

B.E./B.TECH. Degree Examination, December 2020

Third Semester

**CH16301-Organic Chemistry**

(Regulation 2016)

Time: Three hours

Maximum : 80 Marks

Answer **ALL** questions**PART A - (8 X 2 = 16 marks)**

1. What is the bond that joins two monosaccharide units?
  - a. Ether bond
  - b. Thiol bond
  - c. Glucose bond
  - d. Glycosidic bond
2. An acceptor of pair of electron is termed as
  - a. Nucleophile
  - b. Electrophile
  - c. Free radical
  - d. Anion
3. Bathochromic groups are
  - a) That brings about deepening of colour.
  - b) That brings about lightening of colour.
  - c) Positive groups.
  - d) Negative groups.
4. Which of the following is not a product of the reaction of benzene with  $\text{CH}_3\text{Cl}$  and  $\text{AlCl}_3$ ?
  - a) Toulene
  - b) Isopropyl benzene
  - c) O-xylene
  - d) P-xylene
5. Draw the Haworth structure of  $\beta$ -D-Fructofuranose.
6. Mention any two uses of THF.
7. What are Mordant dyes?
8. Suggest a method for the preparation of Diethyl malonate.

**PART B - (4 X16 = 64 marks)**

09. (a) (i) Write the product obtained when D-glucose reacts with (8)
  - 1) Acetic anhydride. 2) Three equivalents of phenylhydrazine
- (ii) Explain the chain shortening of an aldose by Ruff degradation. (8)

**(OR)**

- (b) (i) Discuss the conversion of glucose to fructose. **(8)**  
 (ii) Describe the Killiani-Fischer synthesis with an example. **(8)**
10. (a) (i) Propose a probable mechanism for the formation of Acetophenone from Benzene and Acetyl chloride. **(8)**  
 (ii) Explain the mechanism of Allylic bromination by N-Bromosuccinimide. **(8)**

**(OR)**

- (b) (i) Write a mechanism for the formation of  $\beta$ - Hydroxybutryaldehyde by the reaction of acetaldehyde with a base. **(8)**  
 (ii) Discuss the mechanism of free radical mechanism of halogenation. **(8)**
11. (a) (i) Give an account on Witt's theory of colour and constitution. **(8)**  
 (ii) Discuss the reactivity and orientation of Electrophilic substitution in Pyrrole. **(8)**

**(OR)**

- (b) (i) Write a suitable scheme for the synthesis of Phenolphthalein. **(8)**  
 (ii) Discuss the reactivity and orientation of Nucleophilic substitution in Pyridine. **(8)**
12. (a) Predict the structures of the Grignard reagent and the substrate that would react to yield each of the following alcohols. **(16)**  
 a) 2-phenyl-2-propanol      b) 1-methylcyclohexanol  
 c) 2,4-dimethyl-3-pentanol      d) 1-(p-tolyl)ethanol.

**(OR)**

- (b) Explain the synthetic utility of ethyl acetoacetate(EAA) in the formation of a ketone, 1,3-diketone and an acid. **(16)**