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ST—175—2022

FACULTY OF SCIENCE AND TECHNOLOGY

M.Sc. (Second Year) (Fourth Semester) EXAMINATION

MAY/JUNE, 2022

(New/CBCS Pattern)

ORGANIC CHEMISTRY

Paper (OCH-522)

(Advanced Organic Chemistry)

(Friday, 1-7-2022)

Time : 2.00 p.m. to 5.45 p.m.

Time— 3.45 Hours

Maximum Marks—75

N.B. :— (i) All questions are compulsory.

(ii) Figures to the right indicate full marks.

1. Solve any *three* : 15
- (a) What is enzyme specificity ? Explain the factors responsible for it.
 - (b) What are co-enzymes ? Explain structure, chemistry and properties of T.P.P.
 - (c) Give the synthesis and applications of organomagnesium compounds.
 - (d) Explain Acyloin condensation with example.
 - (e) Explain asymmetric hydrogenation including BINAP.
2. Answer the following (any *three*) : 15
- (a) Explain Reversible and Irreversible enzyme inhibitors.
 - (b) Give structure, mechanism of action and applications of Ribonuclease.
 - (c) Give the important remarkable properties of enzymes.
 - (d) How will you compare enzyme with non-biological catalyst.
 - (e) Give the introduction, generation & stability of free radicals.
3. (a) Explain Fisher's key and lock mechanism of enzyme action. 7

Or

Explain induced fit mechanism for enzyme action.

- (b) Explain Michaelis-Menten equation in detail. 8

P.T.O.

4. (A) Explain any *two* examples of proline catalysed asymmetric reactions. 7

Or

Give the introduction, classification and nomenclature of the enzymes in detail.

- (B) Explain the following with reactions with examples : 8
- (a) McMurray reaction
- (b) Hunsdieker reaction.
5. Select correct alternative for multiple choice questions : 5

(i) EC stands for :

- (a) Enzyme Commission (b) Equilibrium Constant
- (c) Enzyme Catalyst (d) None of these

(ii) Non-protein component of enzyme is called as :

- (a) Co-factor (b) Apoenzyme
- (c) Co-enzyme (d) Both (b) & (c)

(iii) PLP is..... group carrier.

- (a) Amino (b) Acyl
- (c) Carboxyl (d) Hydroxyl

(iv)free radicals are most stable.

- (a) Primary (b) Secondary
- (c) Tertiary (d) All of these

(v) Collection of abundant enantiopure building blocks provided by nature are :

- (a) Chiral pool (b) Chiral auxiliary
- (c) PLP (d) TPP

6. Write short notes on (any two) :

10

- (a) Factors affecting enzyme catalysed reactions
- (b) Acid-base catalysis
- (c) α -chymotripsin.