

PLUS TWO SAMPLE QUESTION PAPER

CHEMISTRY

I Answer any four from five questions (4\*1=4)

1. Which of the following oxidation state is not shown by manganese? A)+1 b)+2 c)+4 d)+7
2. Solubility of gas directly proportional to pressure of the gas. Name the law (1)
3. What is Tollen's reagent (1)
4. Write the coordination number of Fe in  $K_4[Fe(CN)_6]$
5. Which one is water soluble vitamins? a) A b) B c) E d) K

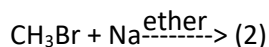
II Answer any eight from ten questions (8\*2=16)

6. Differentiate between globular protein and fibrous protein(2)
7. Complete the following equations(2)
  - a)  $RNH_2 + CHCl_3 + 3 KOH \xrightarrow{\text{heat}} ?$  (1)
  - b)  $\text{Aniline} \xrightarrow{\text{Con. H}_2\text{SO}_4} ?$  (1)
8. Derive the expression for the half life period of first order reaction(2)
9. Give the reason for the following(2)
  - a) Transition metals and their compounds are colored
  - b) Transition metals and their compounds act as catalyst
10. Write the IUPAC name of the following(2)  
 $[Cr(H_2O)_6]Cl_3$  ,  $[Ni(CO)_4]$
11. Write the anode and cathode reaction occur in fuel cell. Mention its any advantage(2)
12. Colligative properties can be used to determine the molecular mass of solute
  - a) What do you mean by colligative properties (1)

b) For determining the molecular mass of polymers osmotic pressure is preferred to other colligative properties. why (1)

13.State Raoult's law. What type of deviation shown by mixture of chloroform and acetone ?Give reason(2)

14. Name and complete the following reaction



15.How can distinguish primary ,secondary and tertiary alcohols?(2)

### III Answer any eight from eleven questions(8\*3=24)

16.Explain the following

a)Cannizzaro reaction (1)

b)Esterification (1)

c)Write one test to distinguish between aldehydes and ketones(1)

17.Derive the Nernst equation for Daniel Cell (3)

18. Give the difference between  $\text{SN}^1$  and  $\text{SN}^2$ (3)

19.Explain the method to distinguish primary secondary tertiary amines. Also write the chemical equation involved (3)

20. a) Explain the method for the manufacturing of ethanol from molasses(2)

b)Which alcohols is known as wood spirit(1)

21.Define non ideal solution explain two types of non ideal solution with example (3)

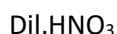
22.Draw the crystal field splitting in octahedral and tetrahedral complexes (3)

23. a. What is lanthanide contraction and write two consequences of lanthanide contraction(1)

b. How will you prepare  $\text{KMnO}_4$ (2)

24.Complete the chemical equations (3)

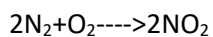
a) Phenol to salicylaldehyde



b) Phenol  $\text{---} \rightarrow \text{A} + \text{B}$

c)Phenol to Picric acid

25.a) The molecularity of the reaction(1)



b) Differentiate between molecularity and order of the reaction (2)

26. How would you account for the followings

a) Boiling point of aldehydes are lower than alcohols (1)

b) Formic acid is stronger than acetic acid(1)

c) Aldehydes are more reactive than ketones towards nucleophile addition reaction(1) .

#### IV Answer any four from five questions (4\*4=16)

27. The temperature dependence rate of a chemical reaction is given by Arrhenius equation.

a) write Arrhenius equation (1)

b) Rate constant  $k_2$  of a reaction at 310K is 2 times of its rate constant  $k_1$  at 300K

calculate the activation energy of the reaction. ( $\log 2 = 0.3010, \log 1 = 0$ ) (3)

28. a) Define molar conductivity of a substance and describe how molar conductivity changes with concentration of solute for weak and strong electrolytes (2)

b) suggest a method for the determination of limiting molar conductivity of a weak electrolyte taking acetic acid as example (2)

29. How are the following conversions achieved.

a) benzyl chloride to benzaldehyde(1)

b) acetic acid to chloro acetic acid (1)

c) Benzene to Benzaldehyde (1)

d) Ethanal to ethane (1)

30. Give the reason for the following on the basis of VB theory (4)

$[\text{NiCl}_4]^{2-}$  is paramagnetic while  $[\text{Ni}(\text{CN})_4]^{2-}$  is diamagnetic

31 a) Write saytzeff rule(1)

b) Predict the products A and B when 2-bromopentane react with alcoholic KOH(2)

c) Why chloroform stored in dark bottles(1)

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