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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Petroleum Refinery Engg.) (2013 Onwards) (Sem.-3)

**ORGANIC CHEMISTRY**

Subject Code : BTPC-301

M.Code : 72190

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

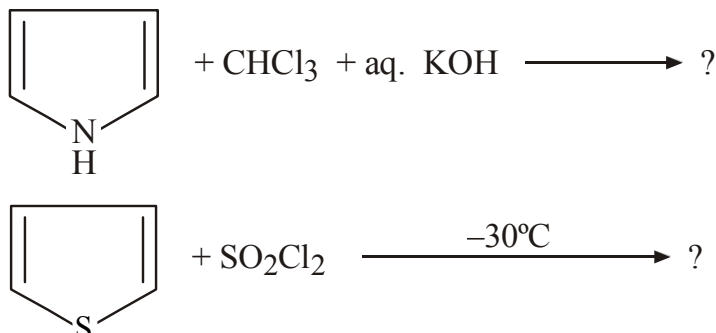
**SECTION-A****1. Write briefly :**

- a. Arrange the following in order of increasing boiling point :

Propanal, acetone, propan-1-ol, n-butane, methoxyethane

- b. Describe the mechanism for addition of hydrogen halides to the unsymmetrical alkenes using Markovnikov's Rule.
- c. What is nitrating mixture?
- d. Name the two catalysts used for reduction reactions.
- e. What are electrophilic? Give two examples
- f. What is the function of  $-SO_3H$  group in azo dyes?
- g. Distinguish between  $\alpha$  and  $\beta$  amino acids.
- h. Compare similarities between glucose and fructose.
- i. How will you get butanoic acid from malonic ester?

j. Complete the following :



### SECTION-B

2. Explain the mechanism of Friedel-Crafts alkylation.
3. Explain in detail the important reactions of fructose.
4. What are nucleophiles and what is nucleophilic addition?
5. Discuss the mechanism of chlorination of methane.
6. Explain the esterification with mechanism involved.

### SECTION-C

7. What are electrophiles? Give examples. Explain the general mechanism of an electrophilic aromatic substitution reaction.
8. Explain the method of estimation of acetone and principle involved.
9. How are the following dyes synthesized?
  - a. Methyl orange
  - b. Congo red

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**