

R.K.MEMORIAL SR. SEC. SCHOOL
HOLIDAYS' HOME WORK (2020-2021)
CLASS – XII (A)

SUBJECT – PHYSICS

Assignment I
Section A

1. If Coulomb's Law involved $1/r^3$ dependence (instead of $1/r^2$), would Gauss law be still true? Why? 1
2. Plot a graph showing the variation of resistance of a conducting wire as a function of its length, keeping the radius of the wire and its temperature as constant. 1
3. How will you obtain a resistance of $(11/5) \Omega$ from the resistances of 1Ω , 2Ω and 3Ω ? 1
4. A narrow beam of protons and alpha particle, each having the same momentum, enters a region of uniform magnetic field directed perpendicular to their direction of momentum. What would be the ratio of the radii of circular paths described by them? 1

Section B

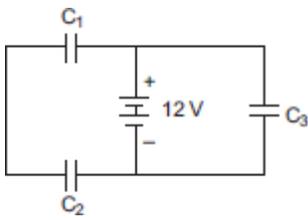
5. Eight identical point charges $1\mu\text{C}$ each are placed at the corners of a cube of each side 0.1 m . Calculate the electric field at the centre if one of the corner charge is removed. 2
6. How does electric field and electric potential due to a point charge vary with the distance from the point charge? Draw a single graph to show the relationship. 2
7. A wire of 15Ω resistance is gradually stretched to double its original length. It is then cut into two equal parts. These parts are then connected in series across a 3 volt battery. Find the current drawn from the battery. 2

Section C

8. Using Gauss's law obtain the expression for the electric field due to an infinite thin sheet of charge. Draw a graph showing the variation of electric field. 3
9. Three identical capacitors C_1 , C_2 and C_3 of capacitance $6 \mu\text{F}$ each are connected to a 12 V battery as shown. 3

Find:

- (i) charge on each capacitor
- (ii) equivalent capacitance of the network
- (iii) energy stored in the network of capacitors



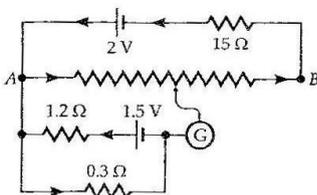
10. State the principle and theory of Cyclotron giving its labelled diagram. 3
11. Derive an expression for the force experienced by two parallel current carrying wires carrying in same direction and hence define one ampere. 3

Section D

12. (a) Suresh purchased a second hand motor bike and he fixed 6 V dry cell battery to start it but could not start the bike. His friend Varun told him that a simple 6V dry cell battery will not work because its internal resistance is more and it cannot give a desired current of 30 A to switch on the spark plug .Varun suggested that Suresh should use a lead acid battery of 6 V. Suresh accepted his suggestion and got fitted a lead acid battery and his problem was solved. 3
- (a) What values were shown by Varun
- (b) If the internal resistance of dry cell battery is 0.5Ω , what maximum current can it provide to the spark plug circuit? Given that resistance offered by spark plug is $20 \text{ m}\Omega$.
- (c) If internal resistance of lead acid battery is 0.01Ω , what maximum current can it provide to the spark plug?

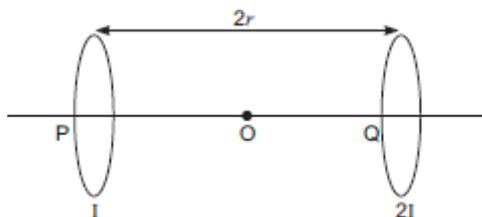
Section E

13. (a) State the principle of potentiometer. Explain how it is used to find the internal resistance of a cell. 5
- (b) AB is 1 metre long uniform wire of 10Ω resistances. Other data are as shown in figure. Calculate length when galvanometer shows no deflection.



14. (a) A long straight wire in the horizontal plane carries a current of 50A in the north to south direction. Give the magnitude and direction of B at a point 2.5 m east of the wire. 5
- (b) Two identical circular loops, P and Q, each of radius r and carrying currents I and 2I respectively are lying in parallel planes such that they have a common axis. The direction of current in both the loops is clockwise as seen from O which is equidistant from the both loops. Find the magnitude of the net magnetic field at

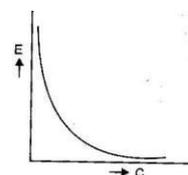
point O.



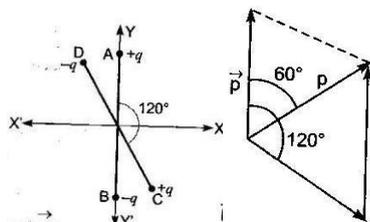
Assignment II

Based on unit 1-electrostatics

1. An electrostatic field line is a continuous curve. That is, a field line cannot have sudden breaks. Why not?
2. Describe schematically equipotential surfaces corresponding to
 - (a) A constant electric field in z- direction.
 - (b) A field that uniformly increases in magnitude but remains in a constant (say z-) direction.
 - (c) A single positive charge at the origin.
3. Vehicles carrying inflammable materials usually have metallic ropes touching the ground during motion. Why?
4. A bird perches on a bare high power line and nothing happens to the bird. A man standing on the ground touches the same line and gets a fatal shock. Why?
5. The graph shown here shows the variation of total energy (E) stored in a capacitor against the value of the capacitance (C) itself. Which of the two: the charge on capacitor or the potential used to charge it is kept constant for this graph?

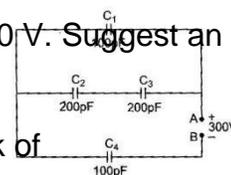


6. Two small identical electrical dipoles AB and CD, each of dipole moment 'p' are kept at an angle of 120° as shown in the figure. What is the resultant dipole moment of this combination? If this system is subjected to electric field (\vec{E}) directed along + X direction, what will be the magnitude and direction of the torque acting on this?

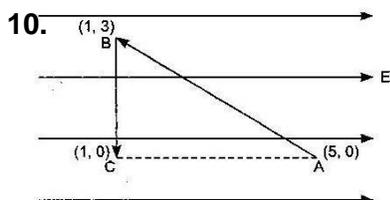


7. A charge 8 mC is located at the origin. Calculate the work done in taking a small charge of -2×10^{-9} C from a point A (0, 0, 3 cm) to a point B (0, 4 cm, 0) via point C (0, 6 cm, 9 cm).
8. An electrical technician requires a capacitance of $2 \mu\text{F}$ in a circuit across a potential difference of 1 kV. A large number of $1 \mu\text{F}$ capacitors are available to him, each of

which can withstand a potential difference of not more than 400 V. Suggest an arrangement that requires a minimum number of capacitors.



9. (a) Obtain the equivalent capacitance of the following network of capacitors.
 (b) For a 300 V supply, determine the charge and voltage across each capacitor.

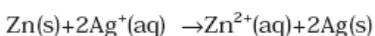


A test charge 'q' is moved without acceleration from A to C along the path from A to B and then from B to C in electric field E as shown in the figure. (i) Calculate the potential difference between A and C. (ii) At which point (of the two) is the electric potential more and why?

CHEMISTRY

Class XII Assignment Electrochemistry Assignment

- Differentiate between Galvanic cell and electrolytic cell
- How would you determine the standard electrode potential of the system $Mg^{2+}|Mg$
- Depict the galvanic cell in which the reaction takes place. Further show:



(i) Which of the electrode is negatively charged? (ii) The carriers of the current in the cell. (iii) Individual reaction at each electrode.

- How is electrode potential different from cell potential
- Describe the construction and working of standard hydrogen electrode.
- What is the purpose of salt bridge placed between two half cells of a galvanic cell?
- Give the representation of the Daniel cell.
- Define resistivity and conductivity.
- What is cell constant? How is it determined?
- What are the problems faced in measuring R of ionic solutions and how are they overcome
- Differentiate between metallic and electrolytic conduction.
- Define the terms conductivity and molar conductivity for solution of an electrolyte. Discuss their variation with concentration.
- What is the unit of molar conductivity?
- What is limiting molar conductivity?
- Describe the characteristics of variation of molar conductivity with dilution for a) strong electrolyte b) weak electrolyte. (or) With the help of a graph explain why it is not possible to determine the limiting molar conductivity for a weak electrolyte by extrapolating the concentration-molar conductance curve as for strong electrolytes. (or) Express the relationship between degree of dissociation of an electrolyte and its molar conductivities.
- How is molar conductivity of a weak electrolyte at infinite dilution determined? (or) State Kohlrausch's Law. Write two applications.
- How will you determine Λ_m^0 for water
- State Faraday's Laws of Electrolysis.
- What is the difference between primary cell and secondary cell?
- Describe the Leclanche cell with reference to electrodes used and reactions occurring at

electrodes.

- Describe the composition of anode and cathode in mercury cell. Write the electrode reactions
- Write the cell reactions which occur in lead storage battery when battery is in use and when it is on charging
- What is the reaction taking place in Nickel cadmium cell?
- What are fuel cells? Suggest two materials other than hydrogen that can be used as fuels in fuel cell.
- Describe the hydrogen fuel cell.
- Rusting is an electrochemical process. Explain.
- How can corrosion be prevented?
- Account for the following
 - Rusting of iron is quicker in saline water than in ordinary water.
 - Alkaline medium inhibits the rusting of iron.
 - Iron does not rust even if zinc coating is broken in a galvanized iron pipe.
- Predict the products of electrolysis in each of the following:
 - An aqueous solution of AgNO_3 with silver electrodes.
 - An aqueous solution of AgNO_3 with platinum electrodes.
 - A dilute solution of H_2SO_4 with platinum electrodes.
 - An aqueous solution of CuCl_2 with platinum electrodes.
- Standard reduction potentials are given below
 $\text{F}_2/\text{F}^- = +2.9\text{V}$, $\text{Ag}^+/\text{Ag} = -0.8\text{V}$, $\text{Cu}^+/\text{Cu} = +0.5\text{V}$, $\text{Fe}^{2+}/\text{Fe} = -0.4\text{V}$, $\text{Na}^+/\text{Na} = -2.7\text{V}$,
 $\text{K}^+/\text{K} = -2.9\text{V}$
 - Arrange oxidizing agents in order of increasing strength
 - Which will oxidize Cu to Cu^+ under standard conditions
- Can you store copper sulphate solutions in a zinc pot?
- Given the standard electrode potentials,
 $\text{K}^+/\text{K} = -2.93\text{V}$, $\text{Ag}^+/\text{Ag} = 0.80\text{V}$,
 $\text{Hg}^{2+}/\text{Hg} = 0.79\text{V}$
 $\text{Mg}^{2+}/\text{Mg} = -2.37\text{V}$, $\text{Cr}^{3+}/\text{Cr} = -0.74\text{V}$
Arrange these metals in their increasing order of reducing power.
- Arrange the following metals in the order in which they displace each other from the solution of their salts. Al, Cu, Fe, Mg and Zn.
- Why is it necessary to platinize the electrodes of a conductivity cell before it is used for conductance measurement?
- Suggest a list of metals that are extracted electrolytically.

EXTRA

- Define the term – standard electrode potential?
- What is electromotive force of a cell?
- Can an electrochemical cell act as electrolytic cell? How?
- Single electrode potential cannot be determined. Why?
- What is an electrochemical series? How does it predict the feasibility of a certain redox reaction?
- Give some uses of electrochemical cells?
- What is meant by Faraday's constant?
- A Leclanche cell is also called dry cell. Why?
- Why is the voltage of a mercury cell constant during its working?
- Name two metals than can be used for cathodic protection of iron

Numericals for Practice

- The conductivity of an aq. Solution of NaCl in a cell is $92 \times 10^{-4} \text{ ohm}^{-1}\text{cm}^{-1}$. The resistance offered by the cell is 247.8 ohm . Calculate the cell constant for the cell. ($2.28/\text{cm}$)
- The conductivity of a solution containing 1g of anhydrous BaCl_2 in 200 cm^3 of the solution is found to be 0.0058 S/cm . Calculate the molar conductivity of the solution. ($\lambda_m = 241.28 \text{ Scm}^2/\text{mol}$)
- The resistance of a 0.01 M solution of KCl is 100Ω at 298 K . Calculate (i) conductance (ii) conductivity (iii) resistivity (10^{-2} , 10^{-2} , 100) $G^* = 1 \text{ cm}^{-1}$
- 0.5 molar solution of a salt placed between platinum electrodes 2 cm apart and each of area of cross section 4 cm^2 has a resistance of 25Ω . Calculate λ_m . (40)
- Calculate the molar conductivity at infinite dilution of AgCl from the following data. $\Lambda^\circ_m \text{ AgNO}_3 = 133.4$, $\Lambda^\circ_m \text{ KCl} = 149.9$, $\Lambda^\circ_m \text{ KNO}_3 = 144.9 \text{ Scm}^2/\text{mol}$ ($138.45 \text{ Scm}^2/\text{mol}$)
- The conductivity of 0.001 M acetic acid is $4.95 \times 10^{-5} \text{ S/cm}$. Calculate the dissociation constant. $\Lambda^\circ_m = 90.5 \text{ Scm}^2/\text{mol}$. (1.85×10^{-5})
- At 18°C , the conductivities at infinite dilution of NH_4Cl , NaOH and NaCl are 129.8 , 217.4 and $108.9 \text{ Scm}^2/\text{mol}$. If the equivalent conductivity of $n/100$ solution of NH_4OH is $9.93 \text{ Scm}^2/\text{eq}$, Calculate the degree of dissociation and dissociation constant at this dilution. (4.17% , 1.8×10^{-5})

8. Construct the cells in which the following reactions are taking place. Which of the electrodes act as anode and which as cathode?
 - i) $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$
 - ii) $\text{Cu} + 2\text{AgNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + 2\text{Ag}$
 - iii) $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$
 - iv) $\text{Fe} + \text{SnCl}_2 \rightarrow \text{FeCl}_2 + \text{Sn}$
9. Calculate the electrode potential at a copper electrode dipped in a 0.1 M solution of copper sulphate at 25°C. The standard electrode potential of Cu^{2+}/Cu system is 0.34 V (0.31V)
10. What is a single electrode potential of a half cell for zinc electrode dipping in 0.01M zinc sulphate solution at 25°C. The standard electrode potential of Zn/Zn^{2+} system is 0.763 V. (0.8221V)
11. Calculate the emf of the cell. $\text{Mg}/\text{Mg}^{2+}(1\text{M})||\text{Ag}^+(0.001\text{M})|\text{Ag}$ $E^\circ_{\text{Ag}^+/\text{Ag}} = 0.8\text{V}$; $|E^\circ_{\text{Mg}^{2+}/\text{Mg}} = -237\text{V}$. What will be the effect on emf if concentration of Mg^{2+} is decreased to 0.1M? (3.013V; 3.022V)
12. To find the standard potential of M^{3+}/M electrode, the following cell is constituted. $\text{Pt}|\text{M}/\text{M}^{3+}(0.00018\text{M})||\text{Ag}^+(0.01\text{M})|\text{Ag}$. The emf of this cell is found to be 0.42V. Calculate the standard potential of the half reaction $\text{M}^{3+} + 3\text{e}^- \rightarrow \text{M}$ $E^\circ_{\text{Ag}^+/\text{Ag}} = 0.8\text{V}$ (0.32V)
13. A zinc rod is dipped in 0.1M solution of ZnSO_4 . The salt is 95% dissociated at this dilution at 298 K. Calculate the electrode potential given that $E^\circ_{\text{Zn}^{2+}/\text{Zn}} = -0.76\text{V}$ (-0.79V)
14. One half in a voltaic cell is constructed from a silver wire dipped in silver nitrate solution of unknown concentration. The other half cell of zinc electrode in 0.10M solution of $\text{Zn}(\text{NO}_3)_2$. A voltage of 1.48 is measured for this cell. Use this information to calculate the concentration of silver nitrate solution. $E^\circ_{\text{Zn}^{2+}/\text{Zn}} = -0.763\text{V}$; $E^\circ_{\text{Ag}^+/\text{Ag}} = 0.8\text{V}$ (0.0124M)
15. Calculate the pH of the half cell $\text{Pt}(\text{H}_2)1\text{atm}/\text{H}_2\text{SO}_4$, its oxidation potential is 0.4V (6.77)
16. Calculate the cell potential of the following concentration cell. $\text{PtH}_2(2\text{atm})|\text{H}^+(0.1\text{M})||\text{H}^+(0.3\text{M})|\text{H}_2(4\text{atm})$ (0.019V)
17. For the reaction $\text{Ni}/\text{Ni}^{2+}||\text{Ag}^+|\text{Ag}$ $E^\circ_{\text{Ni}^{2+}/\text{Ni}} = -0.25\text{V}$; $E^\circ_{\text{Ag}^+/\text{Ag}} = 0.8\text{V}$. Calculate the equilibrium constant at 25°C. How much maximum work can be obtained by the operation of the cell? (3.98×10^{35} , 202650J)
 18. Estimate the minimum potential difference needed to reduce Al_2O_3 at 500°C. The free energy for decomposition reaction $2/3 \text{Al}_2\text{O}_3 \rightarrow 4/3 \text{Al} + \text{O}_2$ is 960KJ/mol. (2.847V)
19. How many molecules of chlorine will be liberated by electrolysis of an aqueous solution of NaCl in 1 minute by a current of 600mA?
20. How many hours does it take to reduce 3 moles of Fe^{3+} to Fe^{2+} with a 2 ampere current?
21. A current of 100 ampere is passed through a molten solution of molten NaCl for 5 hours. Calculate the volume of chlorine gas liberated at the anode at NTP?

p Block Elements

Group 15 Elements

Give Reasons

1. Group 15 elements are stable
2. From As to Bi, only small increase is seen in covalent radii.
3. Group 15 elements have IE greater than group 14 elements of corresponding periods.
4. Metallic character increases down the group.
5. Tendency to show - 3 oxidation state decreases down the group.
6. Stability of + 5 oxidation state decreases down the group while that of +3 increases
7. Nitrogen is restricted to covalency 4.
8. Heavier elements of group 15 can expand their covalency
9. Nitrogen shows anomalous properties. (or) The reactivity of nitrogen differs from that of phosphorous
10. Nitrogen can form multiple $\text{p}\pi - \text{p}\pi$ bonds.
11. Nitrogen occurs as diatomic molecule with $\text{N} \equiv \text{N}$ while phosphorous exists as P_4 .
12. $\text{Bi}(\text{v})$ is a stronger oxidizing agent than Bi or $\text{Sb}(\text{v})$
13. In the structure of HNO_3 , the N-O bond (121 pm) is shorter than N-OH bond (140 pm)
14. Heavier elements of group 15 do not show $\text{p}\pi - \text{p}\pi$ bonds.
15. Bond enthalpy of N_2 is very high.

16. Single N – N bond is weaker than P – P bond
17. Nitrogen does not show catenation property.
18. Stability of hydrides decreases from NH_3 to BiH_3 .
19. Reducing property increases from NH_3 to BiH_3
20. Basicity increases from NH_3 to BiH_3 . (or) NH_3 is basic while PH_3 is weakly basic.
21. Acidity decreases from NH_3 to BiH_3
22. N does not form pentahalides.
23. Only NF_3 trihalide is known.
24. PH_3 has lower boiling point than NH_3 . (or) NH_3 forms hydrogen bond while PH_3 does not.
25. N_2 is less reactive than P_4 .
26. NH_3 has high MP and BP in liquid and solid state.
27. NH_3 acts as a lewis base.
28. NH_3 is used in detection of metal ions.
29. NO_2 dimerises.
30. Bond angle in PH_4^+ is higher than in PH_3
31. All 5 bonds in PCl_5 are not equivalent.
32. Hypophosphorous acid is a good reducing agent.
33. H_3PO_3 is dibasic while H_3PO_4 is tribasic.
34. HNH angle is higher than HPH, HAsH, HSbH.
35. $\text{R}_3\text{P}=\text{O}$ exist but $\text{R}_3\text{NP}=\text{O}$ does not.
36. White phosphorous is more reactive than other allotropic forms. Red phosphorous is less reactive than white phosphorous.
37. Pentahalides are more covalent than trihalides.
38. The N-O bond in NO_2^- is shorter than N-O bond in NO_3^-
39. In the structure of HNO_3 molecule the N-O bond (121pm) is shorter than N-OH bond (140pm)

NCERT Exercise

1. Discuss the general characteristic of group 15 elements with reference to electronic configuration, oxidation state, atomic size, ionisation enthalpy and electronegativity.
2. Discuss the trends in the chemical reactivity of group 15 elements
3. How is nitrogen prepared in the laboratory. Write the chemical equations of the reactions involve
4. Write the main differences between the properties of white phosphorous and red phosphorous.
5. How is ammonia manufactured industrially
6. Give the disproportionation reaction of H_3PO_3 . (or) What happens when H_3PO_3 is heated?
7. Can PCl_5 act as an oxidizing as well as a reducing agent
8. Illustrate how copper metal can give different products on reaction with HNO_3
9. Write the reaction of thermal decomposition of sodium azide.
10. How does ammonia react with Cu^{2+}
11. What is the covalence of nitrogen in N_2O_5 .
12. In what way can it be proved that PH_3 is basic in nature?
13. What happens when white phosphorous is heated with concentrated NaOH solution in an inert atmosphere of CO_2 ?
14. Why does PCl_3 fume in moisture?
15. What happens when PCl_5 is heated?
16. Write a balanced equation for hydrolytic reaction of PCl_5 in heavy water.

Group 16 Elements

Give Reasons

1. Elements of group 16 show lower value of first IE compared to corresponding elements of group 15.
2. Oxygen has less electron gain enthalpy than sulphur.
3. Oxygen and sulphur show great differences in MP and BP.
4. Stability of + 6 oxidation state decrease down the group while that of +4 increases
5. Oxygen shows only – 2 oxidation state.

- H₂O shows hydrogen bonding but not H₂S.
- Oxygen is limited to covalency of 4.
- Acidic character increases from H₂O to H₂Te. (or) Reducing property increases from H₂S to H₂Te.
- Thermal stability decreases from H₂O to H₂Te.
- H₂S is a gas H₂O is a liquid.
- O₂ and S₂ are paramagnetic in nature.
- To initiate the reaction of oxygen with other elements, some external heating is required.
- Silent discharge is used for conversion of O₂ to O₃. (or) O₃ can be dangerously explosive.
- O₃ is a powerful oxidizing agent.
- Care must be taken when H₂SO₄ is diluted.
- Dioxygen is a gas while sulphur is a solid.
- SO₂ is an air pollutant.
- Stability of – 2 oxidation state decreases from S to Po
- K_{a2} << K_{a1} for H₂SO₄ in water.
- SO₂ is a reducing as well as oxidizing agent.
- Electron gain enthalpy of sulphur atom has a greater negative value than oxygen atom.
- SF₆ is a kinetically stable molecule.

NCERT EXERCISES.

- List the important sources of sulphur.
- Write the order of thermal stabilities of hydrides of group 16 elements.
- Which of the following does not react with oxygen directly? Zn, Ti, Pt, Fe
- Complete the following reactions.
 - C₂H₄ + O₂ →
 - 4Al + 3O₂ →
- Which form of sulphur shows paramagnetic behaviour?
- Why does O₃ act as a powerful oxidizing agent?
- How is O₃ estimated quantitatively?
- What happens when sulphur dioxide is passed through an Aqueous solution of Fe(III) Salt?
- How is the presence of SO₂ detected?
- Comment on the nature of two S – O bonds formed in SO₂ molecule? Are the two S – O bonds in SO₂ molecule equal?
- Describe the manufacture of H₂SO₄ by contact process. Write the conditions to maximize the yield of H₂SO₄.
- Justify the placement of O, S, Se, Te and Po in the same group of the periodic table in terms of configuration, oxidation state and hydride formation.
- Mention three areas where H₂SO₄ plays an important role.
- What happens when
 - Conc H₂SO₄ is added to calcium fluoride
 - SO₃ is passed through water.
- Which aerosols delete ozone?
- Knowing the electron gain enthalpy values of O → O⁻ and O → O²⁻ as -141 kJ/mol and 702 kJ/mol respectively, how can you account for large number of oxides having O²⁻ and not O⁻ ?
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Group 17 Elements Give Reasons

1. Halogens have smallest ionic radii in respective periods.
2. Halogens have maximum negative electron gain enthalpy.
3. Halogens have maximum negative electron gain enthalpy in the corresponding periods.
4. Fluorine has less electron gain enthalpy than chlorine.
5. Halogens are coloured.
6. Bond enthalpy of fluorine is lower than that of chlorine
7. Hydrogen fluoride is a liquid while all other hydrogen halides are gases.
8. Most reactions of fluorine are exothermic.
9. Fluorine shows anomalous behaviour.
10. The acidic strength increases in the order of $\text{HF} < \text{HCl} < \text{HBr} < \text{HI}$.
11. The thermal stability decreases in the order of $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$.
12. Oxides of fluorine are oxygen fluorides than fluoro oxides.
13. Chlorine has oxidizing and bleaching action. Or Bleaching by chlorine is permanent.\
14. Chlorine on standing loses its yellow colour
15. HCl reacts with finely powdered iron to give FeCl_2 and not FeCl_3 .
16. Fluorine forms only one oxoacid.
17. Inter halogen compounds are diamagnetic in nature.
18. Inter halogen compounds are more reactive than halogens. Or ICl is more reactive than I_2 .
19. Iodine (VII) fluoride has maximum number of atoms.
20. Halogens are strong oxidizing agents
21. Oxygen forms hydrogen bonds while chlorine does not.
22. Fluorine does not play role of central atom in interhalogen compounds..
23. ClO_2 does not have tendency to dimerise.
24. Metal fluorides are more ionic than metal chlorides.
25. Perchloric acid is stronger than sulphuric acid
26. ClF_3 can exist but not FCl_3 .
27. Boiling point decreases in the order of $\text{HF} < \text{HCl} < \text{HBr} < \text{HI}$.
28. Fluorine is stronger oxidizing agent than chlorine.
29. Fluorine exhibits only -1 oxidation state.
30. Acidic property increases in the order $\text{PH}_3 < \text{H}_2\text{S} < \text{HCl}$

NCERT Exercise

1. Give two examples to show anomalous behaviour of fluorine.
2. Sea is the greatest source of some halogens.
3. Write the balanced chemical equation for the reaction of Cl_2 with hot and concentrated NaOH . Is it a disproportionation reaction? Also give the reaction of Cl_2 with Cold dilute NaOH.
4. Name two poisonous gases which can be prepared from chlorine gas.
5. Write two uses of ClO_2 ?
6. Write the reactions of F_2 and Cl_2 with water
7. How can you prepare Cl_2 from HCl and HCl from Cl_2 . Write the reactions only.
8. Write balanced equations for the following
 - (i) NaCl is heated with sulphuric acid in presence of MnO_2
 - (ii) Chlorine gas is passed through a solution of NaI in water
9. With what neutral molecule is ClO^- isoelectronic with? Is that molecule a Lewis base?
10. Arrange in the order of property indicated.
 - (i) $\text{F}_2, \text{Cl}_2, \text{Br}_2, \text{I}_2$ increasing bond dissociation enthalpy
 - (ii) $\text{HF}, \text{HCl}, \text{HBr}, \text{HI}$ increasing acid strength
 - (iii) $\text{NH}_3, \text{PH}_3, \text{AsH}_3, \text{SbH}_3, \text{BiH}_3$ increasing acid strength

Group 18 Elements

Give Reasons

1. Group 18 elements are called noble gases.
2. Noble gases low MP and BP.
3. Noble gases have high ionization energy.
4. Noble gases have high positive values of electron gain enthalpy.
5. Rn chemistry is difficult to study.

- Noble gases have large atomic size.
- Xe is able to form compounds with oxygen and fluorine.
- Xe cannot form XeF_3 and XeF_5 .
- Ne is used as warning signals.
- No chemical compound of He is known
- Helium is used in diving apparatus
- XeF_2 is a linear molecule

NCERT EXERCISE

- What prompted N. Barlett for carrying out reaction between Xe and PtF_6 ?
- How are XeF_2 , XeF_4 , XeF_6 prepared?
- How are XeO_3 , XeOF_4 prepared? What are products of hydrolysis of XeF_2 , XeF_4 , XeF_6 ?
- Does hydrolysis of XeF_6 lead to redox reaction?
- Give the formula and describe the structure of a noble gas species which is isostructural with (i) ICl_4^- (ii) IBr_2^- (iii) BrO_3^-
- List the uses of Neon and argon gases.

SUBJECT: ENGLISH

Que 1. Read chapters 1,2,3 and poem 1,2 of 'Flamingo' and Chapters 1 and 2 of 'Vistas'. Summarise them in your words (not more than 120 words) Also write the characters of each chapter separately.(not more than 60 words). Summaries must include theme, message and issues raised by the story of each chapter.

Que 2. Frame article in 150 to 200 words on the following topics.

- All that Matters is one's Attitude
- Worries of a Teenager
- Influence of Social Media

Que3. Write any 3 letters of complain, enquiry and editorial letters in fair notebook.

Que4. Frame posters on the following topics.

- Awareness towards Terrorism
- Raise Voice Against Domestic violence
- Organ Donation Camp

Que5. Frame two advertisements of each- Situation Vacant, Situation Wanted, Sale, Purchase, To-Let, Matrimony.

NOTE: Entire work is to be done in fair notebook.

Physical Education (048)

Note.(Q.no 1 to 5 very short) (Q.no 6 to 8 Short) (Q.9 to 10 Long) Do it in Your notebook.

Chapter 1. Planning in Sports.

- What do you mean by tournament?
- What is Special Seeding?
- What do you mean by league tournament?
- What is Health Run?
- What do you mean by combination Tournament?
- Discuss any two important role of tournaments?
- What do you mean by intramural and extramural tournaments?
- What are the advantage and disadvantage of knock out Tournament?
- Make a Knock out fixture of 17 teams with all steps included?
- Make a league fixture of 11 teams according to Round robin or cycle method?

Chapter 2. Sports and Nutrition.

1. What do you mean by Balance diet?
2. What is nutrition?
3. What is Food intolerance?
4. What do you mean by Macro minerals?
5. What is micro nutrients?
6. Discuss any four pitfalls of dieting?
7. Why we need food supplements and when?
8. What do you mean by Vitamin. Explain fat soluble and Water soluble vitamins?
9. What do you mean by macro nutrient explain any four of them?
10. What do you mean by healthy weight? And how we can maintain it.

Chapter 3. Yoga and Lifestyle.

1. What is yoga?
2. How many type of asana we have?
3. Name any four lifestyle diseases?
4. Name any three asana which prevent obesity?
5. What are the advantage of Vajarasana?
6. What are the common causes of Back pain?
7. Discuss prevention of Diabetes?
8. What type of diet could prevent Hypertension?
9. How can we protect Back pain?
10. How obesity can prevent through Yoga?

Chapter 4. Physical Education & Sports For CWSN (Children With Special Needs)

1. What do you mean by Disability?
2. What do you mean by Disorder?
3. What is intellectual Disability?
4. Define Disability Etiquette?
5. What do you mean by physical disability?
6. Explain ADHD in detail?
7. What is SPD explain its symptoms also?
8. What are the advantage of physical activities for CWSN?
9. Describe the type of disorders?
10. Explain the cause and Nature of disorder?

Chapter 5. Children & Women In Sports.

1. What do you mean by Motor development?
2. What is female athlete Trait?
3. What is gross motor development?
4. What is Osteoporosis?
5. What do you know about Infancy?
6. Explain Postural deformity and Name all the postural deformities?
7. Why the sports participation of women is less give your region?
8. What is Amenorrhea and explain its types also?
9. Discuss the factors of affecting motor development?
10. Discuss all the type of female athlete traits?

Chapter 6. Test and Measurement.

1. What do you mean by Test?
2. What is measurement?
3. What do you mean by flexibility?

4. Which test is used to check endurance power?
5. What is senior citizen test?
6. What is Rockport one mile test and why it is conducted?
7. What is Back scratch test explain in detail?
8. Explain in brief about Harvard step test?
9. Explain the administration of AAPHER youth fitness test?
10. Explain any four senior citizen tests?

Chapter 7. Physiology & Injuries IN Sports.

1. What is oxygen intake and uptake?
2. What is soft tissue injuries?
3. What do you mean by Hard tissue injuries?
4. What is cardio respiratory system?
5. What is ageing?
6. Explain in detail about all type of injuries?
7. What is PRICE therapy?
8. What physiological changes came due to ageing process?
9. Explain in details about the effects of exercise on muscular system?
10. Explain any five sports injuries?

Chapter 8. Biomechanics & Sports.

1. What do you mean by Biomechanics?
2. What is movement?
3. What is flexion movement?
4. What is pronation and supination?
5. What do you mean by static and dynamic friction?
6. Explain Friction in sports and its application?
7. Explain all the type of movements?
8. Friction is useful and harmful in sports explain?
9. What is the need of biomechanics in sports?
10. Explain Active and passive flexibility and active and dynamic flexibility?

Mathematics

Chapter:- Inverse trigo (From NCERT book)

Ex-2.1 Q.4 Q.5 Q.9 Q.11 Q.12 Q.14

Ex 2.2 Q3,Q.4 Q. 5,6,7,8,9,10 Q.11 Q.13 Q.15 Q.20

Miscellaneous Ex Q.3,Q.5Q.7Q.8 Q10 Q11 Q12Q.13

Extra question on chap 2 see in pdf on the group

Ex 3.1 Q4,Q.5 Q.6 Q.7 Q.9

Ex3.2 Q.4 Q.6 Q.7 Q12 Q.13 Q.15 Q.18 Q.19

Ex 3.3 Q.4 Q.5 Q.9 Q.12

Ex 3.4 Q.2 Q.6 Q.15 Q.16

Mis ex on chap3 Q1,2,3 Q.7 Q11

Extra Question on chap 3 see in pdf on group

Chapter 4 determinant

Ex4.1Q.2 Q4 Q6 all parts

Ex4.2 Q7,Q8 Q9 Q10 Q11,12,13

Ex4.3 Q.4 Q.5 with example

Ex 4.4 Q.13 Q.14 Q.15 Q16

Ex.4.5 Q.12 Q.14 Q.15 Q.16

Miss exercise chap 4 Q.4 Q.3 Q.6 Q.11,12,13,14,15 andQ.16

For additional Question of this chap see pdf on group

Chapter 10 vector

Ex 10.2Q.6,Q.7,Q.8 Q.9 Q.10 Q.15 Q.17 Ex.10.3Q1,2,4,8,10 Ex.10.4 Q.1,3,5,10

Ex10.5 Q,1,2,3,4,5

For additional question of this chap watch on pdf group.

SUBJECT- COMPUTER SCIENCE

- 1) **Make a Poster in MS-word/Ms-PowerPoint and showing benefits of "E-Transcations And Payments".**
- 2) **Make a Project in Python from any of the following Topics**
 - a) Customer Management System
 - b) Library Management System
 - c) Railway Management System
 - d) Airlines Management System
- 3) **Make a Program file which contains following Python Programs**

<i>S.No.</i>	<i>PROGRAMES</i>
1.	WAP TO FIND FACTORIAL OF A NUMBER USING RECURSION
2.	WAP TO PERFORM BINARY SEARCHING USING RECURSION
3.	WAP TO IMPLEMENT STACK AND PERFORM PUSH,POP AND DISPLAY OPERATION
4.	WAP TO IMPLEMENT QUEUE AND PERFORM INSERT, DELETE AND DISPLAY OPERATION
5.	WAP TO CREATE A NOTEPAD FILE FROM PYTHON PROGRAM AND STORE DATA IN IT

- 4) **Make a Database file which includes at least 25 MYSQL commands and should include following commands**

CREATE, SELECT, INSERT, ALTER, DELETE, DROP, ORDER BY, GROUP BY, IN, NOT IN, BETWEEN, LIKE, MYSQL FUNCTIONS

Check following links for references

- 1) https://www.youtube.com/playlist?list=PLKKfKV1b9e8oyESqu5mrGN-eDxHdNoi_j

<https://www.youtube.com/playlist?list=PL2fNQnSKhEooBwL41z5X4SO372jZOc14P>

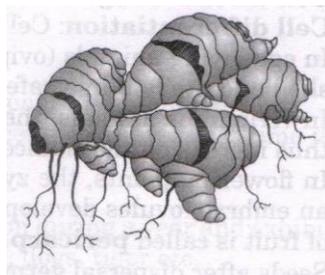
SUBJECT – BIOLOGY

DO all questions in a notebook.

ASSIGNMENT – 1 (Chapter – 1: Reproduction in Organism)

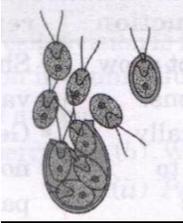
1. Write the name of the organism that is referred to as the 'Terror of Bengal'.
2. Why is *Eichhornia crassipes* nick named as Terror of Bengal?
3. Name the vegetative propagules in the following: (a) Agave (b) Bryophyllum
4. Mention the unique flowering phenomenon exhibited by *Strobilanthus kunthiana* (Neelakuranji).
5. State the difference between meiocytes and gamete with respect to chromosome number.
6. Mention the unique feature with respect to flowering and fruiting in bamboo species.
7. Name the type of cell division that takes place in the zygote of an organism exhibiting haplontic life cycle.
8. Name two animals that exhibit oestrous cycle.

9. Mention the site where syngamy occurs in amphibians and reptiles, respectively.
10. Name the phenomenon and the cell responsible for the development of a new individual without fertilization as is seen in honeybees.
11. Name the common phenomenon with reference to reproduction in rotifers, honeybees and turkey.
12. Cucurbits and papaya plants bear staminate and pistillate flowers. Mention the categories they are put under separately on the basis of the type of flower they bear.
13. Angiosperms bearing unisexual flowers are said to be either monoecious or dioecious. Explain with the help of one example each.
14. Explain the significance of meiocytes in diploid organisms.
15. What is the major difference you observe in the offsprings produced by asexual reproduction and in the progeny produced by sexual reproduction?
16. Why do algae and fungi shift to the sexual mode of reproduction just before the onset of adverse conditions?
17. The coconut palm is monoecious, while date palm is dioecious. Why are they called so?
18. A moss plant is unable to complete its life-cycle in a dry environment. State two reasons.
19. Explain the importance of syngamy and meiosis in the sexual life cycle of an organism.
20. Single pea plant in your kitchen garden produces pods with viable seeds, but the individual papaya plant does not Explain.
21. (a) State the difference between meiocyte and gamete with respect to chromosome number.
22. Why is a whiptail lizard referred to as parthenogenetic.
23. Name any two organisms and the phenomenon involved where the female gamete undergoes development to form new organisms without fertilization.
24. Name an organism where cell division is itself a mode of reproduction.
25. Identify the picture and mention the vegetative part that helps it to propagate.

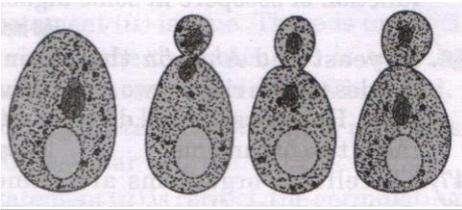


26. Name an alga that reproduces asexually through zoospores. Why are these reproductive units so called?
27. Which one of the following statements is true for yeast?
28. The cell divides by binary fission. One of them develops into a bud.
29. The cell divides unequally. The smaller cell develops into a bud.
30. The cell produces conidia which develop into a bud.
31. Which of the following statements is true for Hydra?

32. It produces asexual gemmules.
33. It produces unicellular bud.
34. It produces multicellular bud.
35. How does *Penicillium* reproduce asexually?
36. Identify this reproductive structure and name the organism they are being released from.



37. Name the organism and the mode of reproduction represented in the diagram given below.



38. Cut-pieces of a Bryophyllum leaf when put into wet soil produce new plants. How?
39. Meiosis is an essential event in the sexual life cycle of any organism. Give two reasons.
40. Write the two pre-fertilisation events from the list given below: Syngamy, Gametogenesis, Embryogenesis, Pollination
41. Name the mode of reproduction that ensures the creation of new variants.
42. Name the phase all organisms have to pass through before they can reproduce sexually.
43. Write the difference between staminate and pistillate flower.
44. Offspring derived by asexual reproduction are called clones. Justify giving two reasons.

1 Mark Questions.

1. Mention the characteristic feature and a function of zoospore in some algae.
2. In yeast and Amoeba the parent cell divides to give rise to two new individual cells. How does the cell division differ in these two organisms?
3. Unicellular organisms are immortal, whereas multicellular organisms are not. Justify.
4. (a) Name the organisms that reproduce through the following reproductive structures. (i) Conidia (ii) Zoospores
(b) Mention similarity and one difference between these two reproductive units.
5. The cell division involved in gamete formation is not of the same type in different organisms. Justify.
6. Differentiate between Parthenocarpy and Parthenogenesis. Give one example of each.

ASSIGNMENT – 2 Chapter – 2: Sexual Reproduction on flowering plants

1 Mark Questions

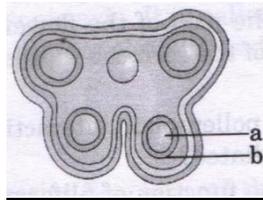
1. An anther with malfunctioning tapetum often fails to produce viable male gametophytes. Give any one reason.
2. How do the pollen grains of Vallisneria protect themselves?
3. Write the function of coleoptiles.
4. Write the function of scutellum.
5. Normally one embryo develops in one seed but when an orange seed is squeezed many embryos of different shapes and sizes are seen. Mention how it has happened?
6. Name the part of the flower which the tassels of the corn cob represent.
7. What is pollen-pistil interaction and how is it mediated?
8. State the function of filiform apparatus found in mature embryo sac of an angiosperm.
9. Differentiate between xenogamy and geitonogamy.
10. A bilobed, dithecous anther has 100 micro-spore mother cell per micro-sporangium. How many male gametophytes this anther can produce?
11. Why do the pollen grains of Vallisneria have a mucilaginous covering?
12. Give an example of a plant which came into India as a contaminant and is a cause of pollen allergy.
13. Write the function of tapetum in anthers.
14. Explain the function of germ pores.
15. Write the characteristic features of anemophilous flowers.
16. The reason why anthers of angiosperm flowers are described as dithecous.
17. Mention any one application of a pollen bank.
18. All papaya plants bear flowers but fruits are seen in some. Explain.
19. Write the characteristic features of anther, pollen and stigma of wind pollinated flowers.
20. The microscopic pollen grains of the past are obtained as fossils. Mention the characteristic of the pollen grains that makes it happen.
21. Name the type of flower which favours cross pollination.
22. Why is bagging of the emasculated flowers essential during hybridisation experiment?
23. How can pollen grains of wheat and rice which tend to lose viability within 30 minutes of their release be made available months later for breeding programmes?
24. Mention one application of pollen bank. How are pollens stored in a bank?
25. Strawberry is sweet and eaten raw just like any other fruit. Why do botanists call it a false fruit?
26. Hybrid seeds have to be produced year after year. Give reason.
27. What is apomixis? What is its importance?
28. Mention the pollinating agent of an inflorescence of small dull-coloured flowers with well-exposed

stamens and large feathery stigma. Give any one characteristic of pollen grains produced by such flowers.

29. Mention advantage of apomictic seeds to farmers.
30. Name the type of pollination as a result of which genetically different types of pollen grains of the same species land on the stigma.

2 Marks Questions

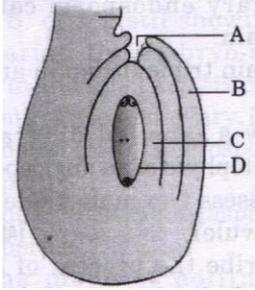
31. Name the organic materials of which the exine and intine of an angiosperm pollen grains are made up of. Explain the role of exine.
32. Draw a diagram of a matured microspore of an angiosperm. Label its cellular components only.
33. Name all the haploid cells present in an unfertilised mature embryo-sac of a flowering plant. Write the total number of cells in it.
34. Differentiate between the two cells enclosed in a mature male gametophyte of an angiosperm.
35. Draw labelled diagram of a mature ovule and embryo sac with its contents.
36. In the T. S. of a mature anther given below, identify 'a' and 'b' and mention their functions.



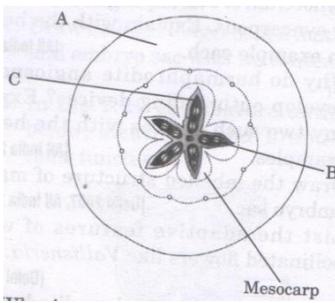
37. Geitonogamous flowering plants are genetically autogamous but functionally cross-pollinated. Justify.
38. Suggest two advantages to a farmer for using apomictic seeds of hybrid varieties.
39. Differentiate between albuminous and non-albuminous seeds, giving one example of each.
40. Flower of brinjal is referred to as chasmo-gamous while that of beans is cleistogamous. How are they different from each other?
41. Name the cell from which the endosperm of coconut develops. Give the characteristics of endosperm of coconut.
42. List the different types of pollination depending upon the source of pollen grain.
43. Gynoecium of a flower may be apocarpous or syncarpous. Explain with the help of an example each.
44. Why do hermaphrodite angiosperms develop outbreeding devices? Explain any two such devices with the help of examples.
45. List the adaptive features of water pollinated flowers like Vallisneria.
46. State one advantage and one disadvantage of cleistogamy.
47. How does the study of different parts of a flower help in identifying wind as its pollinating agent?
48. Trace pollen grain development from sporogenous tissue in the anther.
49. What is the role of endothecium and tapetum in an anther?
50. Differentiate between autogamy, geitonogamy and xenogamy.
51. Why does a breeder need to emasculate a bisexual flower? Mention a condition in a flower where

emasculation is not necessary.

52. Explain the process of artificial hybridisation to get improved crop variety in:
- (a) Plants bearing bisexual flowers
 - (b) Female parent producing unisexual flowers.
53. Draw a diagram of a fertilised embryo sac of a dicot flower. Label all its cellular components.
54. Identify and label the parts in the given anatropous ovule.



55. (a) Given below is a T. S. of an apple. Identify A, B and C.



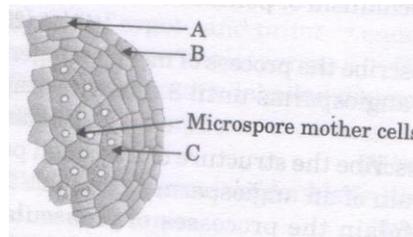
- (b) Why is an apple categorised as a false fruit?

56. Draw a vertical section of a maize grain and label (a) pericarp, (b) scutellum, (c) coleoptile and (d) radicle.
57. Why are some seeds of Citrus referred to as polyembryonic? How are they formed?
58. Fertilisation is essential for production of seed, but in some angiosperms, seeds develop without fertilisation. (a) Give an example of an angiosperm that produces seeds without fertilisation. Name the process. (b) Explain the two ways by which seeds develop without fertilisation.
59. A pollen grain in angiosperm at the time of dehiscence from an anther could be 2-celled or 3-celled. Explain. How are the cells placed within the pollen grain when shed at a 2-celled stage?

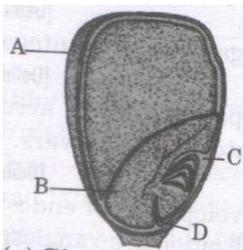
3 Marks Questions

60. Draw a diagram of a male gametophyte of an angiosperm. Label any four parts. Why is sporopollenin considered the most resistant organic material?
61. Explain the steps involved in artificial pollination of autogamous flowers.
62. Describe the development of endosperm after double fertilization in an angiosperm. Why does endosperm development precede that of zygote?

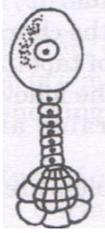
63. Explain any three advantages the seeds offer to angiosperms.
64. A non biology person is quite shocked to know that apple is a false fruit, mango is a true fruit and banana is a seedless fruit. As a biology student how would you satisfy this person?
65. (a) Name the organic material exine of the pollen grain is made up of. How is this material advantageous to pollen grain?
 (b) Still it is observed that it does not form a continuous layer around the pollen grain. Give reason.
 (c) How are 'pollen banks' useful?
66. Given below is an enlarged view of one microsporangium of a mature anther.



- (a) Name 'A', 'B' and 'C' wall layers.
 (b) Mention the characteristics and function of the cells forming wall layer 'C'.
67. State the significance of pollination. List any four differences between wind- pollinated and animal- pollinated flowers.
68. Enumerate any six adaptive floral characteristics of a wind pollinated plant.
69. Draw a neat labelled sketch of L. S. of an endospermous monocot seed.
70. L. S. of a maize grain is given below. Label the parts A, B, C and D in it.



71. (a) Give one example each of albuminous and non albuminous seeds.
 (b) Name the parts of the ovule and the embryo sac of an angiosperm that develop into:
 (i) Perisperm, (ii) seed coats, (iii) endosperm, (iv) embryonal axis.
72. Differentiate between the following giving one example of each: (a) Parthenogenesis and Parthenocarpy (b) Perisperm and Pericarp
73. (a) Draw a labelled sectional view of an albuminous seed. (b) How are seeds advantageous to flowering plants?
- 74.



(a) Identify the figure. (b) Name the initial cell from which this structure has developed. (c) Draw the next mature stage and label the parts.

5 Marks Questions

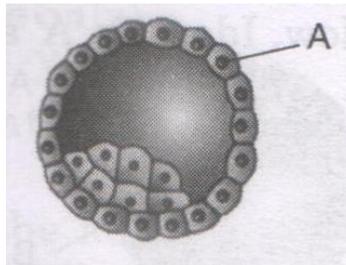
75. Draw a diagrammatic sectional view of a mature anatropous ovule and label the following parts in it:
- that develops into seed coat.
 - that develops into an embryo after fertilization.
 - that develops into an endosperm in an albuminous seed.
 - through which the pollen tube gains entry into the embryo sac.
 - that attaches the ovule to the placenta.
76. Why is fertilization in angiosperm referred to as double fertilization? Mention the ploidy of the cells involved. Draw a neat labelled sketch of L. S. of an endospermic monocot seed.

Chapter – 3: Human Reproduction

1 Mark Questions

- Why are human testes located outside the abdominal cavity? Name the pouch in which they are present.
- Write the location and function of the following in human testes. (i) Sertoli cells (ii) Leydig's cells
- Mention the difference between spermatogenesis and spermiation.
- What happens to corpus luteum in human female if the ovum is (i) fertilized, (ii) not fertilized?
- How does colostrum provide initial protection against diseases to a new born infant?
- How is the entry of only one sperm and not many ensured into an ovum during fertilisation in humans?
- Mention the function of trophoblast in human embryo.
- Name the embryonic stage that gets implanted in the uterine wall of human female.
- Where is acrosome present in humans? Write its function.
- List the changes the primary oocyte undergoes in the tertiary follicular stage in the human ovary.
- Name the cells that nourish the germ cells in the testes. Where are these cells located in the testes?
- Why does failure of testes to descend into the scrotum produce sterility?
- Write the function of (oviductal) fimbriae

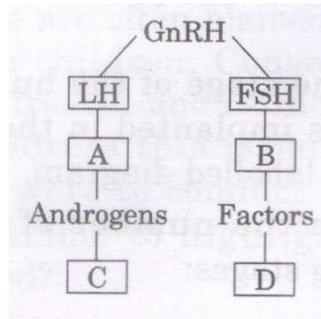
14. When do the oogenesis and the spermatogenesis initiate in human females and males respectively?
15. Write the function of acrosome of human sperm.
16. When does oogenesis begin?
17. Define spermiogenesis. Where does occur?
18. Sperms have a tail whereas eggs do not. Why so?
19. Name the phase of menstrual cycle when a Graafian follicle transforms into an endocrine structure. Write its action thereafter.
20. Write the physiological reason, why a woman generally cannot conceive a child Barr 50 years of age?
21. How does the sperm penetrate through the zona pellucida in human ovum?
22. Identify the figure below and the part labeled "A"



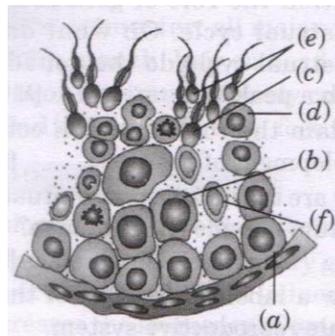
2 Marks Question

23. State the role of oxytocin in parturition. What triggers its release from the pituitary?
24. Where does fertilisation occur in humans? Explain the events that occur during this process.
25. Where are fimbriae present in human female reproductive system? Give their function.
26. Draw and label the parts on the head region only of a human sperm.
27. Explain the hormonal regulation of the process of spermatogenesis in humans.
28. Write the location and function of myometrium and endometrium.
29. Explain the events that follow upto fertilization when the sperms come in contact with the ovum in the fallopian tube of a human female.
30. When and where do chorionic villi appear in humans? State their function.
31. Write the effect of the high concentration of LH on mature Graafian follicle.
32. Differentiate between major structural changes in the human ovary during the follicular and luteal phase of the menstrual cycle.
33. Mention the names and the characteristics of different uterine wall layers in human. Which one of them undergoes cyclic changes during menstrual cycles?
34. Write two major functions each of testes and ovary.
35. Explain the role of pituitary and sex hormones in the process of spermatogenesis.

36. Mention the event of meiosis that occurs in the tertiary follicle in a human ovary.
37. Write the function of each of the following:
- Middle piece in human sperm.
 - Luteinising hormone in human males.
38. Identify A, B, C and D with reference to gametogenesis in humans, in the flow chart given below:



39. Name the labels (a), (b), (c), (d), (e), (f) in the diagram of seminiferous tubule.



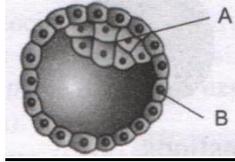
40. Draw a labelled diagram of a Graafian follicle.
41. Differentiate between gametogenesis in human males and females on the basis of
- Time of initiation of the process.
 - Products formed at the end of the process.
42. List the different parts of the human oviduct through which the ovum travels till it meets the sperm for fertilisation.
43. Name the stage of the human embryo that gets implanted in the uterus and draw its labelled diagram.
44. Mention the number of cells in the following stages:

S. No.	Embryotic stage	No. of Cells
(i)	Zygote	(a)
(ii)	Morula	(b)
(iii)	Blastocyst	(c)

45. Name the embryonic stage that gets implanted in human female. Explain the events that occur

during this process.

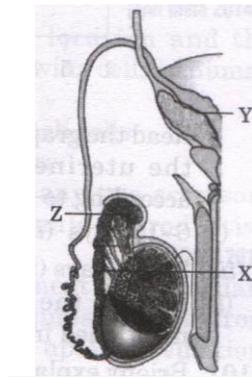
46. (a) Name the human embryonic stage shown below. Identify 'A' and 'B' in it. (b) Mention the part of the above embryonic stage that forms the foetus.



47. (a) Where do the signals for parturition originate from in humans? (b) Why is it important to feed the newborn babies on colostrums.
48. Why is parturition called a neuroendocrine mechanism?
49. What is colostrum? Why is it important to be given to the newborn infants?

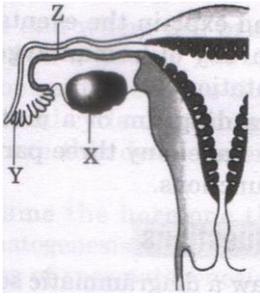
3. Marks Questions

50. Explain the steps in the formation of an ovum from an oogonium in humans.
51. Draw a sectional view of human ovary. Label the following parts:
- (i) Primary Follicle
 - (ii) Ovum
 - (iii) Graafian follicle
 - (iv) Corpus luteum
52. Name and explain the role of inner and middle walls of the human uterus.
53. Draw a diagrammatic sectional view of a human seminiferous tubule and label sertoli cell, primary spermatocyte, spermatogonium and spermatozoa in it?
54. The given diagram shows human male reproductive system one side only.



- (a) Identify 'X' and write its location in the body.
- (b) Name the accessory gland 'Y' and its secretion.
- (c) Name and state the function of 'Z'.

55. This diagram below shows a part of the human female reproductive system.



- (a) Name the gamete cells that would be present in 'X' if taken from a newborn baby.
 (b) Name and write its function.
 (c) Name 'Z' and write the events that take place here.
 (d) State the function of Zona Pellucida.

56. Draw a diagram of the microscopic structure of human sperm. Label the following parts in it and write their functions.

- (a) Acrosome (b) Nucleus (c) Middle piece

57. Name the stage of human embryo at which it gets implanted. Explain the process of implantation.

58. Women are often blamed for producing female children. Consequently, they are ill treated and ostracized. How will you address this issue scientifically if you were to conduct an awareness programme to highlight the values involved?

59. Draw the following diagram related to human reproduction and label them.

- (a) The zygote after the first cleavage division
 (b) Morula state
 (c) Blastocyst stage.

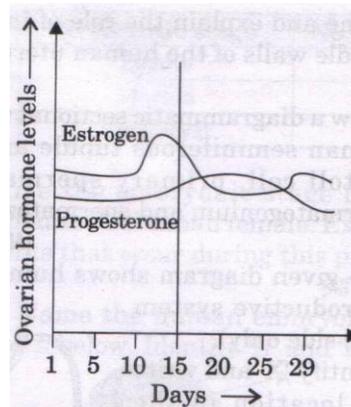
60. Explain the hormonal control of spermatogenesis in humans.

61. Describe in sequence the process of spermatogenesis in human.

62. Where does sperm mature and become motile?

63. Explain the role of pituitary and the ovarian hormones in menstrual cycle in human females.

- 64.



- (a) Read the graph given above and correlate the uterine events that take place according

to the hormonal levels on (i) 6-15 days (ii) 16-25 days (iii) 26-28 days (if the ovum is not fertilised)

(b) Specify the sources of the hormones mentioned in the graph. .

5 Marks Questions

65. (a) Draw a diagrammatic sectional view of the female reproductive system of human and label the parts:

- (i) Where do the secondary oocytes develop?
- (ii) Which helps in collection of ovum after ovulation?
- (iii) Where fertilization occurs?
- (iv) Where implantation of embryo occurs?

(c) Explain the role of pituitary and the ovarian hormones in menstrual cycle in human females.

66. (a) How is 'oogenesis' markedly different from 'spermatogenesis' with respect to the growth till puberty in the humans?

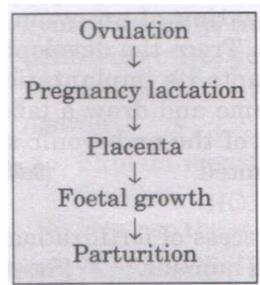
(b) Draw a sectional view of human ovary and label the different follicular stages, ovum and corpus luteum.

67. (a) Draw a labelled diagrammatic view of human male reproductive system.

(b) Differentiate between:

- (i) Vas deferens and vasa efferentia
- (ii) Spermatogenesis and spermiogenesis

68. Study the following flow chart. Name the hormones involved at each stage. Ovulation
Pregnancy lactation Placenta Foetal growth Parturition



69. (a) Describe the changes that occur in ovaries and uterus in human female during the reproductive cycle.

(b) Draw a labelled sketch of the structure of a human ovum prior to fertilization.

70. Mention the site of fertilization of a human ovum. List the events that follow in sequence until the implantation of the blastocyst.

Assignment – 4 (Chapter 4. Reproductive Health)

1. Mention one positive and one negative application of amniocentesis.
2. Mention any two events that are inhibited by the intake of oral contraceptive pills to prevent pregnancy in humans.
3. Why is Saheli a well-accepted contraceptive pill?
4. Name the STDs which can be transmitted through contaminated blood.
5. Name an IUD that you would recommend to promote the cervix hostility to the sperms.
6. State one reason why breast-feeding the baby acts as a natural contraceptive for the mother.

2 Marks Questions

7. Why are copper containing intrauterine devices considered an ideal contraceptive for human females?
8. What do oral pills contain and how do they act as effective contraceptives?
9. How do 'implants' act as an effective method of contraception in human females? Mention its one advantage over contraceptive pills.
10. At the time of Independence, the population of India was 350 million, which exploded to over 1 billion by May 2000. List any two reasons for this rise in population and any two steps taken by the government to check this population explosion.
11. Expand IUD. Why is hormone releasing IUD considered as a good contraceptive to space children?
12. After a brief medical examination a healthy couple came to know that both of them are unable to produce functional gametes and should look for an ART. Name the act and the procedure involved that you can suggest to them to help them to bear a child.
13. Why there is a statutory ban on amni-ocentesis? Why is this technique so named?
14. An infertile couple is advised to adopt test-tube baby programme. Describe two principle procedures adopted for such technologies.
15. "Intra-Cytoplasmic Sperm Injection" and 'Gamete Intra Fallopian Transfer' are two assisted reproductive technology. How is one different from other?
16. Name any two assisted reproductive technologies that help infertile couples to have children.
17. Expand: GIFT and ICSI.
18. Why is ZIFT a boon to childless couples? Explain the procedure.
19. State any four methods to overcome infertility in human couples.

3 Marks Questions

20. (a) Mention the problems that are taken care of by Reproduction and Child Health Care Programme.
(b) What is amniocentesis and why there is a statutory ban on it?
21. Reproductive and Child Healthcare (RCH) programmes are currently in operation. One of the major tasks of these programmes is to create awareness amongst people about the wide range of reproduction related aspects. As this is important and essential for building a reproductively

healthy society.

- (a) "Providing sex education in schools is one of the ways to meet this goal." Give four points in support of your opinion regarding this statement.
 - (b) List any two 'indicators' that indicate a reproductively healthy society.
- 22.** Describe lactational amenorrhea method of birth control.
- 23.** (a) List any four characteristics of an ideal contraceptive.
b) Name two intrauterine contraceptive devices that affect the mortality of sperms.
- 24.** Name and explain the surgical method advised to human males and females as a means of birth control. Mention its one advantage and one disadvantage.
- 25.** A pregnant human female was advised to undergo MTP. It was diagnosed by her doctor that the foetus she is carrying has developed from a zygote formed by an XX-egg fertilised by Y-carrying sperm. Why was she advised to undergo MTP?
- 26.** (a) Name any two copper releasing IUDs.
(b) How do they act as effective contraceptives in human female.
- 27.** Suggest and explain any three Assisted Reproductive Technologies (ART) to an infertile couple.
- 28.** Medically it is advised to all young mothers that breast feeding is the best for their newborn babies. Do you agree? Give reasons in support of your answer.

