

Roll No.

CHE-554

Drugs and Pharmaceuticals

M. Sc. CHEMISTRY (MSCCH-12/13/16)

Second Year, Examination, 2017

Time : 3 Hours

Max. Marks : 60

Note : This paper is of **sixty (60)** marks containing **three (03)** sections A, B and C. Attempt the questions contained in these sections according to the detailed instructions given therein.

Section-A

(Long Answer Type Questions)

Note : Section 'A' contains four (04) long answer type questions of fifteen (15) marks each. Learners are required to answer *two* (02) questions only.

1. (a) What is an Antibiotic ? Discuss the synthesis of antibiotic having beta-lactam ring in its structure.

$7\frac{1}{2}$

(b) Describe how solubility, partition and hydrogen bonding influence the drug action.

$7\frac{1}{2}$
2. (a) Discuss the synthesis and clinical uses of chloramphenicol.

5

(b) Write a note on general anaesthetics.

5

(c) Enumerate clinical properties of tetracyclines.

5

3. (a) Discuss the stereo-chemical aspects of psychotropic drugs. 5
- (b) Discuss the merits and demerits of QSAR. 5
- (c) Define analgesics. Give some examples. 5
4. (a) Define the resin. What are the resins used in combinatorial synthesis ? 5
- (b) Write the structure of the trimethoprim. Discuss its mechanism of action. 5
- (c) Write a short note on polymixin B. 5

Section-B

(Short Answer Type Questions)

Note : Section 'B' contains eight (08) short answer type questions of five (05) marks each. Learners are required to answer *four* (04) questions only.

1. Discuss the role of hormones in cancer therapy.
2. Discuss the concept of pro-drug and soft drugs in drug design.
3. Write short notes on the following :
 - (a) SAR
 - (b) LD-50
4. Write a short note on the mechanism of action of penicillins.
5. Write down the synthesis of the following drugs :
 - (a) Epinephrine
 - (b) Salbutamol
6. What are the quality control methods in drug development ?
7. What is genetic engineering ? Explain.

8. Write the structure of the following neurotransmitter :

- (a) Histamine
- (b) Serotonin
- (c) Adrenaline
- (d) Non-adrenaline
- (e) Dopamine

Section-C

(Objective Type Questions)

Note : Section 'C' contains ten (10) objective type questions of one (1) mark each. All the questions of this section are compulsory.

Choose the correct alternative :

1. Which of the following tranquillizers is not a derivative of barbituric acid ?
 - (a) Veronal
 - (b) Equanil
 - (c) Seconal
 - (d) Luminal
2. Mostly the drug metabolism occurs in :
 - (a) Gastrointestinal tract
 - (b) Liver
 - (c) Kidney
 - (d) Pancreas
3. Which of the following statements is true ?
 - (a) Drugs and drug targets generally have similar molecular weights.

- (b) Drugs are generally smaller than drug targets.
 - (c) Drugs are generally larger than drug targets.
 - (d) There is no general rule regarding the relative size of drug and their targets.
4. Which of the following is not a neurotransmitter ?
- (a) Acetylcholine
 - (b) Cyclic AMP
 - (c) Noradrenaline
 - (d) Dopamine
5. Which type of infection could be orally treated with a highly polar antibacterial agent ?
- (a) Brain infection
 - (b) Kidney infection
 - (c) Gut infection
 - (d) Lung infection
6. Which of the following drugs was not isolated from a natural source ?
- (a) Quinine
 - (b) Morphine
 - (c) Isoniazid
 - (d) Artemisinin
7. Which of the following is not an endogenous compound ?
- (a) Dopamine
 - (b) Endorphins
 - (c) Noradrenaline
 - (d) Desipramine

8. What does the symbol P represent in a QSAR equation ?
- (a) pH
 - (b) Plasma concentration
 - (c) Partition coefficient
 - (d) Prodrug
9. Which of the following antibiotics is a tetracycline ?
- (a) Chloramphenicol
 - (b) Doxycycline
 - (c) Erythromycin
 - (d) Streptomycin
10. What is the term used to indicate the growth of new blood vessels ?
- (a) Biosynthesis
 - (b) Angiogenesis
 - (c) Apoptosis
 - (d) Metastasis

