

Model Question Paper
Carbon and its Compounds (C) - Part I

10th Standard

Science

Reg.No. :

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I. Answer all the questions.

II. Use blue pen only.

Time : 01:00:00 Hrs

Total Marks : 45

4 x 1 = 4

Part-A

- Buckminster fullerene is the allotropic form of _____.
(a) Nitrogen (b) Carbon (c) Sulphur
- Eventhough it is a non-metal, graphite conducts electricity. It is due to the presence of _____.
(a) free electrons (b) bonded electrons
- The formula of methane is CH_4 and its succeeding member ethane is expressed as C_2H_6 . The common difference of succession between them is _____.
(a) CH_2 (b) C_2H_2
- IUPAC name of the first member of alkyne is _____.
(a) Ethene (b) Ethyne

Part-B

5 x 2 = 10

- Write down the possible isomers and give their IUPAC names using the formula C_4H_{10} .
- Diamond is the hardest allotrope of Carbon. Give reason for its hardness.
- An organic compound (A) is widely used as a preservative in pickle and has a molecular formula $C_2H_4O_2$. This compound reacts with ethanol to form a sweet smelling compound (B). (i) Identify the compounds A and B. (ii) Name the process and write the corresponding chemical equation.
- An organic compound (A) of molecular formula C_2H_6O on oxidation with alkaline $KMnO_4$ solution gives an acid (B) with the same number of carbon atoms. Compound A is used as an antiseptic to sterilize wounds, in hospitals. Identify A and B. Write the chemical equation involved in the formation of B from A.
- C_2H_6O is the molecular formula for two compounds A and B. They have different structural formula. i) What is this phenomenon known as? ii) Give the structural formula of A and B. iii) Write down their common and IUPAC names. iv) Mention the functional groups of A and B.

Part-C

6 x 5 = 30

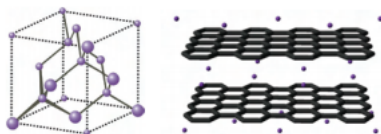
- 10) Fill the blanks in the given table using suitable formulae.

| No. | Alkane | Alkene | Alkyne |
|-----|--------------------|------------------|-----------------|
| 1 | C_2H_6 ethane | _____ ethene | C_2H_2 ethyne |
| 2 | _____ Propane | C_3H_6 Propene | _____ propyne |
| 3 | C_4H_{10} Butane | _____ Butene | _____ Butyne |

- Homologous series predict the properties of the members of the series. Justify this statement through its characteristics.
- Write the common name and IUPAC name of the following: i) CH_3CH_2CHO ii) CH_3COCH_3 iii) $CH_3-CH-CH_3$ iv) CH_3COOH v) $HCHO$



13)



Look at the diagram and answer the following questions: i) What type of structure do diamond and graphite have? ii) Why are diamonds used in cutting tools? iii) Why is graphite used in electrical circuits? iv) Name the force that accounts for the softness of graphite. v) Name the precious diamond you know and give its weight in grams.

- C_nH_{2n+2} is the general formula of a homologous series of hydrocarbons. i) Is this series saturated or unsaturated? ii) Name the series described above. Give the formula and name of the member with two carbon atoms. iii) Draw the structural formula of the first member of this series. iv) Define the homologous series and find the common difference between the successive members of this family. v) Write the formula of n-butane and n-pentane.
- Ethanol is heated with excess concentrated H_2SO_4 at 443K. i) Name the reaction that occurs and explain it. ii) Write the equation for the above reaction. iii) What is the product formed? What happens when this gas is passed through bromine water? iv) When ethanol vapour is passed through bromine water, why does no change occur?
