)₂ is electrolysed between platinum electrodes using 0.1 Faraday electricity. How many mole of Ni will be deposited at the cathode?

- (1) 0.20 (2) 0.10
(3) 0.15 (4) 0.05

94. For BaSO₄,

- I. $\Lambda_m^\infty = \Lambda_m^\infty$ of (BaCl₂ + H₂SO₄ - 2HCl)
II. $\Lambda_m^\infty = \Lambda_m^\infty$ of (BaCl₂ + H₂SO₄ - HCl)
III. $\Lambda_{equiv}^\infty = \Lambda_{equiv}^\infty$ of (BaCl₂ + H₂SO₄ - 2HCl)
IV. $\Lambda_{equiv}^\infty = \Lambda_{equiv}^\infty$ of (BaCl₂ + H₂SO₄ - HCl)

Select correct values.

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

95. Consider the following half-cell reactions.

- I. $A + e^- \rightarrow A^-$; $E^\circ = 0.96$ V
II. $B^- + e^- \rightarrow B^{2-}$; $E^\circ = -0.12$ V
III. $C^+ + e^- \rightarrow C$; $E^\circ = +0.18$ V
IV. $D^{2+} + 2e^- \rightarrow D$; $E^\circ = -1.12$ V

To attain maximum emf, cell set up is

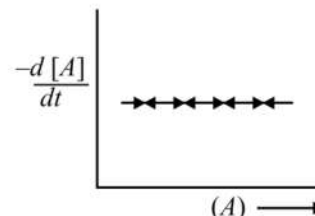
- (1) A | A⁻ || D²⁺ | D
(2) A⁻ | A || D²⁺ | D
(3) A⁻ | A || D | D²⁺
(4) D | D²⁺ || A | A⁻

96. Which statement is true about a galvanic cell employing Pb, Cu, Pb²⁺ and Cu⁺?

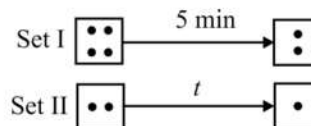
$$E_{Pb^{2+}/Pb}^\circ = -0.127 \text{ V}; E_{Cu^+/Cu}^\circ = +0.518 \text{ V}$$

- (1) Spontaneous cell-reaction will be in the cell Pb | Pb²⁺ || Cu⁺ | Cu
(2) $E_{cell}^\circ = 0.645$ V
(3) Both (1) and (2) are correct
(4) None of the above is correct

97. For the reaction A → Product



and in two different sets



time t is

- (1) 5 min (2) 10 min
(3) 2.5 min (4) 20 min

98. During nuclear explosion, one of the products is ⁹⁰₃₈Sr with half-life of 28.1 years. If 1 μg of ⁹⁰₃₈Sr was absorbed in the bones of a newly born baby instead of calcium, how much of it will remain after 84.3 years?

- (1) 0.250 μg (2) 0.875 μg
(3) 0.125 μg (4) 0.750 μg

99. At 600 K, for the following reaction, CH₃Br + OH⁻ → CH₃OH + Br⁻

only 0.01% of the total number of collision are effective. Thus energy of activation is

- (1) 11.05 kJ mol⁻¹ (2) 45.95 kJ mol⁻¹
(3) 0.454 kJ mol⁻¹ (4) 4.80 kJ mol⁻¹

100. In the following reaction; $xA \rightarrow yB$

$$\log_{10} \left[-\frac{d[A]}{dt} \right] = \log_{10} \left[-\frac{d[B]}{dt} \right] + 0.3010$$

A and B respectively can be

- (1) n-butane and iso-butane
(2) C₂H₂ and C₆H₆
(3) C₂H₄ and C₄H₈
(4) N₂O₄ and NO₂

BOTANY

SECTION - A

101. Consider the following statement, mark the correct
- (A) Maize is wind pollinated flower
(B) Zostera is fresh water plant pollinated by insect
- Which is correct-
- (1) only A
(2) only B
(3) both A and B
(4) both A and B wrong
102. From given examples
- Watermelon, orchids, Papaya, wheat, mango and paddy
- How many have more than one ovules
- (1) three
(2) four
(3) two
(4) one
103. Mark the correctly matched
- (1) Apocarpus – papaver
(2) Vegetative cell- Diploid
(3) Exine – pectin cellulose
(4) Ovule- Megasporangium
104. Male gametophyte in angiosperms produces
- (1) two gametes and a vegetative cell
(2) single gametes and a generative cell
(3) single gametes and two vegetative cell
(4) three gametes
105. Which one of the following statement is correct?
- (1) Hard outer layer of pollen is called intine
(2) Sporogenous tissue is haploid
(3) Endothecium produces the microspores
(4) Tapetum nourishes the developing pollen
106. The sporopollenin is non degradable because
- (1) it can withstand strong acids
(2) it is resistant at very high temperature
(3) no enzyme can degrade it
(4) all of the above
107. Pollen tablets are available in the market for
- (1) *in vitro* fertilisation
(2) breeding programmes
(3) supplementing food
(4) *ex situ* conservation
108. Function of filiform apparatus is to
- (1) recognise the suitable pollen at stigma
(2) stimulate division of generative cell
(3) produce nectar
(4) guide the entry of pollen tube
109. In angiosperms, microsporogenesis and megasporogenesis
- (1) occur in anther
(2) form gametes without further division
(3) involves meiosis
(4) occur in ovule
110. Embryo sac is also called
- (1) female gamete
(2) synergids
(3) female gametophyte
(4) egg of angiosperm
111. Advantage of cleistogamy is
- (1) higher genetic variability
(2) more vigorous offspring
(3) no dependence on pollinators
(4) vivipary
112. Transfer of pollen grains from the anther to stigma of another flower of different plant is called
- (1) geitonogamy
(2) xenogamy
(3) chasmogamy
(4) cleistogamy
113. The tassels is found in
- (1) Water hyacinth (2) maize
(3) Hydrilla (4) all of these
114. The wind pollinated flower have
- (1) many ovules in the ovary
(2) single ovule in the ovary
(3) two ovule in the ovary
(4) none of the above
115. Pollen grain of water pollinated plants are coated by covering to prevent it from wetting
- (1) mucilage (2) cuticle
(3) exine (4) intine
116. Even in absence of pollinating agents seed-setting is assured in
- (1) *Viola* (2) *Zostera*
(3) *Salvia* (4) Fig
117. Which one of the following post-fertilization event is incorrect?
- (1) Ovary - Fruit wall
(2) Ovule - seed
(3) Outer integument - Tegmen
(4) PEN - Endosperm
118. The wheat grain has an embryo with one large, shield-shaped cotyledon known as
- (1) epiblast (2) coleorhiza
(3) scutellum (4) coleoptile

- 119.** Thalamus contributes in the fruit formation is
 (1) apple (2) Potato
 (3) Mustard (4) Pea
- 120.** Select the odd one w.r.t. asexual reproduction
 (1) Need of both male and female parents
 (2) Produces a large number of individuals
 (3) Rapid method
 (4) Absence of haploid - diploid alternation
- 121.** In asexual reproduction,
 (1) internal physiology of organisms are collectively responsible for how it reproduces
 (2) offspring is produced by a single parent of any sex
 (3) it occurs with or without the involvement of gamete formation
 (4) all of these are correct
- 122.** Foul odour present in flower are pollinated by
 (1) bird (2) bee
 (3) Beetle (4) ants
- 123.** Select wrong pair for common asexual reproductive structures.
 (1) Conidia - *Penicillium*
 (2) Buds - Hydra
 (3) Gemmules - *Marchantia*
 (4) Zoospores - *Chlamydomonas*
- 124.** Select wrong pair for common asexual reproductive structures.
 (1) Offset - Water lily
 (2) Eyes - Potato
 (3) Rhizome - Ginger
 (4) Bulbil - *Agave*
- 125.** Select an incorrect statement for sexual reproduction
 (1) It is an elaborate, complex and slow process.
 (2) It results in offspring that are not identical to the parents
 (3) It involves formation of the male and female gametes
 (4) In male and female, gametes are never produced by the same individual
- 126.** Select an incorrect statement for vegetative phase in plants.
 (1) It is also called the juvenile phase
 (2) This phase is of variable duration in different organisms
 (3) Flowering is the end of this phase in higher plants
 (4) Metabolism get slow and Aeging occur
- 127.** The two main pre-fertilisation events are
 (1) gametogenesis and gamete transfer
 (2) pollination and syngamy
 (3) embryogenesis and meiosis
 (4) cell differentiation and sporogenesis
- 128.** A pair of monoecious plants are
 (1) Papaya and date palm
 (2) Papaya and coconut
 (3) Date palm and cucurbits
 (4) Cucurbits and Sweet potato
- 129.** In several simple plants like algae, bryophytes and pteridophytes, what is the medium through which male gamete transfer takes place?
 (1) Air (2) Water
 (3) Pollen tube (4) Insects
- 130.** Consider the following statement, mark the correct
 (A) *Marchantia* have both antheridium and archegonium on same thallus
 (B) *Chara* show upper antheridium and lower oogonium
 Which is correct-
 (1) only A (2) only B
 (3) both A and B (4) both A and B wrong
- 131.** Apomixis not observed in -
 (1) asteraceae (2) Mango
 (3) citrus (4) Banana
- 132.** Match the incorrectly matched-
 (1) phoenix dactylifera - short viability
 (2) Orange - poyembryony
 (3) strawberry - false fruit
 (4) Castor - endospermous
- 133.** Ploidy of perisperm and Nucellus is:
 (1) both haploid
 (2) n and 2n
 (3) 2n and n
 (4) both 2n
- 134.** Which of the following is not true for algae-
 (1) can multiply through zoospore
 (2) sexual reproduction involve zygotic meiosis
 (3) asexual reproduction is main mode of multiplication
 (4) In algae fertilization of gametes not occur
- 135.** Which of the following show parthenogenesis
 (1) Drone in honey bee
 (2) housefly
 (3) *Drosophila*
 (4) all Mammals
- SECTION-B**
 (ATTEMPT ANY 10 QUESTIONS)
- 136.** Number of chromosome in gametes of Honeybee
 (1) 32 (2) 8
 (3) 16 (4) 12
- 137.** Which of the following have isogametes condition
 (1) *Cladophora* (2) human
 (3) fucus (4) *Marchantia*

- 138.** Rejection of pollen grain on stigma is because of
 (1) More water on stigma
 (2) chemical release by filiform apparatus
 (3) pollen belong to same species
 (4) Pollen belong to different species
- 139.** If ploidy of antipodal is $2n$ and that of PEN is $6n$ then what is probable ploidy of zygote
 (1) $3n$ (2) $5n$
 (3) $4n$ (4) $6n$
- 140.** Minimum number of meiotic division require to form 100 seeds, when all seeds is product of fertilization:
 (1) 125 (2) 200
 (3) 250 (4) 400
- 141.** In a single ovary multiple ovule present in
 (1) Mango (2) Paddy
 (3) Watermelon (4) Wheat
- 142.** Nucellus inside seed, develop into embryo in
 (1) mango (2) wheat
 (3) citrus (4) both 1 and 3
- 143.** Mark the incorrectly matched
 (1) Offset – water hyacinth
 (2) Conidia – Penicillium
 (3) Seasonal breeder – Primates
 (4) Internal fertilization – Reptiles
- 144.** After fertilization Zygotic meiosis present in
 (1) Algae
 (2) fungi
 (3) haplontic organism
 (4) all
- 145.** Which of the following not true for post fertilization changes
 (1) Embryo developement
 (2) Seed development
 (3) Fruit development
 (4) Meiosis to form gametes
- 146.** Which of the following is perennial monocarpic –
 (1) Paddy
 (2) bamboo
 (3) Neem
 (4) Guava
- 147.** Which is incorrect about bisexual flower
 (1) present on monoceious plant
 (2) present in Seed bearing plants
 (3) Sweet potato is example
 (4) castor is example
- 148.** Which of the following cannot show geitonogamy
 (1) Cucumber (2) Maize
 (3) Sweet potato (4) Papaya
- 149.** Pollination by wind is generally absent in –
 (1) Hydrilla
 (2) Pinus
 (3) parthenium
 (4) maize
- 150.** Aquatic angiosperm pollinate by insect or wind is-
 (1) Zostera
 (2) Hydrilla
 (3) Water hyacinth
 (4) Chara

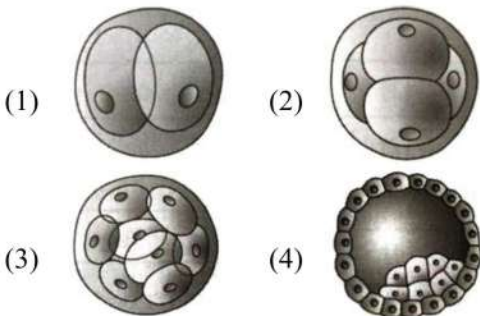
ZOOLOGY

SECTION - A

- 151.** Vas deferens arises from
- (1) Epididymis
 - (2) Testis
 - (3) Rete testis
 - (4) ovary
- 152.** Epididymis is
- (1) Network of sinuses between seminiferous tubules and vasa efferentia
 - (2) Intermediate structure between rete testis and vasa efferentia
 - (3) A long coiled tube between vasa efferentia and vas deferens
 - (4) Connection between vas deferens and seminal vesicle
- 153.** Separation of eyelids and formation of eyelashes is observed in the developing foetus in/by
- (1) First trimester
 - (2) Fifth month
 - (3) The end of 24 weeks
 - (4) Seventh month

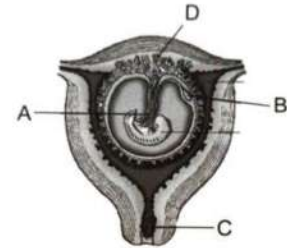
- 154.** In menstrual cycle, ovulation will occur on day
- (1) 12
 - (2) 10
 - (3) 7
 - (4) 14

- 155.** Which of the following represents morula stage during human embryonic development



- 156.** Though all persons are vulnerable to STD infections but their incidences are reported to be very high among persons of the age group
- (1) 25-35 years
 - (2) 15-24 years
 - (3) 5-15 years
 - (4) 40-50 years

- 157.** Following diagram shows human foetus within the uterus with certain labelled part A, B, C & D. The labelled parts have been matched with their description/function. How many of them are correct?



- A. Umbilical cord with its vessels
 - B. Fallopian Tube
 - C. Mucus plug in cervix formed by activity of progesterone
 - D. Facilitate supply of oxygen and nutrients to the embryo and also removal of carbon dioxide and excretory/waste materials produced by the embryo
- (1) Three (2) Four
(3) Two (4) One

- 158.** Match the following.

	Column I		Column II
a.	Saheli	(i)	Suppress sperm motility and fertilising capacity of sperms
b.	Condoms	(ii)	Cylinders containing progestogens applied under the skin
c.	Multiload 375	(iii)	Prevent the entry of semen into female reproductive tract
d.	Implant	(iv)	Non-steroidal preparation

- (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)

- 159.** Which of the following is an exclusive placental hormone only?
- (1) Estrogen
 - (2) Human chorionic gonadotropin
 - (3) Progesterone
 - (4) Relaxin

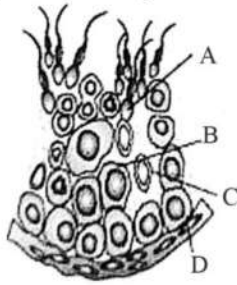
- 160.** Birth canal is formed by
 (1) Cervical canal (2) Vagina
 (3) Both 1, 2 (4) None of the above
- 161.** (i) Cervical canal (ii) Mons pubis
 (iii) Hymen (iv) Uterus
 (v) Labia minora (vi) Labia majora
 (vii) Clitoris (viii) Uterine tube
 How many are not included in female external genitalia.
 (1) 1 (2) 2
 (3) 3 (4) 4
- 162.** Final release of sperms from seminiferous tubule is called as
 (1) Spermiogenesis (2) Spermiation
 (3) Spermatogenesis (4) All of the above
- 163.** (i) Spermatozoa
 (ii) Secondary Spermatocytes
 (iii) Spermatids
 (iv) Primary Spermatocytes
 (v) Spermatogonia
 How many are haploid
 (1) 1 (2) 2
 (3) 3 (4) 4
- 164.** What % of sperms should have normal shape & size for normal fertility
 (1) 40 (2) 80
 (3) 60 (4) 30
- 165.** Oogenesis is initiated
 (1) At puberty
 (2) During embryonic life
 (3) At birth
 (4) 1 year after birth
- 166.** Primary oocytes get arrested in
 (1) Prophase - I (2) Prophase - II
 (3) Metaphase - I (4) Metaphase - II
- 167.** First polar body is released with formation of -
 (1) Oogonia
 (2) Primary Oocyte
 (3) Secondary oocyte
 (4) Ovum
- 168.** Ovulation in the human female normally takes place during the menstrual cycle
 (1) at the mid secretory phase
 (2) just before the end of the secretory phase
 (3) at the beginning of the proliferative phase
 (4) at the end of the proliferative phase

- 169.** Match Column-I with Column-II and select the correct option from the codes given below.

	Column - I		Column - II
(A)	Acrosome	(i)	Rudimentary erectile tissue
(B)	Endometrium	(ii)	Uterus
(C)	Polar body	(iii)	Oogenesis
(D)	Clitoris	(iv)	Spermatozoan

- (1) A-(i), B-(ii), C-(iii), D-(iv)
 (2) A-(i), B-(ii), C-(iv), D-(iii)
 (3) A-(iv), B-(ii), C-(iii), D-(i)
 (4) A-(iv), B-(iii), C-(i), D-(ii)
- 170.** Why do all copulations not lead to fertilisation and pregnancy? The root cause is _____.
 (1) Due to numerous sperms and one ovum
 (2) Due to less progesterone
 (3) Ovum and sperms are not transported simultaneously to the ampullary-isthmic junction
 (4) Due to non-formation of corpus luteum
- 171.** Match the column:
- | | Column A | | Column B |
|----|--------------------|------|---|
| A. | Primary follicle | i. | Follicle with a layer of granulosa cells |
| B. | Secondary follicle | ii. | Follicle with more layer of granulosa cells & new theca |
| C. | Tertiary follicle | iii. | Follicle with fluid filled cavity antrum |
- (1) ABC/i, ii, iii (2) ABC/ii, i, iii
 (3) ABC/iii, i, ii (4) ABC/iii, ii, i
- 172.** 'Norplant' is the new form of birth control and it
 (1) Allows ovulation and fertilization
 (2) Makes the cervical mucus thin making sperm entry into the uterus easy
 (3) Has progestin as the active ingredient
 (4) Is effective for a maximum of one year
- 173.** Layers of an ovum from outside to inside is
 (1) corona radiata, zona pellucida and vitelline membrane
 (2) zona pellucida, corona radiata and vitelline membrane
 (3) vitelline membrane, zona pellucida and corona radiata
 (4) zona pellucida, vitelline membrane and corona radiata.

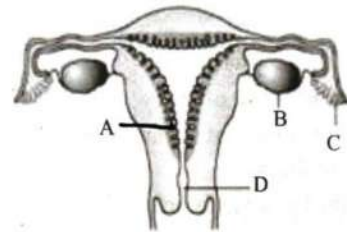
174. Diagrammatic sectional views of a seminiferous tubules is given. Identify the Sertoli cells.



- (1) B (2) D
(3) A (4) C
175. Mitochondria of sperm is near to
(1) Proximal centriole
(2) Distal centriole
(3) Acrosome
(4) Nucleus
176. Which of the following can be included under emergency contraception?
(1) An antiprogestosterone pill
(2) Insertion of IUD within 72 hours of unprotected sexual contact
(3) Both (1) and (2)
(4) Vasectomy
177. Which of the following contraceptive devices also protects against sexually transmitted diseases?
(1) Female Condom (2) Sponge
(3) IUDs (4) LNG-20
178. Most of the sexually transmitted diseases are completely curable if detected early and treated properly, except
(1) Hepatitis-B (2) Genital herpes
(3) HIV infections (4) All of these
179. Mark the incorrect statements
1. Castration is a method of contraception
2. MTPs have a significant role in decreasing the size of population, so it is legal.
3. Amniocentesis for sex determination is banned in our country
4. Nearly 45 to 50 million MTPs are performed in a year all over the world
(1) 1 & 2 only (2) 3 & 4 only
(3) 1, 2 & 3 (4) 1, 2, 3 & 4
180. Population growth rate depends upon
(1) Birth rate (2) Death rate
(3) Age-sex ratio (4) All of these
181. Insertion of Cu Releasing IUD within 72 hours of unprotected sex is aimed at
(1) Suppressing sperm motility
(2) Preventing implantation of embryo
(3) Inhibiting ovulation
(4) Causing negative feedback for progesterone

182. *In vivo* fertilisation of gametes will not be possible if the couple has opted for
(1) GIFT (2) ZIFT
(3) ICSI (4) None of these
183. The signals for parturition originate from the fully developed foetus and the placenta which induce mild uterine contractions called foetal ejection reflex. This is triggered by
(1) The foetus deep into cervix
(2) Continuous nutrient supply to foetus till its release from body
(3) Release of oxytocin from the maternal pituitary
(4) Constriction in the blood vessels of umbilical cord before the release of foetus making it ready for independent respiration

184. Diagrammatic view of female reproductive system is given. Select the option with incorrect function/feature.




- (1) C – Finger like projections that help the uterus to collect to ovum.
(2) A – Rich in smooth muscles.
(3) D – It is the part of birth canal.
(4) B – Site for oogenesis.
185. Female reproductive system is located in:
(1) Pelvic region (2) Pectoral region
(3) Scapular region (4) Femoral region.

SECTION-B

(ATTEMPT ANY 10 QUESTIONS)

186. Secretions of _____ helps in _____
(1) Prostate, providing acidic conditions to semen.
(2) Bulbovestibular gland, alkalinity to semen
(3) Seminal vesicle, lubrication of penis
(4) Bulbourethral gland, lubrication of penis
187. Fallopian tube is made up of 3 parts (uterus to ovary)
(1) Ampulla, isthmus, infundibulum
(2) Isthmus, ampulla, infundibulum
(3) Infundibulum, ampulla, isthmus
(4) Ampulla, infundibulum, isthmus
188. 1st polar body is formed at which stage of oogenesis?
(1) 1st meiosis (2) 2nd mitosis
(3) 1st mitosis (4) Differentiation

- 189.** Select the correct statements:
- Oogenesis is initiated at the age of puberty
 - Oogenesis is initiated during embryonic development
 - When theca layer organized into theca externa & interna, at the same time primary oocyte completes its first meiotic division
 - Oogenesis results into formation of 4 ova
- (1) Only (a) & (b) (2) Only (b) & (c)
 (3) Only (c) & (d) (4) Only (b)
- 190.** Which of the following statement is/are correct about diaphragms, cervical caps and vaults?
- Barrier methods of contraception
 - Cover the cervix during coitus
 - Releases progesterone
 - They are reusable
- (1) A & B only (2) A, B & C
 (3) A, B & D (4) A, B, C & D
- 191.** All of the following statements about ZIFT are correct, but one is wrong. Which one is wrong?
- It is zygote intra fallopian transfer
 - Zygote is transferred into the fallopian tube after IVF
 - Early embryos upto 8 blastomeres can also be transferred into the fallopian tubes
 - Embryos with more than 8 blastomeres are also transferred into the fallopian tubes
- 192.** MTP or induced abortion is
- Legalised method with some strict conditions to avoid its miscues.
 - Safe if carried out within 12 weeks of pregnancy
 - Done with the help of anti-progesterone drugs
- Correct option is**
- (1) A only (2) A & B only
 (3) C only (4) A, B & C
- 193.** 1/5th of the total number of conceived pregnancies are lost every year, all over the world due to
- Failure of sterilisation operations
 - Complications of STDs
 - Voluntary termination
 - Weak health of mothers
- 194.** Lactational amenorrhoea serves as a means of contraception due to
- Enzymatic changes in endometrium
 - Check on level rise of FSH and LH by high content of prolactin in blood
 - Permanent stop of periodic cycles
 - Degeneration of developing oocytes in ovary
- 195.** The movement of excretory wastes from foetal circulation to maternal circulation occurs by
- Active transport
 - Facilitated diffusion
 - Simple diffusion
 - Co-transport
- 196.** Problem of infertility that arises in male due to oligospermia, azoospermia or astheno-zoospermia can be overcome by
- IUT
 - ZIFT
 - ICSI
 - None of these
- 197.** Given below is the structure of ovum, surrounded by few sperms. Identify the structure labelled as A, along with the type of membrane it represents.
- 
- (1) A – Ovarian Cortex
 (2) A – Zona pellucida, primary membrane
 (3) A – Corona radiata
 (4) A – Ovarian Periphery
- 198.** Consider the following statements with certain blanks. Find out the option which correctly fills up these blanks.
- MTP was legalized in India in ___a___
 - MTPs are considered relatively safe up to ___b___ of pregnancy
 - Inability to conceive or produce children even after ___c___ of unprotected sexual cohabitation is called infertility
 - At the time of independence, India's population was ___d___
- (1) a-1971, b-12 weeks, c-2 years, d-1 billion
 (2) a-1951, b-12 weeks, c-2 years, d-350 million
 (3) a-1971, b-12 weeks, c-2 years, d-350 million
 (4) a-1951, b-20 weeks, c-5 years, d-1 billion
- 199.** After implantation, finger like projections called chorionic villi are formed by
- Trophoblast
 - Maternal blood
 - Inner cell mass
 - Uterine tissue
- 200.** If both ovaries are removed after the first trimester, there would be normal growth of foetus because
- Maternal ovary secretes sufficient progesterone
 - Placenta secretes sufficient progesterone
 - Uterine myometrium secretes sufficient progesterone
 - Foetal ovary secretes sufficient progesterone

PHYSICS

ANSWERS

Section-A

1. (2)
2. (2)
3. (3)
4. (3)
5. (1)
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7. (3)
8. (1)
9. (4)
10. (2)
11. (1)
12. (1)
13. (2)
14. (2)
15. (3)
16. (4)
17. (2)
18. (2)
19. (1)
20. (1)
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22. (4)
23. (2)
24. (4)
25. (1)
26. (2)

27. (4)
28. (4)
29. (3)
30. (3)
31. (2)
32. (1)
33. (3)
34. (1)
35. (3)

Section-B

36. (4)
37. (1)
38. (1)
39. (2)
40. (2)
41. (4)
42. (1)
43. (3)
44. (2)
45. (1)
46. (3)
47. (3)
48. (2)
49. (2)
50. (3)

CHEMISTRY

ANSWERS

Section-A

- 51. (2)
- 52. (1)
- 53. (4)
- 54. (4)
- 55. (2)
- 56. (2)
- 57. (3)
- 58. (1)
- 59. (2)
- 60. (4)
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- 62. (2)
- 63. (3)
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- 73. (1)
- 74. (4)
- 75. (1)
- 76. (4)

- 77. (2)
- 78. (2)
- 79. (3)
- 80. (3)
- 81. (3)
- 82. (2)
- 83. (2)
- 84. (2)
- 85. (2)

Section-B

- 86. (2)
- 87. (3)
- 88. (1)
- 89. (1)
- 90. (1)
- 91. (3)
- 92. (2)
- 93. (4)
- 94. (3)
- 95. (4)
- 96. (3)
- 97. (3)
- 98. (3)
- 99. (2)
- 100. (3)

BOTANY

ANSWERS

Section-A

- 101. (1)
- 102. (1)
- 103. (4)
- 104. (1)
- 105. (4)
- 106. (3)
- 107. (3)
- 108. (4)
- 109. (3)
- 110. (3)
- 111. (3)
- 112. (2)
- 113. (2)
- 114. (2)
- 115. (1)
- 116. (1)
- 117. (3)
- 118. (3)
- 119. (1)
- 120. (1)
- 121. (4)
- 122. (3)
- 123. (3)
- 124. (1)
- 125. (4)
- 126. (4)

- 127. (1)
- 128. (4)
- 129. (2)
- 130. (4)
- 131. (4)
- 132. (1)
- 133. (4)
- 134. (4)
- 135. (1)

Section-B

- 136. (3)
- 137. (1)
- 138. (4)
- 139. (3)
- 140. (1)
- 141. (3)
- 142. (4)
- 143. (3)
- 144. (4)
- 145. (4)
- 146. (2)
- 147. (4)
- 148. (4)
- 149. (1)
- 150. (3)

ZOOLOGY

ANSWERS

Section-A

- 151. (1)
- 152. (3)
- 153. (3)
- 154. (4)
- 155. (3)
- 156. (2)
- 157. (1)
- 158. (3)
- 159. (2)
- 160. (3)
- 161. (3)
- 162. (2)
- 163. (3)
- 164. (3)
- 165. (2)
- 166. (1)
- 167. (3)
- 168. (4)
- 169. (3)
- 170. (3)
- 171. (1)
- 172. (3)
- 173. (1)
- 174. (4)
- 175. (2)
- 176. (3)

- 177. (1)
- 178. (4)
- 179. (1)
- 180. (4)
- 181. (1)
- 182. (3)
- 183. (3)
- 184. (2)
- 185. (1)

Section-B

- 186. (4)
- 187. (2)
- 188. (1)
- 189. (2)
- 190. (3)
- 191. (4)
- 192. (4)
- 193. (3)
- 194. (2)
- 195. (3)
- 196. (3)
- 197. (3)
- 198. (3)
- 199. (1)
- 200. (2)