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SUBJECT NAME –CHEMISTRY  
GRADE- XII

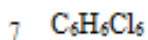
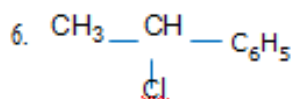
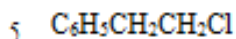
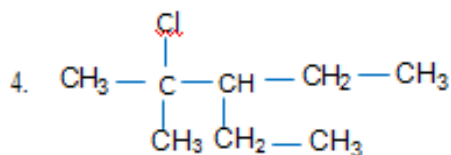
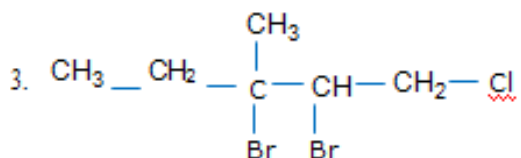
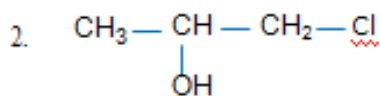
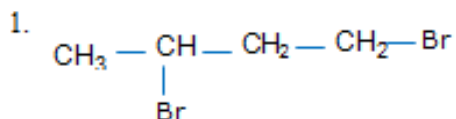
QUESTION BANK

CHAPTER 1

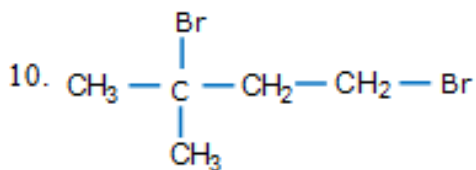
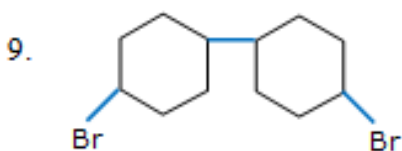
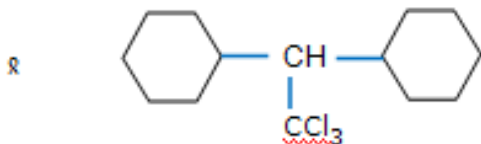
Haloalkanes and Haloarenes

(1). Give IUPAC names of following compounds

1x10=10



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(2). Give the structures of following.:

1x10=10

1. 1,3-Dichloro -2-(bromomethyl) propane
2. Isobutylchloride
3. Ortho bromotoluene
4. 1 – Bromo – 4 – chlorobutane
5. 3 – Bromo – 5 – chloro – 3,5 – dimethyloctane
6. 2,3 – Dibromo – 1 – chloro -3- methylpentane
7. 2 – Chloro – 3 – ethyl -1, 4- pentadiene
8. 2,3 – Dibromo – 1 – chloro -3- methylpentane
9. 2 – Chloro – 1 – phenylpropane
10. Tert – butylchloride



**Topic:- Reasoning Questions**

**Explain giving reasons:- (each question carries 2 marks)**

1. Thionyl chloride is preferred for converting alcohol to haloalkane.
2. Phenol cannot be converted to chlorobenzene by reacting with HCl.
3.  $\text{HNO}_3$  is added during iodination of benzene.
4. p- dichlorobenzene has higher melting point than meta – dichlorobenzene.
5. The boiling points of isomeric haloalkenes decrease with increase in branching.
6. Hydrolysis of optically active 2- bromobutane forms optically inactive butan - 2 - ol.
7. Chlorobenzene is less reactive towards nucleophilic substitution reaction.
8. Chloroform is stored in dark coloured bottles.
9. The order of boiling points is  $\text{RCl} < \text{RBr} < \text{RI}$ .
10. Vinyl chloride is less reactive than allyl chloride

**Topic:- Conversions**

**Convert**

1. 1 - Butene to 1 — chlorobutane.
2. Ethene to ethanol.



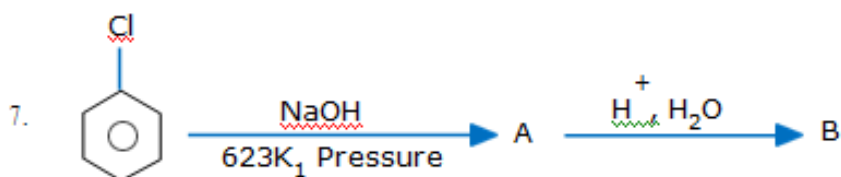
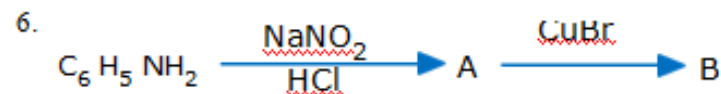
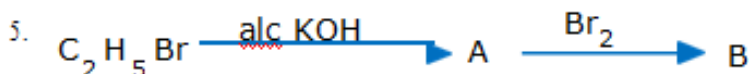
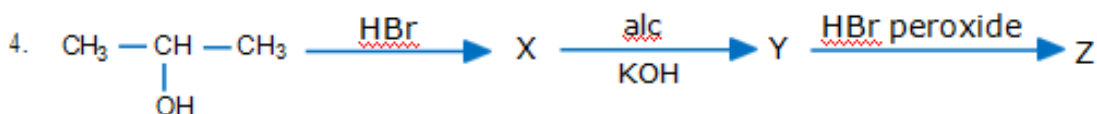
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3. Chlorobenzene to phenol.
4. Methyl bromide to acetic acid.
5. 2- chlorobutane to sec- butyl ethyl ether.
6. Chlorobenzene to benzyl chloride.
7. Chlorobenzene to Benzene.
8. Methane to Ethane.
9. Benzene to o- chlorotoluene.
10. 1- chloropropane to 2- iodopropane.

**Topic:- Identification Question**

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1.  $CH_3CH_2CH_2Br \xrightarrow{alc. KOH} (X) \xrightarrow{H_2, H_2O} (Y) \xrightarrow{PCl_5} (Z)$
2. An organic compound 'A' having molecular formula  $C_3H_6$  on treatment with aqueous  $H_2SO_4$  gives 'B' which on treatment with Lucas reagent gives 'C'. The compound 'C' on treatment with ethanolic KOH gives back on compound 'A'. Identify A, B, & C.
3. An organic compound 'A' on heating with  $NH_3$  and cuprous oxide at high pressure gives compound 'B'. The compound 'B' on treatment with ice cold solution of  $NaNO_2$  and  $HCl$  gives 'C', which on heating with copper turning and  $HCl$  gives 'A' again. Identify A, B & C. compound



8. A compound 'A' contains carbon and hydrogen only and has molecular mass of 72. Its photo chlorination gives a mixture containing only one monochloro and two dichloro hydrocarbons. Deduce the structure of A and chlorinated products.



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**Topic:- Miscellaneous Questions**

1. What is lucas reagent? [1]
2. Which of the following will show optical isomerism  
1 – bromobutane or 2 – bromobutane? [1]
3. Arrange  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Br}$ ,  $(\text{CH}_3)_3\text{CBr}$ ,  $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{Br}$   
in order of increasing boiling points. [1]
4. Give an example of [2]
  - (a) Fittig reaction
  - (b) Finkelstein reaction.
5. What happens when [2]
  - a) Thionyl chloride acts upon I - propanol.
  - b) Ethanol reacts with  $\text{PBr}_3$
6. How many aromatic isomers are possible for the formula  $\text{C}_7\text{H}_7\text{Cl}$ ?  
Write the structure and names. [2]
7. How is chlorobenzene prepared by [2]
  - (a) direct chlorination
  - b) diazotization method?
8. How can we distinguish between an alkyl halide and aryl halide? [2]



## CHAPTER 2

### Biomolecules

1. Which biomolecule is distributed more widely in a cell?

- a. Chloroplast
- b. RNA
- c. DNA
- d. Spaherosomes

2. Which is a reducing sugar?

- a. Galactose
- b. Gluconic acid
- c. Sucrose
- d.  $\beta$ -methyl galactosidase

3. Most abundant RNA in the cell

- a. rRNA
- b. mRNA
- c. tRNA
- d. tRNA threonine

4. Name the simplest amino acid

- a. Alanine
- b. Tyrosine
- c. Asparagine
- d. Glycine

5. Mineral associated with cytochrome is

- a. Mg
- b. Cu and Ag
- c. Fe
- d. Cu

6. The most common secondary structure of proteins is

- a.  $\beta$ -pleated sheet
- b.  $\beta$ -pleated sheet parallel
- c.  $\beta$ -pleated sheet non-parallel
- d.  $\alpha$ -helix

7. The term enzyme was coined by

- a. Urey Miller



- b. Pasteur
  - c. Kuhne
  - d. Buchner
8.  $\beta$ -oxidation occurs in
- a. Nucleus
  - b. Cytoplasm
  - c. Mitochondria
  - d. Chloroplast
9. Koshland's theory of enzyme action is known as
- a. Lock and key theory
  - b. Reduced fit theory
  - c. Induced fit theory
  - d. Enzyme coenzyme theory
10. A high content of triglycerides are found in
- a. VLDL
  - b. LDL
  - c. HDL
  - d. Chylomicrons
11. Haemoglobin has
- a. Primary structure
  - b. Secondary structure
  - c. Tertiary structure
  - d. Quaternary structure
12. Which is the most abundant biomolecule on earth?
- a. Mineral salts
  - b. Proteins
  - c. Lipids
  - d. Carbohydrates
13. In which of the following an anticodon occurs
- a. tRNA
  - b. mRNA
  - c. rRNA
  - d. DNA
14. The fastest enzyme is
- a. DNA gyrase
  - b. Pepsin
  - c. DNA polymerase
  - d. Carbonic anhydrase





15. Which of the following is a phospholipid?

- a. Sterol
- b. Cholesterol
- c. Lecithin
- d. Steroid

VERY SHORT ANSWER TYPE QUESTIONS:

1. What class of drug is Ranitidine ?
2. If water contains dissolved  $\text{Cu}^{2+}$  ions, out of soaps and synthetic detergents, which will you use for cleaning clothes ?
3. Which of the following is an antiseptic ?
4. Differentiate between disinfectant and antiseptic.
5. What is the cause of feeling of depression in human beings ? Name a drug which can be useful in treating this depression.
6. What are food preservatives ? Name two such substances.
7. Differentiate between disinfectants and antiseptics. Give one example of each group
8. What is understood by chemotherapy? What is tincture iodine and what is it used for
9. Why do soaps not function in hard water for washing clothes ? How are synthetic detergents better than soap for this purpose ?

SHORT ANSWER TYPE QUESTIONS:

1. What are the following substances ? Give one example of each.
  - (i) Food preservatives.
  - (ii) Synthetic detergents.
  - (iii) Antacids.



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2. Explain the following terms with one example in each case.
  - (i) Artificial sweeteners
  - (ii) Enzymes
  - (iii) detergents
3. What are analgesics drugs ? How are they classified and when are usually recommended for use ?
4. Explain the following with an example each.
  - (i) Antibiotics
  - (ii) Antiseptics
  - (iii) analgesics
5. Describe the following substances with one suitable example of each type:
  - (i) Non-ionic detergents.
  - (ii) Food preservatives
  - (iii) Disinfectants
6. What are biodegradable and non-biodegradable detergents? Give one example of Each type.
7. What are artificial sweetening agents? Give two examples.

### LONG ANSWER TYPE QUESTIONS:

1. What are monosaccharides ?
2. What are reducing sugars?
3. Write two main functions of carbohydrates in plants.
4. Classify the following into monosaccharides and disaccharides. Ribose, 2-deoxyribose, maltose, galactose, fructose and lactose.
5. What do you understand by the term glycosidic linkage?
6. What is glycogen? How is it different from starch?
7. What are the hydrolysis products of (i) sucrose, and (ii) lactose?
8. What is the basic structural difference between starch and cellulose?



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9. What happens when D-glucose is treated with the following reagents.  
(i) HI (ii) Bromine water (iii) HNO<sub>3</sub>
10. Enumerate the reactions of D-glucose which cannot be explained by its open chain structure.
11. What are essential and non-essential amino acids? Give two examples of each type.
12. Define the following as related to proteins:
- (i) Peptide linkage
  - (ii) Primary structure
  - (iii) Denaturation

### Competency based questions

- 1 Glucose or sucrose is soluble in water but cyclohexane and Benzene (simple six membered ring compounds) are insoluble in water Explain.
- 2 What are the expected products of hydrolysis of lactose?
- 3 How do you explain the absence of aldehyde group in the pentaacetate of D-glucose?
- 4 The melting points and solubility of amino acids in water are generally higher than those of corresponding haloacids. Explain.
- 5 Where does the water present in the egg go after boiling the egg?
- 6 Why cannot Vitamin C be stored in our body?
- 7 What products would be formed when a nucleotide from DNA containing thymine is hydrolysed?
- 8 When RNA is hydrolysed, there is no relationship among the quantities of materials. What does this fact suggest about the structure of RNA?



**Topic:- Carbohydrates and their classification**

1. How is glucose obtained from starch? [1]
2. Give a reaction to prove that –
  - (a) Glucose has carbonyl group
  - (b) The six carbons in glucose are arranged in a straight chain [2]
3. What is the significance of 'D' and '+' before the name of glucose in D (+) – glucose? [2]
4. Which reaction of glucose cannot be explained by its cyclic structure? [2]
5. What are anomers? Name the two anomers of glucose. [2]
6. Give the structures of  $\alpha$  and  $\beta$  forms of glucose. [2]
7. What are the expected products of hydrolysis of
  - (a) Sucrose
  - (b) Galactose [2]
8. What is animal starch ? Where is it found? [2]
9. Give two examples of polysaccharides. [1]
10. Name any Hexose other than glucose

**Topic:- Proteins**

1. What is the basic unit of proteins? [1]
2. How are amino acids classified[2]



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3. Give an example of zwitter ion? [1]
4. Write the name of bond between the two  $\alpha$  - amino acids. [1]
5. Differentiate between fibrous and globular proteins.[1]
6. What is the information given by primary structure of proteins? [1]
7. Differentiate between  $\alpha$  - helical and  $\beta$  - pleated sheet structure. [2]
8. What do you understand by secondary structure of proteins?
9. Name the forces responsible for secondary and tertiary structure.[1]
10. What is denaturation of proteins? Explain with examples.[1]

### Topic:- Enzymes and Vitamins

1. What are enzymes? [1]
2. How are enzymes named? Give an example.[2]
3. Give an example of enzyme catalysed reaction.[1]
4. What are vitamins? Give two examples.[1]
5. How are vitamins classified? [2]
6. Which vitamins cannot be stored in our body? [1]
7. Where are fat soluble vitamins like A, D, E, and K stored in our body? [1]
8. Write the disease caused by deficiency of vitamins A, B<sub>2</sub>, B<sub>6</sub>, B<sub>12</sub>, C, D E and K [4]



**Topic: - Nucleic Acids**

1. Name the different types of RNA molecules found in the cells of organisms [1]
2. What are the three components of nucleic acids? [1]
3. Name different bases present in (i) DNA (ii) RNA [2]
4. What is nucleoside? [1]
5. What type of bonding occurs between two nucleotides? [1]
6. Write the sequence of bases in the complementary strand of the given strand - [1]A G G C T
7. Name the various sugars present in RNA & DNA. [1]
8. Write functional differences between [2]