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NEPWT—250—2024

FACULTY OF SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2024

(NEP-2020 Pattern)

ORGANIC CHEMISTRY

Paper—SCHEET-1501

(Medicinal Chemistry)

(Tuesday, 17-12-2024)

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

Time—3 Hours

Maximum Marks—80

N.B. :— (i) Question No. 1 is compulsory.

(ii) Solve any *three* questions from remaining five questions.

1. Solve the following : 20

(i) Explain the terms :

(1) Pharmaceutics

(2) Pharmacodynamics.

(ii) What is Prodrug ? Discuss prodrugs designing and types of prodrugs.

(iii) Explain the reduction reaction in drug metabolism with suitable example.

(iv) Explain inhibition of cell wall synthesis as mechanism of action of antibiotics.

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2. Discuss the following : 20
- (i) Biological defences and Chemical defences.
 - (ii) Procedures followed in drug design.
3. Answer the following : 20
- (i) Discuss the theories of drug activity ?
 - (ii) Give synthesis and SAR of 4-amino salicylic acid and isoniazid.
4. Solve the following : 20
- (i) How will you design the enzyme inhibitors by :
 - (1) Competitive inhibitors, and
 - (2) Suicide enzyme inactivation ?
 - (ii) Explain the following :
 - (1) Structure activity of tetracycline and synthesis of Chlortetracycline,
 - (2) Synthesis and SAR of Chloramphenicol.
5. Explain the following : 20
- (i) SAR of sulphones as antileprotic drugs
 - (ii) Structure and activity of :
 - (1) Coumarin derivatives, and
 - (2) Benzyl penicillin.

6. Write short notes on the following : 20

- (i) Biological assay
- (ii) Free-Wilson method in QSAR studies
- (iii) Oxidation reaction involved in drug metabolism
- (iv) Vitamin-K analogues.