

## WORKSHEET-2014

GRADE : XII

SUB :CHEMISTRY

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1. Halogens are strong oxidising agents. Why?
2. What is F-centre?
3. Why is p-nitrophenol more acidic than p-cresol ?
4. Arrange the following compounds in the order of their increasing boiling point . Pental-1-ol, butan-1-ol, butan-2-ol, ethanol, propan-1-ol, methanol
5. What are azeotropes ?
6. How will you convert benzene to diphenyl?
7. Chloroform is stored in dark coloured bottles completely filled. Why?
8. Why is sulphuric acid not used during the reaction of alcohol with KI ?
9. Distinguish between order and molecularity.
10. Although chlorine is an electron withdrawing group, yet it is ortho-para directing in electrophilic aromatic substitution reactions.
11. The rate constant for the first order decomposition of  $\text{H}_2\text{O}_2$  is given by the following equation.  
$$\log k = 14.34 - 1.25 \times 10^4 \text{ K/T}$$
Calculate  $E_a$  for this reaction.
12. Write balanced equations for the following.
  - (a). NaCl is heated with  $\text{H}_2\text{SO}_4$  in presence of  $\text{MnO}_2$  .
  - (b). Thermal decomposition of barium azide.
13. In a closed packed structure of oxides, one-eighth of the tetrahedral holes are occupied by bivalent cations and half of the octahedral holes are

occupied by trivalent cations. Find the molecular formula of the oxide.

14. For the decomposition of azoisopropane to hexane and nitrogen (first order) at 543 K, the following data are obtained.

t (sec)	P(mm of Hg)
0	35.0
360	54.0

Calculate the rate constant.

15. State Henry's law and mention some important applications.
16. (a) Write the mechanism of hydration of ethene to yield ethanol  
(b) Write the reaction of Williamson's synthesis of 2-ethoxy-3-methyl pentane starting from ethanol and 3-methyl pentan-2-ol
17. What are essential and non essential amino acids?
18. How is  $\text{SO}_2$  an air pollutant? How is its presence detected?
19. Write the reaction of copper metal with dilute and concentrated  $\text{HNO}_3$ .
20. Differentiate between globular and fibrous proteins.
21. a. How do you prepare phenol from (i) aniline (ii) cumene  
b. Explain Reimer-Tiemann reaction with an example.
22. Give reason for the following  
(a). Fluorine is a stronger oxidizing agent than chlorine.....  
(b). Nitrogen is less reactive at room temperature.  
(c). Pentahalides are more covalent than trihalides.
23. An aqueous solution of 2% non volatile solute exerts a pressure of 1.004 bar at the normal boiling point of the solvent. What is the molar mass of the solute?

24. The nearest neighbouring silver atoms in the silver crystals are  $2.87 \times 10^{-10}$  m apart. What is the density of silver? Silver crystallises in fcc form. [atomic mass of Ag = 108]

25. Give two reactions to show the acidic nature of phenol. Compare acidity of phenol with that of ethanol.

26. What is meant by the following terms

(i).invert sugar      (ii)peptide bond      (iii) glycosidic linkage

27. Draw the structure of

(i)  $\text{H}_2\text{S}_2\text{O}_7$       (ii) perchloric acid      (iii)  $\text{XeO}_3$

28. Give three reactions of glucose which cannot be explained by its open chain structure.

29. What is the role of adsorption in heterogeneous catalysis?

30. What happens when persistent dialysis of a colloidal sol is carried out?

31. What do you understand by activation of adsorbent?

32. A first order reaction takes 40 min for 30% decomposition. Calculate  $t_{1/2}$ .  
33. Determine the osmotic pressure of a solution prepared by dissolving 25 mg of  $\text{K}_2\text{SO}_4$  in 2 litres of water at 25 C, assuming that it is completely dissociated.

34. Which colligative property is preferred for the molar mass determination of macromolecules? Why?

33. How will you convert

(i).ethanoic acid into methanamine

(ii).methanol to ethanoic acid

34. Write short notes on:

(i).Ammonolysis

(ii).Coupling reaction

(iii).Diazotisation

35. Why cannot aromatic primary amines be prepared by Gabriel phthalimide synthesis?
36. (a). What is tincture of iodine ?What is its use?  
(b) What are the main constituents of dettol?  
(c).What is the use of aspartame limited to cold foods and drinks?  
(d).How are synthetic detergents better than soaps?

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