

**UNIVERSITY EXAMINATIONS**

**FIRST YEAR EXAMINATION FOR THE AWARD OF DEGREE OF  
BACHELOR OF SCIENCE IN ANIMAL PRODUCTION**

**CHEM 103: ORGANIC CHEMISTRY**

**STREAM: B.SC.ANPD Y1S1**

**TIME: 2 HOURS**

**DAY/DATE: THURSDAY 8/4/2010**

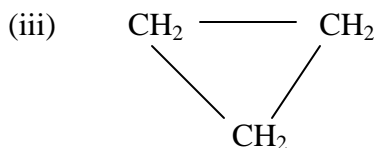
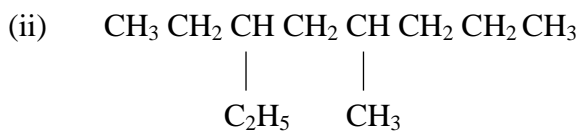
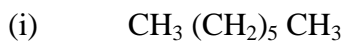
**8.30A.M.-10.30A.M.**

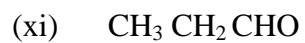
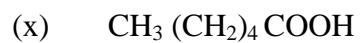
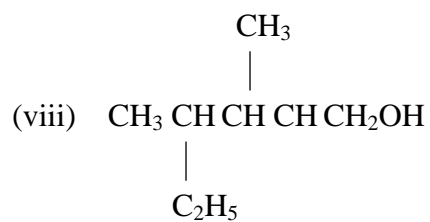
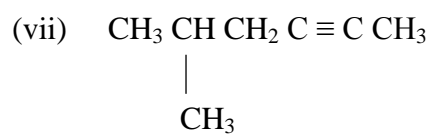
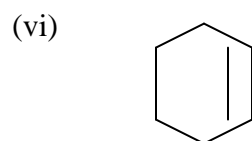
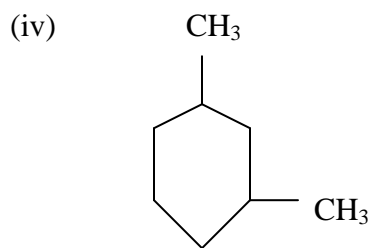
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**INSTRUCTIONS:**

Answer all the questions.

1. (a) Name the following compounds. [11 marks]





(b) Draw the structure of the following:

[9 marks]

- (i) 2, 2- dimethylpentane
- (ii) Cyclobutane
- (iii) 1,2-dimethylcyclopentane

- (iv) 2-methylhex - 2 -ene
  - (v) 4-ethyl-3-methylhex-1-yne
  - (vi) 2-methylpropan-2-ol
  - (vii) Methylamine
  - (viii) Trans-but-2-ene
  - (ix) Phenol
2. (a) (i) What is hybridization? [1 mark]
- (ii) Give two common modes of hybridization found in organic molecules. [2 marks]
- (b) (i) What is a functional group? [1 mark]
- (ii) Write brief notes on functional group containing C-Z sigma bond and give two types of compounds that contain such functional group. [4 marks]
3. (a) Give two types of cracking? [2 marks]
- (b) Give four methods of preparation of alkanes. [4 marks]
- (c) Propane may be prepared as below
- $$\text{CH}_3\text{CH} = \text{CH}_2 + \text{H}_2 \xrightarrow[25^\circ\text{c}]{\text{C}_2\text{H}_5\text{OH}} \text{CH}_3 \text{CH}_2 \text{CH}_3$$
- Name the catalyst and the pressure that would be used. [2 marks]
- (d) Explain the trend of the following physical properties of alkanes. [4 marks]
- (i) Boiling point
  - (ii) Solubility
- (e) Using clear mechanism and equations, explain how chlorination of Ethane (as a substitution reaction) takes place. [5 marks]

- Q.4 (a) With aid of an equation, explain how propene is prepared by dehydrohalogenation of alkyl halide. [3 marks]
- (b) (i) Apart from hydrohalogenation, give three other addition reactions of alkenes. [3 marks]
- (ii) Explain the mechanism involved in addition of hydrogen bromide to but-2-ene. [4 marks]
- (iii) What are tautomers? [1 mark]
- (c) With an aid of diagram, describe how ethyne is prepared in the laboratory. [5 marks]
- (d) Write brief notes on the following:
- (i) addition of water to an alkyne. [5 marks]
- (ii) Ozonisation of alkenes. [4 marks]
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