Reg.No.									

INTERNATIONAL CENTRE FOR APPLIED SCIENCES

(Manipal University)

III SEMESTER B.S. DEGREE EXAMINATION – OCT. / NOV. 2017

SUBJECT: TECHNICAL CHEMISTRY - 1 (CH 232)

(BRANCH: CHEMICAL ENGINEERING)

Saturday, 4 November 2017

Time: 3 Hours **Max. Marks: 100**

- ✓ **Answer ANY FIVE full Questions.**
- ✓ **Write diagrams, equations or examples wherever necessary**

1A. How is ethylamine prepared from the following?
i) Nitriles ii) oximes iii) Amides iv) Aldehydes
B. How the following compounds are obtained using Grignard reagent?
i) Propane ii) 1-Butene iii) 2-Butyne iv) Methyl propyl ether
C. Give reasons:
i) Formic acid is stronger than acetic acid
ii) Ammonia is more basic than pyridine

(8+8+4) M

2A. What are carbohydrates? How are they classified? Give examples
B. Explain the reactions of Glucose with the following:
i) Alcohol iii) Sodium hydroxide iii) Bromine solution iv) Fehling's solution
C. Explain with suitable examples the effect of following factors on the acidity of the organic compounds. i) Hydrogen bond ii) Resonance stabilization

(8+8+4) M

3A. What are diazoalkanes? Give the reactions of Diazomethane with the following:
i) HCl ii) Carboxylic acid iii) Alcohol
B. Describe the manufacturing process of sucrose from sugarcane
C. What is Mutarotation? Explain with a suitable example.

(8+8+4) M

4A. What are amino acids? How are they classified? Give an example for each
B. Explain how the ring structure of D-glucose is established. **C.**
C.Justify the following: i)
Fehling's solution can oxidize fructose but not bromine water
ii) Sucrose is a non-reducing sugar (8+8+4) M

5A. Discuss in detail the primary, secondary and tertiary structure of protein **B.**
B.Differentiate between the following:
i) Enzyme and co-enzyme ii) Essential and non-essential amino acids iii) Amylose and amylopectine iv) Globular and fibrous proteins
C. Write a note on the mechanism of enzyme action.

(8+8+4) M

6A. Discuss the various factors affecting the rate of enzyme action

B. Write a note on Huckel's theory of aromaticity and compare the aromaticity of furan, pyrrole and pyridine.

C. Explain the following reactions with an example each.

i) Paal Knorr Synthesis ii) Riemann Tiemann reaction

(8+8+4) M

7A. Explain the electrophilic and nucleophilic substitution reactions of pyridine with examples

B. What are dyes? Discuss the classification of dyes based on the structure by giving appropriate examples

C. Give reasons:

i) Mordant dye cannot be applied directly on fabrics.

ii) Benzene is colorless while azo-benzene is red

(8+8+4) M

8A. Discuss the following:

i) Fluorescent brightening agents

ii) Structure of cellulose

B. Explain the following:

i) Effect of activating and deactivating groups on aromatic electrophilic substitution reaction.

ii) Conversion of ketose to aldose

C. Justify the following:

i) Indole is more susceptible to undergo electrophilic substitution at C-3 position than C-2 position

ii) All amino acids are optically active except glycine.

(8+8+4) M