



**Octahedral classes, kharadi**  
**2nd floor, yashwant plaza, near bank of India,**

## **Class 10 - Science**

### **CARBON**

**Maximum Marks: 50**

**Time Allowed: 1 hour and 30 minutes**

#### **Section A**

1. Answer any 8 in one or two sentences

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- What would be the electron dot structure of carbon dioxide which has the formula  $\text{CO}_2$ ?
- "Carbon tetrachloride is not a good conductor of electricity". Give reason to justify this statement.
- Name the compound which is added to synthetic detergent to keep the dust particles suspended in water, and helps in cleansing process.
- State the valency of each carbon atom in
  - an alkane and
  - an alkyne.
- How many covalent bonds are there in a molecule of ethane ( $\text{C}_2\text{H}_6$ )?
- Complete the following reaction,  
 $\text{CH}_2 = \text{CH}_2 + \text{Cl}_2 \rightarrow$
- Name the functional groups present in the following compounds.
  - $\text{CH}_3\text{COCH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
  - $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$
  - $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CHO}$
  - $\text{CH}_3\text{CH}_2\text{OH}$
- On burning a hydrocarbon in air, a student obtains sooty flame. What does it indicates?
- Write the functional group in the given compound :  $\text{HCCOH}$
- What are constituents of an antifreeze?

#### **Section B**

2. Answer any 6 in brief

18

- When ethanol reacts with ethanoic acid in the presence of conc.  $\text{H}_2\text{SO}_4$ , a substance with fruity smell is produced Answer the following.
  - State the class of compounds to which the fruity smelling compounds belong. Write the chemical equation for the reaction and write the chemical name of the product formed.
  - State the role of conc.  $\text{H}_2\text{SO}_4$  in this reaction.
- Diamond is a poor conductor of electricity while graphite is a good conductor. Give reason.
- Name the property of ethanol which makes it useful in medicines.
  - Name the organic compound which is used in pickles. Mention its composition.
  - Mention any two uses of alcohol in medicines.
- What is a covalent bond? What type of bond exists in (i)  $\text{CCl}_4$  (ii)  $\text{CaCl}_2$ ?
- What is the composition of natural gas used for cooking?
- A cyclic compound X has molecular formula  $\text{C}_6\text{H}_6$ . It is an unsaturated compound and burns with sooty flame. Identify X and write its structural formula.. Will it decolourise bromine water or not and why?
- What would be the electron dot structure of a molecule of sulphur which is made up eight atoms of sulphur ?
- Name two forms of alcohol which are poisonous.

#### **Section C**

3. An organic compound A is widely used as a preservative in pickles and has a molecular formula  $C_2H_4O_2$ . 4  
This compound reacts with ethanol to form a sweet smelling compound B.  
i. Identify the compound A.  
ii. Write the chemical equation for its reaction with ethanol to form compound B.  
iii. How can we get compound A from B?  
iv. Name the process and write corresponding chemical equation.  
v. Which gas is produced when compound A reacts with washing soda? Write the chemical equation.
4. i. Distinguish between esterification and saponification reactions with the help of chemical equation for each. 4  
ii. Write an activity to show the formation of an ester in a school laboratory.
5. Define structural isomer and draw the isomeric structures of butane. Compare the structure of benzene and cyclohexane by drawing them. 4
6. Describe the addition reaction of carbon compounds with its application. State the function of catalyst in this reaction. How this reaction is different from a substitution reaction? Explain with an example. 4
7. Discuss the important characteristics of covalent compounds. 4
8. i. How is vinegar made? 4  
ii. What is glacial acetic acid? What is its melting point?  
iii. Why is butanoic acid a weak acid?  
iv. Write the name and the formula of the two compounds formed when the ester,  $CH_3COOC_2H_5$  undergoes saponification.