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WT—258—2024

FACULTY OF SCIENCE

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

NOVEMBER/DECEMBER, 2024

(CBCS/New Pattern)

ORGANIC CHEMISTRY

Paper XVIII (OCH-514/CH-534/2A

(Medicinal Chemistry)

(Tuesday, 17-12-2024)

Time : 2.00 p.m. to 5.00 p.m.

Time—3 Hours

Maximum Marks—75

N.B. :— (i) Attempt all questions

(ii) Figures to the right indicate full marks.

1. Solve any *three* of the following : 15

(a) Discuss the mechanism of blood clotting.

(b) Explain Oxidation reaction involved in drug metabolism.

(c) Explain the following terms :

(i) Pharmacophore

(ii) Pharmaceutics

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- (d) Discuss about inhibition of bacterial protein synthesis involved in mechanism of action of antibiotics.
- (e) What are Prodrugs ? Explain types of prodrugs.

2. Attempt any *three* of the following : 15

- (a) What is assay of drug ? Discuss about Chemical Assay.
- (b) What is lead ? Discuss about drug discovery without lead and lead discovery.
- (c) Explain structure and activity of Ethambutol.
- (d) Offer synthesis of 4-Hydroxy coumarin.
- (e) Discuss about X-ray crystallography used for Molecular Modeling.

3. (a) Discuss the following :

- (i) Occupancy theory,
- (ii) Rate theory and
- (iii) Induced theory of drug activity.

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Or

Explain elementary treatment of enzyme inhibition and membrane active drugs with respect to pharmacokinetics.

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(b) Offer synthesis of Acedapsona, Cycloserine and Ethambutol. 7

Or

(i) Give synthesis and SAR of Chloramphenicol.

(ii) Discuss SAR of sulphones as antileprotic agents.

4. (a) Discuss homologation, chain branching, ring chain transformation and bioisosterism involved in structure modification to increase potency and therapeutic index of drugs. 8

Or

Discuss distribution and elimination of drugs with respect to Pharmacodynamics.

(b) Discuss about competitive inhibitors and suicide enzyme inactivation used in designing of Enzyme Inhibitors. 7

Or

Discuss structure and activity of Coumarin derivatives and Benzyl Penicillin.

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5. Write short notes on any *three* of the following :

15

(a) Free Wilson method used in QSAR studies

(b) Biological assay

(c) Structure and activity of tetracycline

(d) Vitamin 'k' analogues.

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