Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.PHARM/SEM-7/PT-703/2010-11

2010-11
PHARMACEUTICAL CHEMISTRY
(MEDICINAL CHEMISTRY)

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any ten of the following :

$10 \times 1 = 10$

i) Starting material for the synthesis of chloroquine is

a) p-chloro aniline

b) m-chloro aniline

c) o-chloro aniline

d) aniline.

ii) In cephalosporins, higher resistance to hydrolysis by β-lactamases is shown when

a) The amino group is acylated

b) Replacement of sulphur with oxygen

c) Oxidation of ring sulphur to sulphoxide or sulphone

d) Introduction of C-7 α-methoxy group.

iii) The antiviral drug with no heterocyclic ring system is

a) Nelfinavir b) Loviride

c) Troviridine d) Zidovudine.

iv) Which of the following is used as starting material in the synthesis of trimethoprim ?

a) 3, 4, 6 – trimethoxy benzaldehyde

b) 3, 4, 5 – trimethyl benzaldehyde

c) 3, 4, 5 – trimethoxy benzaldehyde

d) 1, 2, 4 – trimethyl benzaldehyde.

v) Diethonol amine is treated with thionyl chloride, followed by pyridine reflux in the presence of $POCl_3$ (phosphorous orychloride) and finally heated with propanolamine, to produce

a) Chlorambucil b) Mechlorethamine

c) CCNU d) Cyclophosphamide.

vi) Which of the following moieties is present in the structure of acyclovir ?

a) Adenine b) Cytosine

c) Guanine d) Thymine.

vii) Demeclocycline differs from chlortetracycline only by

a) absence of – CH_3 group on carbon 6

b) presence of – OH group on carbon 6

c) absence of – N $(CH3)_2$ group on carbon 4

d) absence of – OH group on carbon 3.

viii) Primaquine is a derivative of

a) 4-aminoquinoline

b) 8-aminoquinoline

c) 2, 4-diaminopyrimidine

d) 8-hydroxyquinoline.

ix) Clavulanic acid has a beta lactum ring fused to

a) Thienyl system

b) Thiadiazole system

c) Thiazolidine system

d) Oxazolidine system.

x) "Endoperoxide bridge" is the important chemical characteristic of

a) Quinine b) Qnuinidine

c) Halofantrine d) Artemether.

xi) Identify the position of sulfide linkage in Insulin betweer A and B chains

a) 7, 7 and 20, 20 b) 20, 20 and 7, 8

c) 7, 7 and 20, 19 d) 8, 10 and 20, 19.

xii) The antiviral drug which is a thiazole analogue is

a) Nelfinavir b) Ritonovir

c) Saquinavir d) Loviride.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What do you mean by immunostimulant and immuno suppressive agents ?
3. Describe the main objectives of the development of prodrugs with suitable examples.

4. Write down any two synthesis from the following drugs :

   a) Acyclovir

   b) Primaquine

   c) Zidovudine.

5. Write a briet note on SAR of sulphoramides as antibacterials.

6. Classify anthelmintics. Write the mechanism and scheme of synthesis of albendazole.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. What is the causative organism of tuberculosis ? Write down synthesis, mechanism of action and use of any three antitubercular drugs. $1 + 4 + 10 = 15$

8. a) Write mechanism of action and SAR of macrolide antibiotics.

   b) Briefly discuss the chemical instability of tetracyclines.

   c) Write about chelation property of quirolone artibiotics.

   d) Write the scheme of synthesis of norfloxacin and nalidixic acid. $5 + 2 + 2 + 6 = 15$

9. i) Classify the anti-neoplastic agents with suitable examples.

ii) Write down the structure, synthesis and uses of any four of the following drugs :

a) Chlorambucil

b) Flutamide

c) Mechlorethamine

d) Fluorouracil

e) Tamoxifen citrate

f) Megestrol acetate. $5 + (4 \times 2.5) = 15$

10. a) The term 'oral hypoglycemic agent' is a misnomer. Justify it.

b) How human insulin biosynthesized in vivo ?

c) Explain the structure activity relationship of sulphonyl urea derivatives.

d) Describe the mode of action of sulfonyl urea and biguanide classes of oral hypoglycemic agents and synthesize one drug from each class.

$2 + 3 + 4 + (1 + 1 + 2 + 2) = 15$

11. Write short notes on any three of the following : 3 × 5 = 15

a) Mechanism of action and synthesis (any two) of azole antifungal agents.

b) Biosynthesis, storage and release of thyroid hormones.

c) SAR of thiazolidinedione antihyperglycemics.

d) Peptidomimetic drugs.

e) Phase – II drug metabolism.