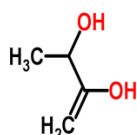
	THE JAIN INTERNATIONAL SCHOOL, BILASPUR		
	A JGI Institution		
PRE BOARD EXAMINATION-3 (2013-14)			
CLASS :	XII	SUBJECT :	CHEMISTRY
		TIME :	3 Hours

MM : 70

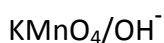
1. Arrange the given compounds in decreasing order of their boiling points : CH_3Br , CH_3F , CH_3I , CH_3Cl . [1]
2. Describe the refining method of Zirconium . [1]
3. How does the surface area affect Chemisorption and Physisorption ? [1]
4. Name the reagent used in the conversion of Phenol to Benzoquinone. [1]
5. What are Vitamins? [1]
6. What happens when H_3PO_3 is heated? Write the equation. [1]



7. Give the IUPAC name of [1]
8. Draw the structure of 4-methylpent-3-en-2-one. [1]
9. An element has molar mass $2.7 \times 10^{-2} \text{ kg mol}^{-1}$, forms a cubic unit cell with edge length 405 pm. If its density is $2.7 \times 10^3 \text{ kg m}^{-3}$, what is the nature of cubic unit cell ? [2]
10. What are Semiconductors ? How can you create n-type and p-type semiconductors ? [2]
11. Describe the role of the following : [2]
 - i) Slag formation in the Blast furnace.
 - ii) Graphite in the electrometallurgy of Aluminium.
12. Why do Haloarenes not undergo Nucleophilic substitution reaction ? Explain. [2]
13. Explain the Non-ideal behavior of a mixture of Ethanol and Acetone. [2]
14. Calculate the equilibrium constant of the reaction : $\text{Cu(s)} + 2 \text{Ag}^+(\text{aq}) \rightleftharpoons \text{Cu}^{2+}(\text{aq}) + 2 \text{Ag(s)}$ [2]

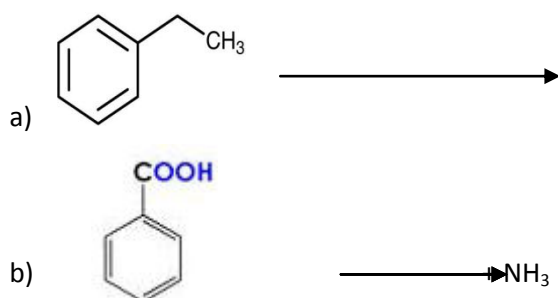
$E^\circ_{\text{cell}} = 0.46 \text{ V}$
15. Draw the structures of XeF_2 and HOClO_2 . [2]
16. Give reasons : [2]
 - i) The transition metals generally form coloured compounds.
 - ii) Transition metals act as good catalysts.
17. i) Write the Coupling reaction with Phenol. [2]
 - ii) Convert Ethanamide to Methanamine.
18. Explain why Aliphatic Amines are stronger bases than Ammonia. [2]
19. 1 g of a non electrolyte solute dissolved in 50 g of Benzene lowered the freezing point of Benzene By 0.40 K. The freezing point depression constant of Benzene is $5.12 \text{ K kg mol}^{-1}$. Find the molar mass of the solute. [3]

20. i) What is the main difference between a Multimolecular colloid and a Macromolecular colloid? [3]
 ii) What is Dialysis ?
21. Explain the Dry cell in detail with diagram. [3]
22. i) How are the following conversions carried out : [3]
 a) Benzyl chloride to Benzyl alcohol.
 b) Phenol to Salicylaldehyde.
 ii) o-Nitrophenol is steam volatile while p-Nitrophenol is not. Give reason.
23. i) How does Glucose react with Bromine water ? Write the reaction. [3]
 ii) The deficiency of which Vitamin causes "pernicious anaemia" ?
 iii) What is Peptide linkage ?
24. i) How is Nylon-6,6 formed ? Why is it named so ? [3]
 ii) Write the Monomers of PVC and Teflon.
25. i) Write about Artificial sweetening agents. [2+1]
 ii) What is Tincture of Iodine ? Where is it used ?
26. i) Explain why Cu^+ ion is not stable in aqueous solutions ? [3]
 ii) Why is Ti^{2+} ion paramagnetic in nature ?
27. i) Write the IUPAC name of $[\text{Co}(\text{NH}_3)_3\text{Cl}_3]$. [3]
 ii) Compare the hybridization and geometry of $[\text{Ni}(\text{CO})_4]$ and $[\text{Ni}(\text{CN})_4]^{2-}$
28. i) Explain the following terms :
 a) Rate of a reaction b) Activation energy of a reaction. [2+3]
 ii) The decomposition of NH_3 on a Platinum surface is Zero order reaction. What would be the rate of production of N_2 and H_2 if $k = 2.5 \times 10^{-4} \text{ mol}^{-1} \text{ L S}^{-1}$?
- OR**
- i) What is Order of a reaction ? Can it be determined from a balanced chemical equation ?
 ii) In a First order reaction the concentration of the reactant is reduced from 0.6 mol L^{-1} to 0.2 mol L^{-1} in 5 minutes. Calculate the rate constant of the reaction.
29. i) Illustrate the following name reactions : [2+3]
 a) Cannizzaro Reaction
 b) Wolf Kishner Reduction
 ii) Give simple Chemical test to distinguish between the following pairs of compounds :
 a) Benzaldehyde and Acetophenone.
 b) Ethanol and Propanal.
- OR**
- i) Illustrate the following name reactions :
 a) Rosenmund Reduction
 b) Hell-Volhard-Zelinsky Reaction
 ii) Complete each synthesis by giving products in the following:



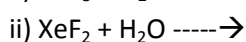
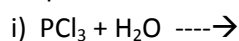
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30. a) Complete the following chemical equations :

[2+3]

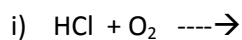


b) Account for the following :

- i) The boiling point of Noble gases is very low.
- ii) ICl is more reactive than I_2 .
- iii) Nitrogen exists as N_2 while Phosphorus as P_4 .

OR

a) Complete the following chemical equations :



b) Account for the following :

- i) NH_3 forms Hydrogen bonds but PH_3 does not.
 - ii) PCl_5 cannot act as a reducing agent.
 - iii) $\text{R}_3\text{P}=\text{O}$ exists but $\text{R}_3\text{N}=\text{O}$ does not.
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