

INTERNATIONAL INDIAN SCHOOL – DAMMAM
FIRST TERMINAL EXAMINATION -JUNE 2014

Set -A

Class-XII

Max Marks-70

Subject-Chemistry

Time :3hours

General Instructions,

- 1)All questions are compulsory.
- 2)Question no:1 to 5 are very short answers and carry 1 mark each.
- 3)Question no:6 to 10 are short answer questions and carry 2 marks each.
- 4)Question no:11 to 22 are short answer question and carry 3 marks each.
- 5)Question no:23 is value based question and carry 4 marks.
- 6)Question no:24 to 26 are long answer question and carry 5marks.
- 7)Use log tables if necessary , use of calculator is not allowed.

1. What is the role of depressant in froth floatation process ?
2. Write a short note on Kolbesreaction .
3. Name the reagent to covert phenol to 2,4,6 tribromo phenol
4. Which of the following solutions shows higher boiling point 1M glucose or 1M sodiumchloride .Why?
5. Draw the structure of cyclopropanoneoxime.
6. Name the common elements found in the anode mud in electrolytic refining of copper.Why are they so present?

OR

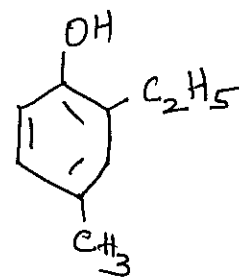
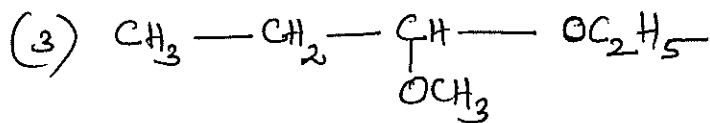
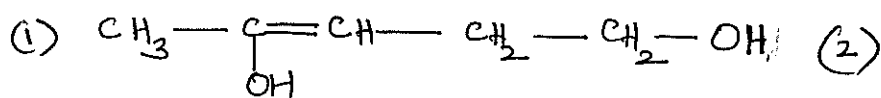
How is cast iron different from pig iron ?

7. Describe the preparation of sulphuric acid by contact process .
8. The treatment of alkyl chlorides with aqueous KOH leads to the formation of alcohols but in presence of alcoholic KOH , alkenes are the major products. Explain.
9. Discuss the variation of a mixture of phenol and aniline from ideal behaviour with diagram.
10. 1)Write a feature to distinguish between a metallic solid from ionic solid.
2)Atoms of element B forms hcp lattice and those of element A occupy $\frac{2}{3}$ rd of the tetrahedral voids . Find the formula of the compound formed by these elements .
11. 1)While separating a mixture of ortho and para nitro phenols by steam distillation, name the isomer which will be steam volatile. Give reason.
2)Write the mechanism involved in the conversion of ethene to ethanol .

12. 1) Outline the principles of refining of metals by the following methods
1) Zone refining.
2) Vapour phase refining.
2) What is the importance of cryolite in the metallurgy of aluminium ?
13. 1) A hydrocarbon C_5H_{10} does not react with chlorine in dark but gives a single monochloro compound C_5H_9Cl in sun light . Identify the hydrocarbon .
2) Convert the following
1) Benzene to 4 bromo nitro benzene .
2) 2-chlorobutane to 3,4 dimethyl hexane .
14. 1) Calculate the mass of nonvolatile solute (molar mass=40g/mol) which should be dissolved in 114g of octane to reduce its vapour pressure to 80% (Atomic mass C-12, H-1)
2) What are the advantages of finding molecular mass by osmotic pressure ?
15. Give reasons
1) Dipole moment of chlorobenzene is lower than that of cyclohexyl chloride
2) Grignard reagent should be prepared under anhydrous conditions .
3) p-Dichlorobenzene has higher melting point than ortho and meta isomers.
16. 1) How can the presence of SO_2 be detected?
2) Write the order of thermal stability of hydrides of group 16 elements and justify your answer.
3) How is ozone estimated quantitatively?
17. 1) Explain how a group 14 element can be converted to n type semiconductor.
2) Distinguish between hcp and ccp arrangement.
18. 1) Distinguish between red phosphorus and white phosphorus.
2) Why does the reactivity of nitrogen differ from phosphorus ?
19. The vapour pressure of pure liquids A and B are 450 and 700mm of Hg respectively, at 350K. Find out the composition of the liquid mixture if the total vapour pressure is 600mm of Hg. Also find the composition of vapour phase.
20. 1) Write the equation of reaction of HI with methoxybenzene
2) Sodium methoxide and 2-chloro-2-methyl propane is not an appropriate reaction mixture for the preparation of t-butyl ethyl ether
a) What would be the major product of above mixture ? Why?
b) Write a suitable reaction for the preparation of t-butyl ethyl ether .

OR

1) Write the IUPAC name of the following



21. 1) Give the disproportionation reaction of H_3PO_3 .

2) What happens when white phosphorus is heated with concentrated NaOH solution in an inert atmosphere of CO_2 ?

3) Why does NO_2 dimerise?

22. 1) Write short notes on

1) Aldol condensation

2) Etard's reaction

2) Would you expect benzaldehyde to be more reactive or less reactive to nucleophilic addition reaction than propanal, Explain your answer.

23. Scuba divers must cope with high concentrations of dissolved gases while breathing air at high pressure under water. Increased pressure increases the solubility of atmospheric gases in blood. When these scuba divers come to the surface capillaries are blocked by the nitrogen bubbles that cause a painful medical condition in their life. Oxygen level is less at high altitudes.

1) How can we save the life of scuba divers?

2) Name the medical condition suffered by scuba divers.

3) What is the effect of temperature on solubility of gases in water?

4) Why the mountain climbers at high altitude have low concentration of oxygen in blood? What is this medical condition?

24. 1) An element crystallizes in hcp arrangement with edge length of 200 pm. Calculate its density, if 200 g of this element contains 24×10^{23} atoms.

2) Define f-centre.

3) Why is Frenkel defect not found in alkali metal halides?

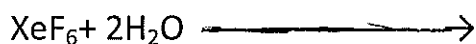
OR

1) Analysis shows that nickel oxide has formula $\text{Ni}_{0.98}\text{O}_{1.00}$. What fraction of nickel exist as Ni^{2+} and Ni^{3+} .

2) What is the nature of crystal defect produced when sodium chloride is doped with magnesium chloride? Explain.

3) What happens when a ferromagnetic substance is heated ?

25. 1) Complete the reactions



2) Account for the following:

- 1) Halogens are coloured .
- 2) Electron gain enthalpy of fluorine is less than chlorine.
- 3) Noble gases have low boiling point.

OR

1) What inspired Neil Bartlett for carrying reaction between Xe and PtF_6 ?

2) Arrange the following in the increasing order of property indicated,

- a) $\text{F}_2, \text{Cl}_2, \text{Br}_2, \text{I}_2$ (Bond dissociation enthalpy)
- b) $\text{HF}, \text{HCl}, \text{HBr}, \text{HI}$ (acid strength)

3) Give the formula and the structure of the noble gas species which is isostructural with IBr_2^- .

4) Write one use of I_2O_5 .

26. 1) An organic compound with molecular formula $\text{C}_9\text{H}_{10}\text{O}$ forms 2,4 DNP derivative, reduces Tollen's reagent and undergoes Cannizzaro reaction. On vigorous oxidation it gives 1,2 benzenedicarboxylic acid.

Identify the compound & IUPAC name.

2) Distinguish between the following compounds

- 1) Ethanal and Benzaldehyde .
- 2) Acetophenone and Benzophenone .

OR

1) Give reasons,

a) Cyclohexanone forms cyanohydrin in good yield but 2,2,6-trimethylcyclohexanone does not form corresponding cyanohydrin.

b) There are two NH_2 groups in semicarbazide, but only one is involved in the formation of semicarbazone .

2) Write the IUPAC name of $\text{CH}_3-\text{CO}-\text{CH}_2-\text{CHO}$.

3) Arrange the following in the increasing order of reactivity towards HCN,

Ethanal, propanone, propanal .