TOPPER LEARNING

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MOST IMPORTANT QUESTIONS

CBSE
Class XII Chemistry
Most Important Questions

Chapter 1: The Solid State

1. What is the formula of a compound in which the element Y forms hcp lattice and atoms of X occupy 2/3rd of tetrahedral voids? [1M]

2. Give an example each of a molecular solid and an ionic solid. [1M]

3. An element with density 2.8 gcm^{-3} forms a fcc unit cell with edge length 4 × 10^{-8} cm. Calculate the molar mass of the element. [2M]
(Given: N_A=6.022 × 10^{23} mol^{-1})

4. [2M]
(i) What type of non-stoichiometric point defect is responsible for the pink colour of LiCl?
(ii) What type of stoichiometric defect is shown by NaCl?

5. How will you distinguish between the following pairs of terms? [2M]
(i) Tetrahedral and octahedral voids
(ii) Crystal lattice and unit cell

6. Tungsten crystallizes in body centred cubic unit cell. If the edge of the unit cell is 315.5 pm, what is the radius of tungsten atom? [3M]

7. Iron has a body centred cubic unit cell with a cell dimension of 286.65 pm, the density of iron is 7.874 gcm^{-3}. Use this information to calculate Avogadro's number.
(At. Mass of Fe = 55.845 μ). [3M]

8. An element with density 10 gcm^{-3} forms a cubic unit cell with edge length of 3 × 10^{-8} cm. What is the nature of the cubic unit cell if the atomic mass of the element is 81 gmol^{-1}? [3M]

9. (a) An element has a body centered cubic structure with a cell edge of 288 pm. The density of the elements is 7.2 g cm^{-3}. Calculate the number of atoms present is 208 g of the element. [3M]
(b) With example explain difference between crystalline and amorphous solids. [2M]

Chapter 2: Solutions

1. A 1.00 molal aqueous solution of trichloroacetic acid (CCl_3COOH) is heated to its boiling point. The solution has the boiling point of 100.18 °C. Determine the van't Hoff factor for trichloroacetic acid. (K_b for water = 0.512 K kg mol^1? [1M]

2. Define reverse osmosis. Give one use of it. [1M]

3. State Henry's law. Why do gases always tend to be less soluble in liquids as the temperature is raised? [2M]

4. State Raoult's law for the solution containing volatile components. Write two differences between an ideal solution and a non-ideal solution. [2M]

5. Calculate the amount of $CaCl_2$ (molar mass = 111 g mol^{-1}) which must be added to 500 g of water to lower its freezing point by 2 K, assuming $CaCl_2$ is completely dissociated. (K_f for water = 1.86 K kg mol^{-1})? [3M]

6. Calculate the boiling point of solution when 4g of $MgSO_4$ (M= 120 g mol^{-1}) was dissolved in 100 g of water, assuming $MgSO_4$ undergoes complete ionization. (K_b for water = 0.52 K $kgmol^{-1}$)? [3M]

7. (a) Difference between molarity and molality for a solution. How does a change in temperature influence their values?
(b) Calculate the freezing point of an aqueous solution containing 10.50 g of $MgBr_2$ in 200 g of water. (Molar mass of $MgBr_2$ = 184 g)
(K_f for water = 1.86 K kg mol^{-1}) [5M]

8. [5M]

(a) Define the terms osmosis and osmotic pressure. Is the osmotic pressure of a solution a colligative property? Explain.

(b) Calculate the boiling point of a solution prepared by adding 15.00 g of NaCl to 250.0 g of water. (K_b for water = 0.512 K kg mol^{-1}, Molar mass of NaCl = 58.44 g). [5M]

9. [5M]

(a) Define the following terms :

(i) Molarity

(ii) Molal elevation constant (K_b)

(b) A solution containing 15 g urea (molar mass = 60 g mol^{-1}) per litre of solution in water has the same osmotic pressure (Isotonic) as a solution of glucose (molar mass = 180 g mol^{-1}) in water. Calculate the mass of glucose present in millitre of its solution.

10.

[5M]

(a) What type of deviation is shown by a mixture of ethanol and acetone? Give reason.

(b) A solution of glucose (molar mass = 180 g $mol^{-1)}$ in water is labelled as 10% (by mass). What would be the molality and molarity of the solution? (Density of solution= 1.2 g mL^{-1})

Chapter 3: Electrochemistry

1. When 5 V potential difference is applied across a wire of length 0.1 m, the drift speed of electrons is 2.5×10^{-4} m/s. If the electron density in the wire is 8×10^{28} m^{-3}, calculate the resistivity of the material of the wire. [2M]

2. The chemistry of corrosion of iron is essentially an electrochemical phenomenon. Explain the reactions occurring during the corrosion of iron in the atmosphere. [2M]

3. Calculate emf of the following cell at 25°C:
Sn (*s*) | Sn^{2+} (0.001 M) || H^+ (0.01 M) | H_2 (*g*) (1 bar) | Pt (*s*) [3M]
$E^0_{(Sn^{2+}/Sn)} = -0.14V$ $E^0_{(H^+/H_2)} = 0.00V$

4. Calculate the emf of the cell $Zn|Zn^{2+}$ (0.1 M) || Cd^{2+} (0.01 M)|Cd at 298 K, [Given $E°_{Zn^{2+}/Zn}$ = - 0.76 V and $E°Cd^{2+}/Cd$ = - 0.40 V] [3M]

5. (a) Calculate the emf of the cell
Mg(s) $|Mg^{2+}$ (0.1 M) $\|$ Cu^{2+} (1×10^{-3} M)| Cu(s)
Given: E° Cu^{2+}/Cu = +0.34 V, E° Mg^{2+}/Mg = -2.37 V,
(b) Explain with examples the terms weak and strong electrolytes. [5M]

6.
(a) The resistance of a conductivity cell containing 0.001 M KCl solution at 298 K is 1500 Ω . What is the cell constant, if the conductivity of 0.001 M KCl solution at 298 K is 0.146×10^{-3} Scm^{-1}?
(b) Predict the products of electrolysis in the following:
A solution of H_2SO_4 with platinum electrodes. [5M]

7. Conductivity of 0.00241 M acetic acid solution is 7.896×10^{-5} S cm^{-1}. Calculate its molar conductivity in this solution. If Λ^o_m for acetic acid be 390.5 S cm^2 mol^{-1}, what would be its dissociation constant? [5M]

8.
Three electrolytic cells A, B and C containing solutions of zinc sulphate, silver nitrate and copper sulphate, respectively are connected in series. A steady current of 1.5 ampere was passed through them until 1.45 g of silver were deposited at the cathode of cell B. How long did the current flow? What mass of copper and what mass of zinc were deposited in the concerned cells? (Atomic masses of Ag = 108, Zn = 65.4, Cu = 63.5) [5M]

Chapter 4: Chemical Kinetics

1. A first order reaction has a rate constant of 0.0051 min^{-1}. If we begin with 0.10 M concentration of the reactant, what concentration of the reactant will be left after 3 hours? [2M]

2. The rate constant for a reaction of zero order in A is 0.0030 $molL^{-1}s^{-1}$. How long will it take for the initial concentration of A to fall from 0.10 M to 0.075 M. [2M]

3. Nitrogen pentaoxide decomposes according to equation:

$$2N_2O_5\ g \longrightarrow 4NO_2\ g + O_2\ g$$

This first order reaction was allowed to proceed at 40 °C and the data below were collected:

$[N_2O_5]$ (M)	Time (min)
0.400	0.00
0.289	20.0
0.209	40.0
0.151	60.0
0.109	80.0

(a) Calculate the rate constant. Include units with your answer.
(b) What will be the concentration of N_2O_5 after 100 minutes?
(c) Calculate the initial rate of reaction.

4. For the first order thermal decomposition reaction, the following data were obtained:

$$C_2H_5Cl_{(g)} \xrightarrow{hv} C_2H_{4(g)} + HCl_{(g)}$$

Time / sec	Total pressure / atm
0	0.30
300	0.50

Calculate the rate constant.
(Given: log 2 = 0.301, log3 = 0.4771, log 4 = 0.6021) [3M]

5.

(a) What is rate of reaction? Write two factors that affect the rate of reaction.

(b) The rate constant of a first order reaction increases from 4×10^{-2} to 8×10^{-2} when the temperature changes from 27°C to 37°C. Calculate the energy of activation (E_a).

(log 2 = 0.301, log 3 = 0.4771, log 4 = 0.6021) [5]

6.

(a) For a reaction A + B ⟶ P, the rate is given by

Rate = k [A] $[B]^2$

(i) How is the rate of reaction affected if the concentration of B is doubled?

(ii) What is the overall order of reaction if A is present in large excess?

(b) A first order reaction takes 23.1 minutes for 50% completion. Calculate the time required for 75% completion of this reaction.

(log 2 = 0.301, log 3 = 0.4771, log 4 = 0.6021) [5M]

Chapter 5: Surface Chemistry

1. What is the effect of temperature on chemisorption? [1M]

2. Define 'electrophoresis'? [1M]

3. Write a method by which lyophobic colloids can be coagulated. [1M]

4. Explain how the phenomenon of adsorption finds applications in each of the following processes:

(i) Production of high vacuum

(ii) Heterogeneous catalysis

(iii) Froth floatation process [3M]

5. Define each of the following terms:

(i) Micelles

(ii) Peptization

(iii) Desorption? [3M]

6. Define the following terms: [3M]
   (i) Lyophilic colloid
   (ii) Zeta potential
   (iii) Associated colloids

Chapter 6: General Principles and Processes of Isolation of Elements

1. Explain the role of carbon monoxide in the purification of nickel. [1M]

2. Describe the underlying principle of each of the following metal refining methods: (Any one)
   (i) Electrolytic refining of metals
   (ii) Vapour phase refining of metals. [1M]

3.
   (i) Name the method used for the refining of zirconium.
   (ii) What is the role of CO in the extraction of Iron?
   (iii) Reduction of metal oxide to metal becomes easier if the metal obtained is in liquid state. Why? [3M]

4. Describe the principle behind each of the following processes:
   (i) Vapour phase refining of a metal.
   (ii) Electrolytic refining of a metal.
   (iii) Recovery of silver after silver ore was leached with NaCN. [3M]

5. State briefly the principles which serve as basis for the following operations in metallurgy:
   (i) Froth floatation process
   (ii) Zone refining
   (iii) Refining by liquation [3M]

6. Describe how the following changes are brought about:
   (i) Pig iron into steel.

(ii) Zinc oxide into metallic zinc.
(iii) Impure titanium into pure titanium.

7. Describe the role of
(i) NaCN in the extraction of gold from gold ore.
(ii) SiO_2 in the extraction of copper from copper matte.
(iii) Iodine in the refining of zirconium.
Write chemical equations for the involved reactions. [3M]

Chapter 7: The p-Block Elements

1. Draw the structure of XeF_2 molecule. [1M]

2. $Pb(NO_3)_2$ on heating gives a brown gas which undergoes dimerisation on cooling? Identify the gas. [1M]

3. Write the structures of the following: [2M]
(i) BrF_3
(ii) XeF_4

4. [2M]
What happens when:
(i) SO_2 gas is passed through an aqueous solution Fe^{+3} salt?
(ii) XeF_4 reacts with SbF_5?

5. Write the structures of the following species: [2M]
(i) H_3PO_2
(ii) $H_2S_2O_7$

6. Complete the following chemical equations: (Any three) [3M]
(i) $NaOH_{(aq)} + Cl_{2(g)} \longrightarrow$
(Hot and conc.)
(ii) $XeF_6(s) + H_2O(l) \longrightarrow$
(iii) $P_4 + SO_2Cl_2 \longrightarrow$
(iv) $XeF_4 + H_2O \longrightarrow$

7. How would you account for the following? [3M]

(i) The value of electron gain enthalpy with negative sign for sulphur is higher than that for oxygen.

(ii) NF_3 is an exothermic compound but NCl_3 is endothermic compound.

(iii) ClF_3 molecule has a T-shaped structure and not a trigonal planar one.

8. Explain the following observations giving appropriate reasons: [3M]

(i) The stability of +5 oxidation state decreases down the group in group 15 of the periodic table.

(ii) Solid phosphorus pentachloride behaves as an ionic compound.

(iii) Halogens are strong oxidizing agents.

9. [5M]

(a) Account for the following:

(i) Interhalogens are more reactive than pure halogens.

(ii) N_2 is less reactive at room temperature.

(iii) Reducing character increases from NH_3 to BiH_3.

(b) Draw the structures of the following:

(i) $H_4P_2O_7$ (Pyrophosphoric acid)

(ii) XeF_4

10.

[5M]

(a) Which poisonous gas is evolved when white phosphorus is heated with conc. NaOH solution? Write the chemical equation involved.

(b) Which noble gas has the lowest boiling point?

(c) Fluorine is a stronger oxidising agent than chlorine. Why?

(d) What happens when H_3PO_3 is heated?

(e) Complete the equation:

$PbS + O_3 \longrightarrow$

Chapter 8: d- and f-Block Elements

1. Assign reasons for the following: [2M]

(i) Copper (I) ion is not known in aqueous solution.

(ii) Actinoids exhibits greater range of oxidation states than Lanthanoids.

2. Explain the following observations: [2M]

(i) Generally there is an increase in density of elements from titanium (Z = 22) to copper (Z = 29) in the first series of transition elements.

(ii) Transition elements and their compounds are generally found to be good catalysts in chemical reactions.

3. [3M]

(i) Name the method used for the refining of zirconium.

(ii) What is the role of CO in the extraction of Iron?

(iii) Reduction of metal oxide to metal becomes easier if the metal obtained is in liquid state. Why?

4. Complete the following chemical equations: [3M]

(i) $MnO_4^- + C_2O_4^{2-} + H^+ \longrightarrow$

(ii) $KMnO_4 \xrightarrow{\text{heated}}$

(iii) $Cr_2O_7^{2-} + H_2S + H^+ \longrightarrow$

5. [5M]

(a) Account for the following:

(i) Mn shows the highest oxidation state of +7 with oxygen but with fluorine, it shows oxidation state of +4.

(ii) Cr^{+2} is a strong reducing agent.

(iii) Cu^{+2} salts are coloured, while Zn^{+2} salts are white.

(b) Complete the following equations:

(i) $2MnO_2 + 4KOH + O_2 \xrightarrow{\Delta}$

(ii) $Cr_2O_7^{2-} + 14H^+ + 6I^- \longrightarrow$

6. The elements of 3d transition series are given as: [5M]

Sc Ti V Cr Mn Fe Co

Answer the following:

(i) Write the element which shows maximum number of oxidation states. Give reason.

(ii) Which element has the highest m.p.?

(iii) Which element shows only +3 oxidation state?

(iv) Which element is a strong oxidising agent in +3 oxidation state and why?

7. Assign reasons for the following: [5M]

(i) The enthalpies of atomisation of transition elements are high.

(ii) The transition metals and many of their compounds act as good catalyst.

(iii) From element to element, the actinoid contraction is greater than the lanthanoid contraction.

(iv) The E° value for the Mn^{3+}/Mn^{2+} couple is much more positive than that for Cr^{3+}/Cr^{2+}.

(v) Scandium (Z = 21) does not exhibit variable oxidation states and yet it is regarded as a transition element.

8. [5M]

(a) What may be the possible oxidation state of the transition metals with the following d electronic configurations in the ground state of their atoms: $3d^34s^2$, $3d^54s^2$ and $3d^64s^2$. Indicate relative stability of oxidation states in each case.

(b) Write steps involved in the preparation of (i) Na_2CrO_4 from chromite ore and (ii) K_2MnO_4 from pyrolusite ore.

Chapter 9: Coordination of Compounds

1. [2M]

(i) Write down the IUPAC name of the following complex:
$[Co(NH_3)_5(NO_2)](NO_3)_2$

(ii) Write the formula for the following complex:
Potassium tetracyanidonickelate (II)

2. Name the following coordination compounds according to IUPAC system of nomenclature: [2M]
   (i) $[Co(NH_3)_4(H_2O)Cl]Cl_2$
   (ii) $[CrCl_2(en)_2]Cl$, (en=ethane - 1,2-diamine)

3. When a coordination compound $CoCl_3.6NH_3$ is mixed with $AgNO_3$, 3moles of AgCl are precipitated per mole of the compound. Write
   (i) Structural formula of the complex
   (ii) IUPAC name of the complex [2M]

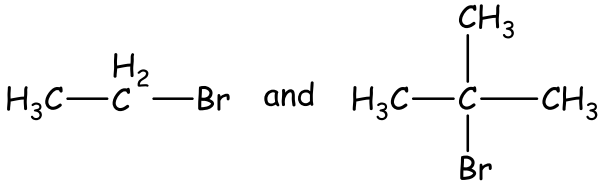
4. [3M]
   (a) For the complex $[Fe(H_2O)_6]^{+3}$, write the hybridisation, magnetic character and spin of the complex. (At, number : Fe = 26)
   (b) Draw one of the geometrical isomers of the complex $[Pt\ (en)_2Cl_2]^{+2}$ which is optically inactive.

5. [3M]
   (i) Draw the geometrical isomers of complex $[Co(en)_2Cl_2]^+$.
   (ii) On the basis of crystal field theory, write the electronic configuration for d^4 ion if $\Delta_0 > P$.
   (iii) $[NiCl_4]^{2-}$ is paramagnetic, while $[Ni(CO)_4]$ is diamagnetic, though both are tetrahedral. Why? (Atomic number of Ni = 28)

6. Write the name and draw the structures of each of the following complex compounds: [3M]
   (i) $Co(NH_3)_4\ (H_2O)_2]\ Cl_3$
   (ii) $Pt(NH_3)_4]\ [NiCl_4)]$

Chapters 10: Haloalkanes and Haloarenes

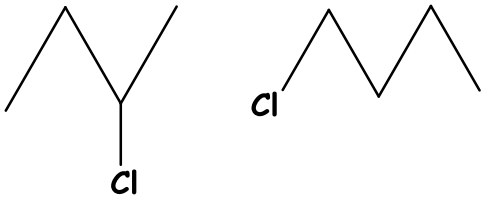
1. Which would undergo S_N1 reaction faster in the following pair and why? [1M]



2. Write the structure of an isomer of compound C_4H_9Br which is most reactive towards S_N1 reaction. [1M]

3. Write the IUPAC name of the following compound: [1M]
   $(CH_3)_3CCH_2Br$

4. Identify the chiral molecule in the following pair : [1M]



5. Answer the following: [3M]
   (i) Haloalkanes easily dissolve in organic solvents, why?
   (ii) What is known as a racemic mixture? Give an example.
   (iii) Of the two bromo derivatives, $C_6H_5CH(CH_3)Br$ and $C_6H_5CH(C_6H_5)Br$, which one is more reactive in S_N1 substitution reaction and why?

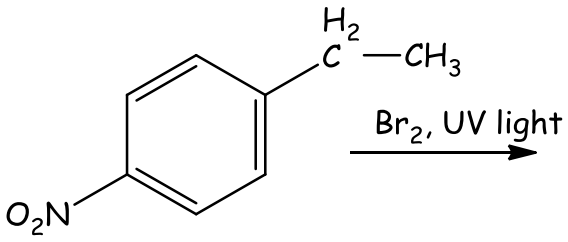
6. How do you convert the following: [3M]
   (i) Prop-1-ene to 1-fluoropropane
   (ii) Chlorobenzene to 2-chlorotoluene
   (iii) Ethanol to propanenitrile

7. Write the main products when
   (i) n-butyl chloride is treated with alcoholic KOH.
   (ii) 2, 4, 6-trinitrochlorobenzene is subjected to hydrolysis.
   (iii) methyl chloride is treated with AgCN. [3M]

8. How do you convert: [3M]
   (i) Chlorobenzene to biphenyl
   (ii) Propene to 1-iodopropane
   (iii) 2-bromobutane to but-2-ene

9. Write the major products(s) in the following: [3M]

(i)



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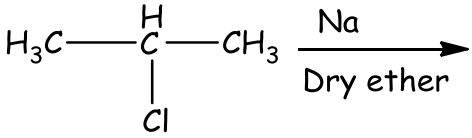

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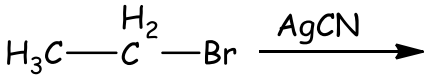
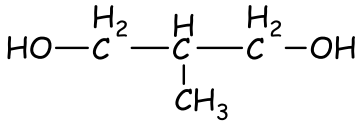


Chapters 11: Alcohols, Phenols and Ethers

1. Write the IUPAC name of the given compound: [1M]



2. How would you account for the following: [2M]

(i) Phenols are much more acidic than alcohols.

(ii) The boiling points of ethers are much lower than those of the alcohols of comparable molar masses.

3. Give reasons for the following: [3M]

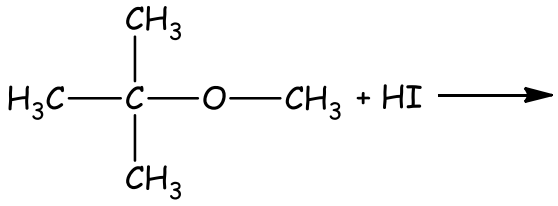
(i) o-nitrophenol is more acidic than o-methoxyphenol.

(ii) Butan-1-ol has a higher boiling point than diethyl ether.

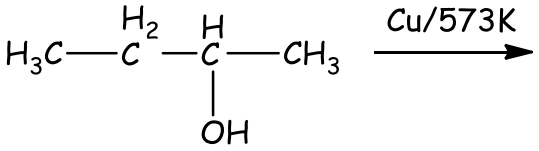
(iii) $(CH_3)_3C-O-CH_3$ on reaction with HI gives $(CH_3)_3C-I$ and CH_3-OH as the main products and not $(CH_3)_3C-OH$ and CH_3-I.

4. Write the final product(s) in each of the following reactions: [3M]

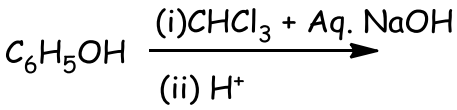
(a)



(b)



(c)



Chapter 12: Aldehydes, Ketones and Carboxylic acid

1. How would you account for the following: [3M]

(i) Aldehydes are more reactive than ketones towards nucleophiles.

(ii) The boiling points of aldehydes and ketones are lower than of the corresponding acids.

(iii) The aldehydes and ketones undergo a number of addition reactions.

2. Give chemical tests to distinguish between: [2M]

(i) Acetaldehyde and benzaldehyde

(ii) Propanone and propanol

3. [5M]

(a) Write the products formed when CH_3CHO reacts with the following reagents:

(i) HCN

(ii) H_2N - OH

(iii) CH_3CHO in the presence of dilute NaOH

(b) Give simple chemical tests to distinguish between the following pairs of compounds:

(i) Benzoic acid and Phenol

(ii) Propanal and Propanone

4. [5M]

(a) Account for the following:

(i) Cl - CH_2COOH is a stronger acid than CH_3COOH.

(ii) Carboxylic acids do not give reactions of carbonyl group.

(b) Out of CH_3CH_2-CO - CH_2 - CH_3 and CH_3CH_2- CH_2- CO – CH_3 which gives iodoform test.

(c) Write the chemical equations to illustrate the following name reactions:

(i) Rosenmund reduction

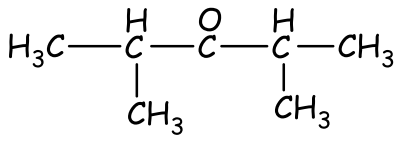
(ii) Cannizzaro's reaction

5. (a) Write the structural formula of 1 - phenylpentan - 1 - one. [1M]

(b) Write the structure of p-methylbenzaldehyde. [1M]

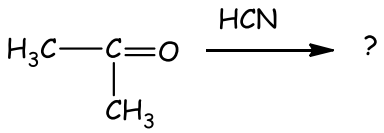
(c) Draw the structure of 3-methylbutanal. [1M]

6. Write the IUPAC name of the compound: [1M]

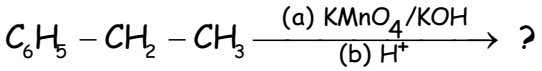


7. Predict the products of the following reactions: [3M]

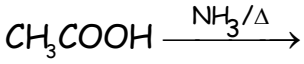
(i)



(ii)



(iii)



8.

(a) Describe the following giving suitable examples: [3M]

(i) Cannizzaro reaction

(ii) Aldol condensation

(b) Give a chemical test to distinguish between ethanal and propanal. [2M]

9. [5M]

(a) Write chemical equations of illustrate the following name bearing reactions:

(i) Cannizzaro's reaction

(ii) Hell- Volhard - Zelinsky reaction

(b) Give chemical tests to distinguish between the following pairs of compounds:

(i) Propanal and Propanone

(ii) Acetophenone and Benzophenone

(iii) Phenol and Benzoic acid

Chapter 13: Amines

1. Arrange the following compounds in an increasing order of their solubility in water: [1M]

$C_6H_5NH_2$, $(C_2H_5)_2NH$, $C_2H_5NH_2$

Give the IUPAC name of $H_2N - CH_2 - CH_2 - CH = CH_2$ [1M]

2. Write the chemical equations involved in the following reactions: [2M]
   (i) Hoffmann-bromamide degradation reaction
   (ii) Carbylamine reaction

3. Define the following terms in relation to proteins: [2M]
   (i) Peptide linkage
   (ii) Denaturation

4. Account for the following: [3M]
   (i) Electrophilic substitution in case of aromatic amines takes place more readily than benzene.
   (ii) CH_3CONH_2 is a weaker base than $CH_3CH_2NH_2$.
   (iii) Nitrocompounds have higher boiling points than hydrocarbons having almost same molecular mass.

5. [3M]
   (a) Explain why an alkylamine is more basic than ammonia.
   (b) How would you convert:
      (i) Aniline to nitrobenzene
      (ii) Aniline to iodobenzene?

6. Account for the following observations: [3M]
   (i) pk_b for aniline is more than that for methylamine.
   (ii) Methylamine solution in water reacts with ferric chloride solution to give a precipitate of ferric hydroxide.
   (iii) Aniline does not undergo Friedel-Crafts reaction.

Chapter 14: Biomolecules

1. What are the products of hydrolysis of sucrose? [1M]

2. Describe what you understand by primary structure and secondary structure of proteins. [2M]

3. List the reactions of glucose which cannot be explained by its open chain structure. [2M]

4. What is essentially the difference between α-form of glucose and β-form of glucose? Explain. [2M]

5. [3M]
   (i) Which one of the following is a polysaccharide:
   Starch, Maltose, Fructose, Glucose
   (ii) What is the difference between native protein and denatured protein?
   (iii) Write the name of the vitamin responsible for the coagulation of blood.

6. [3M]
   (i) Write the structural difference between starch and cellulose.
   (ii) What type of linkage is present in nucleic acids?
   (iii) Give one example each for fibrous protein and globular protein.

7. [5M]
   (a) State two main differences between globular proteins and fibrous proteins.
   (b) Based on their chemical composition, state how are lipids classified? Give one example of each class.

8. [5M]
   (a) 'Hormones are chemical messengers'. Explain.
   (b) Name the main disease caused due to lack of the vitamin and its source in each of the following: A, B_6 and E.

Chapter 15: Polymers

1. What are biodegradable polymers? [1M]

2. Which of the following is a natural polymer? [1M]
   Buna-S, Proteins, PVC

3. Mention two important uses of each of the following: [2M]
   (i) Bakelite
   (ii) Nylon 6

4. Write the structures of monomers used in the preparation of: [2M]
   (a) Teflon
   (b) PMMA

5. [2M]
   (a) How does vulcanization change the character of natural rubber?
   (b) Why are the numbers 66 and 6 put in the names of nylon - 66 and nylon -6?

6. Write the names and structures of the monomers of the following polymers:[3M]
   (i) Nylon-6
   (ii) Novolac
   (iii) Buna-N

Chapter 16: Chemistry in Everyday Life

1. Name a substance that can be used as an antiseptic as well as a disinfectant.[1M]

2. Describe the following substances with one suitable example of each type: [3M]
   (i) Non - ionic detergents
   (ii) Food preservatives
   (iii) Disinfectants

3. On the occasion of World Health Day, Dr. Satpal organized a 'health camp' for the poor farmers living in a nearby village. After check-up, he was shocked to see that most of the farmers suffered from cancer due to regular exposure to pesticides and many wore diabetic. They distributed free medicines to them. Dr. Satpal immodiately reported the matter to the National Human Rights Commission (NHRC). On the suggestions of NHRC, the government decided to provide medical care, financial assistance, setting up of super-speciality hospitals for treatment and prevention of the deadly disease in the affected villages all over India. [3M]

(i) Write the values shown by
(a) Dr. Satpal
(b) NHRC.

(ii)
(a) What types of analgesics are chiefly used for the relief of pains of terminal cancer?
(b) Give an example of artificial sweetener that could have been recommended to diabetic patients.

4. Define the following and give one example of each: [3M]
(a) Tranquillisers
(b) Mordant
(c) Hybrid rocket propellants

5. Seeing the growing cases of diabetes and depression among young children, Mr Lugani, the principal of one reputed school, organised a seminar in which he invites parents and principals. They all resolved this issue by strictly banning junk food in schools and introducing healthy snacks and drinks like soup, lassi, milk etc. in school canteens. They also decided to make compulsory half an hour of daily physical activities for the students in the health survey in most of the school and discovered a tremendous improvement in the health of the students. After reading the above passage, answer the following questions: [4M]
(i) What are the values (at least two) displayed by Mr Lugani?
(ii) As a student, how can you spread awareness about this issue?
(iii) What are antidepressant drugs? Give an example.
(iv) Name the sweetening agent used in the preparation of sweets for a diabetic patient.

6. Due to hectic and busy schedule, Mr Angad made his life full of tensions and anxiety. He started taking sleeping pills to overcome the depression without consulting the doctor. Mr Deepak, a close friend of Mr. Angad advised him to stop taking sleeping pills and suggested to change his life lifestyle by doing yoga, meditation and some physical exercise. Mr. Angad followed his friend's advice and after few days he started feeling better. [4M]

After reading the above passage, answer the following

(i) What are the values (at least two) displayed by Mr. Deepak?

(ii) Why is it not advisable to take sleeping pills without consulting doctor?

(iii) What are tranquilisers? Give two examples.

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