

22241

11920

3 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.
 - (5) 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) Classify organic compounds on the basis of their functional groups.
- b) Name the catalyst used in hydrogenation of unsaturated hydrocarbons to prepare alkane. Write suitable reaction for the same.
- c) Write IUPAC names of the following compounds:
 - (i) $\text{CH}_2 = \text{CH} - \text{CH}_2 - \text{OH}$
 - (ii) $\text{CH}_3 - \underset{\substack{| \\ \text{OH}}}{\text{CH}} - \text{CH}_2 - \text{CH}_3$
- d) List any four industrial uses of alcohol.
- e) Complete the following reaction and identify reactant, reagent and product.
$$\text{CH}_3 - \overset{\text{O}}{\parallel}{\text{C}} - \text{H} + \text{HCN} = ?$$
- f) Define ketone and state two physical properties of ketone.
- g) Write structural formula of 3-methyl butanoic acid.

P.T.O.

2. Attempt any THREE of the following: 12

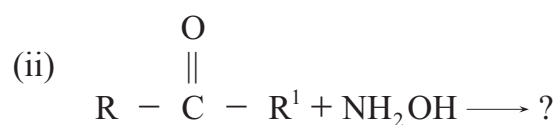
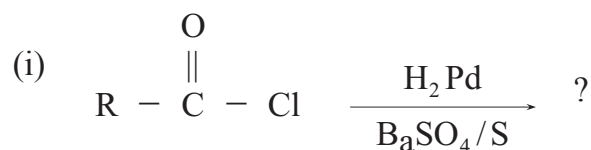
- Explain the term homologous series with suitable examples.
- State the types of organic reactions with suitable example of each.
- Predict the product, if dehydration of alcohol is carried. Identify reagent required for dehydration. Write chemical reaction for the same.
- Describe the method of ethanol preparation from ethylene.

3. Attempt any THREE of the following: 12

- Explain SN₂ reaction mechanism and draw energy profile diagram for the same.
- Describe Wurtz synthesis for preparation of *n* - Butane. Name the catalyst used in the reaction.
- Explain the action of PCl₃ on ethanol with chemical reaction.
- Convert the following reactants into given products.
 - Acetic acid to acetaldehyde
 - Ethene to propanal
 Write chemical reactions for the same.

4. Attempt any THREE of the following: 12

- Explain the method of acetylene preparation from ethylene dibromide. Determine reactants and products of the reaction.
- Predict the products of the following reactions.



- c) Describe the method of preparing acetic acid by hydrolysis of ethyl nitrile.
- d) Explain the method of preparing acid chloride from acetic acid using following reagents:
 - (i) PCl_3
 - (ii) PCl_5
 - (iii) SOCl_2
- e) Describe the role of ethanoic acid, glacial acetic acid and formic acid in textile wet processing.

5. Attempt any TWO of the following: 12

- a) Predict the reagent required for identification of aldehyde group. Explain the laboratory method of preparing the reagent.
- b) Write stepwise mechanism of chlorination of methane. Starting with chain initiation step.
- c) Predict the products if propane is treated with
 - (i) $\text{Br}_2 / \text{CCl}_4$
 - (ii) $\text{HBr} / \text{Peroxide}$

Write chemical reactions for the same.

6. Attempt any TWO of the following: 12

- a) Describe dehydrohalogenation of ethylbromide. Explain the order of reactivity of alkylhalide in this reaction.
- b) Describe the method of preparing following compounds with balance chemical equation.
 - (i) Ethylene
 - (ii) Diethyl ether
 - (iii) Ethyl Chloride
- c) Suppose a fabric sample is stained with grease, ink, marker ink and oil paint. Suggest the reagents to remove these stains. Talcum powder or chalk powder is spread on fabric while removing ink stain. Give the reason.