

# C097

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Roll No. ....

## CHE-554

### Drugs and Pharmaceuticals

M.Sc. CHEMISTRY(MSCCH)

2nd Year Examination, 2022 (June)

**Time : 2 Hours]**

**Max. Marks : 80**

**Note :** This paper is of Eighty (80) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

### SECTION–A

#### (Long Answer Type Questions)

**Note :** Section 'A' contains Five (05) long answer type questions of Twenty (20) marks each. Learners are required to answer any Two (02) questions only.  
(2×20=40)

1. (a) Give an account of the discovery of penicillin. Also give the mechanism of the functioning of penicillin drug.

- (b) Write the synthesis of the sulfomethoxazole drug and their application and side effects. (2×10=20)
2. (a) Discuss the salient feature of the prodrug approach. Enumerate the fundamental concepts of prodrug with suitable examples. (1×10=10)
- (b) (i) Discuss systematic action of drugs.  
(ii) Discuss concept of drug receptors. (2×5=10)
3. Illustrate the following strategies in the lead modification:
- (a) Ring expansion/ring contraction.  
(b) Ring variation and ring fusion.  
(c) Extension of structure.  
(d) Chain branching. (4×5=20)
4. (a) What is an Antibiotic? Discuss the synthesis of antibiotic having beta - Lactam ring in its structure. (1×10=10)
- (b) (i) Describe how solubility partition and hydrogen bonding influence the drug action.  
(ii) Discuss the merits and demerits of QSAR . (2×5=10)
5. Write the structure of the following neurotransmitter :
- (a) Non-Adrenaline.  
(b) Dopamine.

(c) Serotonin.

(d) Histamine. (4×5 = 20)

## SECTION-B

### (Short Answer Type Questions)

**Note :** Section 'B' contains Eight (08) short answer type questions of Ten (10) marks each. Learners are required to answer any Four (04) questions only. (4×10=40)

1. (a) Give a brief account of the mode of action of antimicrobials.  
(b) Discuss HIV Drug under the spotlight. (2×5 =10)
2. Write down the synthesis of following drugs.  
(a) Epinephrine.  
(b) Salbutamol. (2×5= 10)
3. Write short notes on the following :  
(a) LD-50.  
(b) SAR. (2×5=10)
4. (a) Explain the importance of the X-ray crystallographic studies in drug design and development.  
(b) Describe high throughput screening (HTS). (2×5=10)

5. (a) Define genetic engineering process. Explain.
- (b) What is the use of stable isotopes and heavy isotopes in drug analysis. (2×5= 10)
6. Give a Comprehensive account of the "Bile Acid" . How are they isolated from the natural bile? Support your answer with the structure of known bile acid. (1×10=10)
7. (a) Explain about the Houghton's tea bag procedure.
- (b) Define Analgesic. Give some example. (2×5= 10 )
8. (a) What is quality control methods in drugs development?
- (b) What is the role of hormones in cancer Therapy.?  
(2×5= 10 )
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