



# CHEMISTRY

## BOOKS - MODERN PUBLICATION

### SAMPLE PAPER 2020

#### Exercise

1. Natural rubber is the polymer of—

A. Acrylonitrile

B. Isoprene

C. vinyl chloride

D. Chloroprene

**Answer: B**



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The name of the above reaction is

A. Riemer- Tiemann reaction

B. Aldol condensation

C. Williamson synthesys

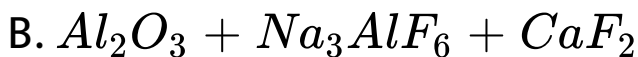
D. Kolbe's reaction

**Answer: C**



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**3.** Aluminium is extracted from alumina by electrolysis of amolten mixture of



**Answer: B**



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4. Which class of chemical compounds is used to relieve pain ?

A. Analgesic

B. Antipyretic

C. Antiseptic

D. Tranquilizer

**Answer: A**



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5. Sulphur molecule is

A.  $S_2$

B.  $S_4$

C.  $S_8$

D.  $S_6$

**Answer: C**



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**6.** The dispersed phase and dispersion medium in smoke are respectively

A. Gas and liquid

B. Liquid and gas

C. Solid and gas

D. Solid and liquid

**Answer: C**



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7. Which of the following 0.1M aqueous solutions is likely to have the highest depression in freezing point ?

A.  $Na_2SO_4$

B.  $NaCl$

C. Glucose

D.  $Na_3PO_4$

**Answer: D**



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**Exercise**



1. Write the names of the vitamins, the deficiency of which causes anaemia



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2. Which noble gas mixed with oxygen is used by sea - divers for their respiration under water ?



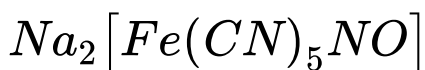
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3. Which disaccharide on hydrolysis in presence of the catalyst invertase produces glucose and fructose ?



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4. Write IUPAC name of the compound



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5. The smallest repeating unit in crystal lattice which when repeated over and over again produces the complete crystal is .....



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6. What is the relation between standard Gibbs free energy and standard emf of the cell ?



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7. Write the name of the reagent that reacts with formaldehyde to give sodium formate and methyl alcohol.



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8. Match the compounds in column I with their functions in Column II correctly :

**Column I****Column II**

- |                               |                           |
|-------------------------------|---------------------------|
| (a) 1% solution of phenol     | (i) Preservative          |
| (b) Sodium hydrogen carbonate | (ii) Artificial sweetener |
| (c) Aspartame                 | (iii) Antacid             |
| (d) Sodium metabisulphite     | (iv) Disinfectant         |

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9. What happens when a mixture of calcium acetate and calcium formate is dry distilled?

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10. What is the role of limestone in the extraction of iron from red haematite?



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11. 2.75g of  $Na_2CO_3$  is present in 200 ml of  $Na_2CO_3$  solution. Calculate the molarity of the solution.



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**12.** What is Rosenmund reduction reaction?



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**13.** Why is electron affinity of chlorine greater than that of fluorine ?



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**14.** What is Tyndal effect ? Explain with diagram.



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15. What happens when ethyl alcohol is heated with excess conc.  $H_2SO_4$  at  $160^\circ C$ ?



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16. What happens when  $SO_2$  gas is passed through lime water first slowly and then in excess ?



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17. If at  $25^\circ C$ , the standard emf of the cell  $Zn(s) | Zn^{2+} (1M) || Cu^{2+} (0.1M) | Cu(s)$  is 1.3 volt, calculate the emf of the cell.



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18. What are ionization and linkage isomerism?  
Give one example of each.



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19. Benzoic acid on treatment with  $Br_2$  and  $FeBr_3$  gives the compound (A), which on treatment with  $NH_3$  gives the compound (B). The compound (B) on heating gives the compound (C). Write the structures of compounds (A), (B) and (C) in the above sequence of reactions.



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20. The boiling point of benzene is  $353.2K$ . When 1.8 g of a non - volatile solute was

dissolved in 90 g benzene the boiling point was raised to  $354.1K$ . Calculate the molecular mass of the solute. ( $K_b$  of benzene =  $2.53 K kg mol^{-1}$ )



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**21.** Discuss the mechanism of  $S_N2$  reaction.



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**22.** What are addition and condensation polymerisation? Give one example of each.



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**23.** Write three differences between physical and chemical adsorption.



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**24.** What is lanthanide contraction? Write any two of its consequences.



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**25.** Write a note on denaturation of protein.



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**26.** Give three differences between crystalline and Amorphous solids.



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27. Inter halogen compounds are :



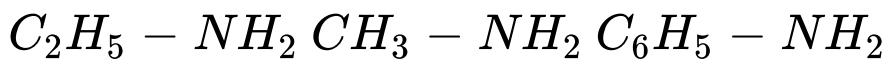
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28. How can you prepare methyl amine by Hofmann bromamide reaction ? Write the action of methyl amine with  $CHCl_3$  and alcoholic  $KOH$  solution .



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**29.** Arrange the following amines in the increasing order of their basicity :



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**30.** Define molecularity and order of reaction  
.Drive an expression for the rate constant of a zero order reaction.



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**31.** The half - life period of a first order reaction is 30 minutes. How much time is required for 75% completion of the reaction ( $\log 2 = 0.301$ )



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**32.** Define specific, equivalent and molar conductance. Write their units. Derive the relation between specific conductance and molar conductance. What is the effect of



dilution on specific and equivalent conductance?



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33. The value of  $\Lambda_{eq}^{\infty}$  for  $NH_4Cl$ ,  $NaOH$  and  $NaCl$  are respectively, 149.74, 248.1 and 126.4  $\Omega^{-1}cm^2equiv^{-1}$ . The value of  $\Lambda_{eq}^{\infty}$  of  $NH_4OH$  is



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**34.** Discuss the principles involved in the preparation of ammonia by Haber's process. What happens when ammonia is heated with oxygen in presence of platinum gauze at  $500^{\circ}C$ .



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**35.** Write the method of preparation of phenol from chlorobenzene by Dow's process. What

happens when phenol reacts with

conc.  $H_2SO_4$ .



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**36.** Arrange the following in the increasing order of their acidic strength:

o-cresol, m-cresol, p-cresol, phenol



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