



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 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 (C_2H_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 indicate?
- Write the functional group in the given compound : HCCOH
- What are constituents of an antifreeze?

Section B

2. Answer any 6 in brief

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- When ethanol reacts with ethanoic acid in the presence of conc. H_2SO_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. H_2SO_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) CCl_4 (ii) CaCl_2 ?
- What is the composition of natural gas used for cooking?
- A cyclic compound X has molecular formula C_6H_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 of 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.
- Identify the compound A.
 - Write the chemical equation for its reaction with ethanol to form compound B.
 - How can we get compound A from B?
 - Name the process and write corresponding chemical equation.
 - 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.