Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – III • EXAMINATION – WINTER 2012

Subject code: 132805 Date: 08-01-2013

Subject Name: Organic Chemistry

Time: 10.30 am – 01.00 pm Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** Fill in the blanks: **07**

1. The compounds possess the same molecular formula but differ from each other in physical or chemical properties are called _____.

2. The _____ distillation is suitable only for those liquids which boil without decomposition at atmospheric pressure.

3. The two fragments produced as a result of _____fission carry an odd electron each are called radicals.

4. The energy which is given off or released at the time of overlapping of orbitals to form one mole of bonds termed _____ energy.

5. _____ is the only aldehyde which gives haloform reaction.

6. As per Huckel Rule a system having _____ character will have $(4n+2)\pi$ electrons.

7. _____ type of isomerism arise from the difference in the structure of carbon chain which forms the nucleus of the molecule.

(b) Define the following terms: **07**

(1) Bonding orbitals (2) Bond angle (3) Optical isomers (4) Nucleophile
(5) Asymmetric carbon (6) Mechanism (7) Protic solvent

Q.2 **(a)** Describe different general methods of preparation of alkyl halides. What are the general properties of them? **07**

(b) 1. Write a note on mesomeric effect. **04**

2. Explain distillation under reduced pressure. **03**

OR

(b) 1. Explain polarity in covalent bond in detail. **04**

2. Write a note on sublimation method for the purification of solid organic compounds. **03**

Q.3 **(a)** What is Structural isomerism? Explain different types of it with proper examples. **07**

(b) 1. Define Heterocyclic compounds. Give brief account of five and six member ring compounds. **04**

2. Differentiate between substitution and addition organic reactions with examples. **03**

OR

Q.3 **(a)** Write the preparation, properties and uses of Naphthalene. **07**

(b) 1. Explain crystallisation method for purification of organic solid compounds. **04**

2. Write preparation and properties of Thiophene. **03**

Q.4 **(a)** Describe the methods of preparation of primary amines. **07**

(b) Define the following terms: **07**

(1) Covalent bond (2) Electro negativity
(3) Hund's Rule of Maximum Multiplicity
(4) Structural formula (5) Orbital (6) Resonance energy (7) Aufbau Principle

OR

Q.4	**(a)**	Write the preparation, properties and uses of Anthracene.	**07**
	(b)	Explain different methods of preparation of alcohols. How aldehydes differ from ketones?	**07**
Q.5	**(a)**	Explain preparation, properties and reactions of Pyridine and Furan.	**07**
	(b)	1. How different elements like nitrogen, sulphur and halogen can be detected in organic compound in laboratory?	**04**
		2. Explain preparation, properties and uses of esters.	**03**

OR

Q.5	**(a)**	Write a note on different types of organic reactions.	**07**
	(b)	1. Write preparation, properties and uses of Pyrrole.	**04**
		2. Explain the solubility test of an organic compound in the laboratory.	**03**

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