

SHRI SHIKSHAYATAN SCHOOL

MID TERM EXAMINATION

CLASS-XII

SUBJECT- CHEMISTRY

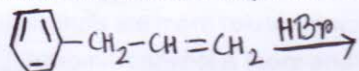
TIME: 3 Hrs

Max. Marks - 70

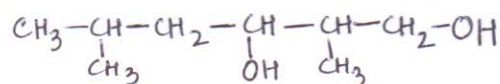
GENERAL INSTRUCTIONS:

- QUESTION NO 1 TO 5 ARE VERY SHORT ANSWER TYPE QUESTIONS & CARRY 1 MARK EACH.
- QUESTION NO 6 TO 10 ARE SHORT ANSWER TYPE QUESTIONS & CARRY 2 MARKS EACH.
- QUESTION NO 11 TO 22 ARE ALSO SHORT ANSWER TYPE QUESTIONS & CARRY 3 MARKS EACH.
- QUESTIONS NO 23 IS VALUE BASED QUESTION & CARRY 4 MARKS.
- QUESTION NO 24 to 26 ARE LONG ANSWER TYPE QUESTIONS & CARRY 5 MARKS EACH.
- USE OF CALCULATOR IS NOT ALLOWED.

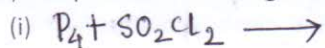
- 1) What is meant by Reverse Osmosis? (1)
- 2) Define the order of a reaction for chemical reactions. (1)
- 3) Why does ammonia act as a Lewis base? (1)
- 4) Draw the structure of major monohalo product in the following reaction. (1)





- 5) Write the IUPAC name of the following compound. (1)



- 6) Calculate the boiling point of a solution prepared by adding 15 gm of Sodium Chloride to 250 gm of water. K_b for water = $0.512 \text{ K.kg.mol}^{-1}$, mass of Sodium Chloride = 58.44 (2)
- 7) Rate constant of zero order reaction with respect to A is $0.003 \text{ mol.l}^{-1}\text{s}^{-1}$. How long will it take for the initial concentration of A to fall from 0.1(M) to 0.075(M)? (2)
- 8) Complete the following chemical reaction. (1+1)



- 9) What is the difference between multimolecular and macromolecular colloids? Give one example of each type. (2)
- 10) Name the reagents and write chemical equation for the preparation of 2-methyl-2-methoxypropane by Williamson synthesis. (2)
- 11) (i) Explain Henry's Law about dissolution of a gas in a liquid. (1)

- (ii) Determine the osmotic pressure of a solution prepared by dissolving 2.5×10^{-2} gm of K_2SO_4 in 2 lt of water at $25^\circ C$, assuming that it is completely dissociated. (Molar mass of $K_2SO_4 = 174 \text{ gmol}^{-1}$, $R = 0.082 \text{ L.atm.K}^{-1} \text{ mol}^{-1}$) (2)
- 12) (i) State Raoult's Law for a solution containing volatile components. (2)
(ii) Define Azeotrope. (1)
- 13) (i) Define activation energy of a reaction.
(ii) For a reaction $A + B \rightarrow P$, the rate law is given by $r = k[A]^{1/2}[B]^{1/2}$, what is the order of this reaction
(iii) Rate constant of a first order reaction $k = 5.5 \times 10^{-14} \text{ s}^{-1}$. Find half life of the reaction. (1+1+1)
- 14) (i) List the factors on which the rate of a chemical reaction depends. (2)
(ii) A reaction is second order in A and first order in B. Write the differential rate equation. (1)
- 15) Discuss the principles of the following methods. (3)
(i) Froth-flotation method
(ii) Electro refining of metals
- 16) Which of the following pairs undergoes SN^1 substitution reaction faster and why? (3)
(i)  or 
(ii) $C_6H_5CH(CH_3)Br$ or $C_6H_5CH(C_6H_5)Br$.
- 17) (i) What is known as a racemic mixture? Give an example. (1)
(ii) Although chlorine is an electron withdrawing group, yet it is ortho/para directing in electrophilic aromatic substitution reactions. Why? (2)
- 18) Explain the following behaviours. (3)
(i) Alcohols are more soluble in water than the hydrocarbons of comparable molecular masses
(ii) Ortho-nitrophenol is more acidic than ortho-methoxyphenol.
- 19) Carry out the following conversions. (3)
(i) Propene to Propan-2-ol
(ii) Phenol to Salicylic Acid
(iii) Phenol to 2,4,6-trinitrophenol
- 20) Illustrate the following name reaction giving a chemical equation in each case. (3)
(i) Clemmensen reduction
(ii) Cannizzaro's reaction
- 21) Give chemical test to distinguish between (i) Benzophenone and Acetophenone (3)
(ii) Benzoic Acid and Ethyl Benzoate
- 22) Explain with reasons. (3)
(i) Catenation tendency of P is much higher than that of N.
(ii) Sulphur is a solid but Oxygen is not.
(iii) Halogens are coloured.
- 23) Geeta has prepared homemade ice-cream, but her sister Sweta refused to take it after two days. (4)
(i) Mention state of dispersed phase and dispersed medium of ice-cream.
(ii) Why Swetha refused to take home made ice-cream after 2 days?
(iii) Mention the value associated with the above process.
- 24) (i) Write the components of copper matte. (1+2+1+1)
(ii) Write the role played by silica in the extraction of CU.
(iii) Which of the following ores is to be concentrated by froth-flotation method
 Fe_2O_3 , ZnS , Al_2O_3

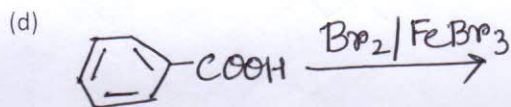
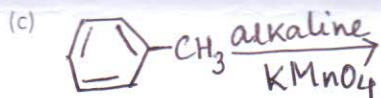
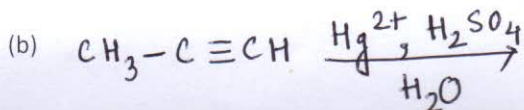
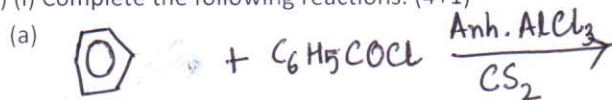
(iv) Give an example of zone refining of metal.

25) (i) Define Electrophoresis .

(ii) What is meant by coagulation of colloidal solution? Name any method by which coagulation of lyophobic sols can be carried out.

(iii) Explain 'Shape selective catalysis' with an example. (1+2+2)

26) (i) Complete the following reactions. (4+1)



(ii) Prepare ethanoic Acid from ethyl chloride.