

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Sem-III (Biotechnology) Examination December 2009

Subject code: 130404

Subject Name: Organic Chemistry and Unit Processes

Date: 21 /12 / 2009

Time: 11.00 am – 1.30 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) What are organic reactions? Classify organic reactions and explain substitution reaction along with examples. 06
- (b) Give functional derivatives of carboxylic acids with examples. 04
- (c) Give the metallurgy of iron? 04

- Q.2**
- (a) What is meant by unit process? What is its utility for industrial purpose? Explain nitration. 06
- (b) Mention general steps involved in metallurgy with suitable examples. 04
- (c) Convert: 04
- i) Toluene to benzyl chloride
- ii) Naphthalene to 1,8 – di nitro naphthalene

OR

- (b) Give physico-chemical applications of Uranium. 04
- (c) Fill in the blanks: 04
- i) Substitution reaction takes place in \_\_\_\_\_ type of hydrocarbons.
- ii) Carbohydrates are \_\_\_\_\_ aldehydes and ketones.
- iii) Glucose is \_\_\_\_\_ type of sugar.
- iv) Transfer of electron results to \_\_\_\_\_ bonds.

- Q.3**
- (a) How can the mechanism be studied for organic compounds? Explain in detail. 06
- (b) Explain hybridization taking place in methane and ammonia molecule. 04
- (c) Mention principle involved in concentration techniques for metals. 04

OR

- Q.3**
- (a) What is hybridization? Mention types of hybridization with suitable examples. 06
- (b) Explain oxidation reaction with suitable examples. 04
- (c) What is thermite process? What is its utility? 04

- Q.4**
- (a) What are carbohydrates? Classify giving suitable examples and explain the structure of glucose in detail. 06
- (b) How is also hexoses converted to keto hexoses? 04
- (c) Explain Walden inversion with example. 04

OR

- Q.4** (a) Explain alkylation on the basis of unit processes. **06**  
(b) What is flux? What is its nature? Name the substance formed when flux combines with gangue impurity in metallurgical processes. **04**  
(c) Explain amination by aminolysis. **04**
- Q.5** (a) What is optical activity? Explain in detail with ray diagram. **06**  
(b) What are carboxylic acids and give IUPAC names of straight chain saturated compounds containing carbon atom 16 and 18. **04**  
(c) Explain halogenations on the basis of unit process with examples. **04**
- OR**
- Q.5** (a) Explain: **06**  
    i) Enantiomerism and distereomerism  
    ii) Racemic modification.  
(b) Mention physico – chemical property of steel with its application. **04**  
(c) Explain concept of Chirality. **04**

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