

# 22241

**23124**

**3 Hours / 70 Marks**

Seat No. 

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- Instructions* –
- (1) All Questions are *Compulsory*.
  - (2) Answer each next main Question on a new page.
  - (3) Illustrate your answers with neat sketches wherever necessary.
  - (4) Figures to the right indicate full marks.
  - (5) Assume suitable data, if necessary.
  - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any FIVE of the following: **10****
- a) Define organic compounds. Give its two characteristics.
  - b) Write general formula of ketone and aldehyde. Write example of each.
  - c) List the types of organic reactions.
  - d) State two industrial uses of Alkane and Alkyne.
  - e) Draw the structure of Glycerol and Glycol.
  - f) Write two chemical and physical properties of Alkyne and Alkene.
  - g) Define Carboxylic Acid with two examples.

P.T.O.

**2. Attempt any THREE of the following: 12**

- a) Explain the Mechanism of SN<sup>2</sup> reaction. Draw energy profile diagram for SN<sup>2</sup> Reaction.
- b) Classify the organic compounds based on their structure and functional group.
- c) Describe the method of preparing ethane by wartz synthesis.
- d) Define :
  - i) Absolute alcohol
  - ii) Methylated spirit
  - iii) Power alcohol
  - iv) Ethyl alcohol

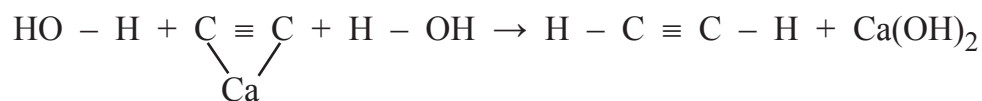
**3. Attempt any THREE of the following: 12**

- a) Explain the method of preparing aldehyde by heating calcium formate.
- b) Describe the method of preparing Acetic Acid using Grignard Reagent with suitable chemical reactions.
- c) Consider a following reaction. Name the reactants, reagents and product formed. Identify role of Zinc in this reaction.
$$\text{CH}_3 - \text{CH}_2 - \text{Br} + 2[\text{H}] \xrightarrow[\text{Zn} - \text{Cu}]{\Delta} \text{CH}_3 - \text{CH}_3 + \text{HBr}$$
- d) Describe the method of preparing Ethanol by direct hydration of ethylene with steam under pressure with chemical reaction.

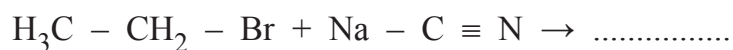
**4. Attempt any THREE of the following: 12**

- a) 'Alcohol is converted into Alkene'. Identify the type of reaction if Sulphuric acid is used for conversion. Describe the reaction with suitable example.
- b) Explain the method of preparing Acetone from isopropyl Alcohol with suitable chemical reaction.

- c) Consider the following reaction. Write the name of reactants, reagents and product. Identify the organic reaction.



- d) Predict the product of following reactions. Identify name of reactant and products.

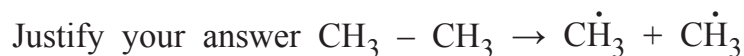


- e) Explain industrial uses of carboxylic acid. Describe role of acetic Acid in textile wet processing.

**5. Attempt any TWO of the following:**

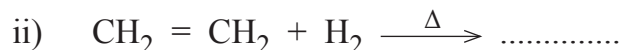
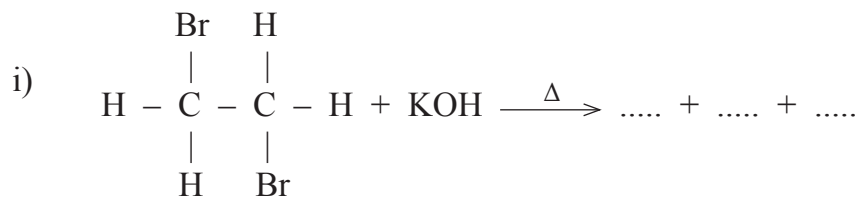
**12**

- a) Consider following reaction and identify the type of Bond fission occurring in same.



- b) Distinguish between Addition Reaction and substitution reaction. Explain the process of Addition and substitution reaction with suitable reaction.

- c) Observe the following reaction condition and predict the products. Identify the names of reactants and products.



6. Attempt any TWO of the following:

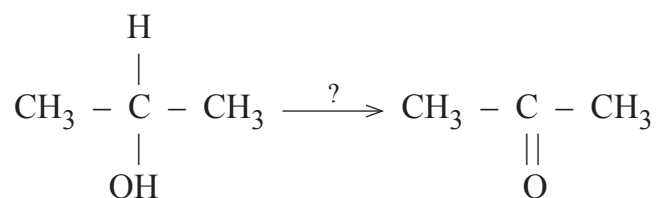
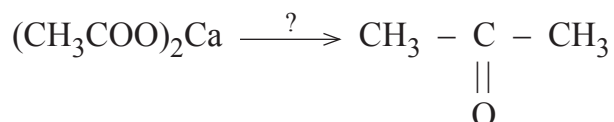
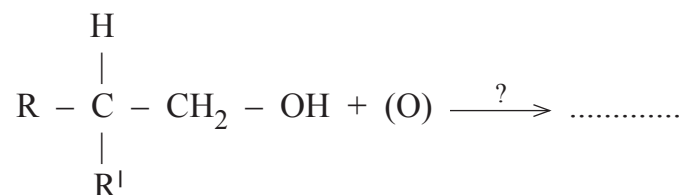
12

- a) Propan - 1 - ol and Ethanol undergoes oxidation in presence of  $K_2Cr_2O_7$  and  $H_2SO_4$ . Identify reactant and products.

Write chemical reaction for the same.

- b)  $HIO_3$  is used in preparing iodine derivate instead of direct iodine gas for iodination of Methane. While chlorine and bromine derivatives are formed vigorously using  $Cl_2$  and  $Br_2$  respectively. Explain it with suitable reaction

- c) Complete the following reactions and predict the products.




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