Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Pharm/SUPPLE/SEM-7/PT-703/2010

2010
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) In vivo, prontosil is converted to
      a) sulphanilamide b) sulphacetamide
      c) sulphadiazine d) sulphathiazole.

   ii) Which of the following moieties are present in the structure of acyclovir ?
      a) Adenine b) Cytosine
      c) Guanine d) Thymine.

   iii) Benzyl penicillin is also known as
      a) Penicillin – *G* b) Penicillin – *V*
      c) Penicillin – *F* d) Penicillin – *K*.

   iv) Chemically albendazole is
      a) indole derivative
      b) benzimidazole derivative
      c) quinoline derivative
      d) carbazole derivative.

v) Insulin is the hormone that facilitates the uptake of
   a) Vitamin b) Calcium
   c) Protein d) Glucose.

vi) Amantadine is used as
   a) anti-viral drug b) anthelmintic drug
   c) antiprotozoal drug d) antibacterial drug.

vii) Glibenclamide belongs to the class
   a) Sulphonyl ureas
   b) Thiazolidinediones
   c) Benzoic acid derivatives
   d) Biguanides.

viii) The penicillins have a carboxylic acid group placed at
   a) C-3 b) C-2
   c) C-6 d) C-7.

ix) Stavudine is a/an
   a) Antimetabolite
   b) HIV protease inhibitor
   c) Reverse transcriptase inhibitor
   d) DNA polymerase inhibitor.

x) Penicillins act by
   a) inhibiting cell wall synthesis
   b) inhibiting protein synthesis
   c) binding with nucleic acids
   d) inhibiting folic acid synthesis.

xi) Chloramphenicol is obtained from
   a) *Streptomyces capreolus*
   b) *Streptomyces venezulae*
   c) *Streptomyces orchidaceus*
   d) *Streptomyces griseus.*

xii) 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.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Classify antineoplastic agents giving examples from each class.
3. What are the different stages of viral replication inside the living cells ? Explain each stage in short.
4. Write the structure activity relationship of tetracyclines.
5. Name three protozoal diseases and their causative organisms.
6. What are the main objectives of the development of prodrugs ? Explain them with an appropriate example.
7. What do you mean by immunostimulant and immunosuppressive agents ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

8. What are the different phases of drug metabolism ? Discuss each phase with an appropriate example. $2 \times 7\frac{1}{2}$
9. a) Define neoplasm and antineoplastic agents.

   b) What are the possible causes of cancer ?

   c) What are the main problems associated with chemotherapy ?

   d) Name three important plant products used as antineoplastic agents. 4 + 4 + 4 + 3

10. a) Name the largest endocrine gland in human. What is its effect on human body ?

    b) Give chemical classification of antithyroid agents.

    c) Write in brief about organic antithyroid agents.

    d) Outline the synthesis of any two organic antithyroid agents. 3 + 3 + 4 + 5

11. a) Name some of the diseases caused by different types of viruses.

    b) Give the names and structures of three important antivirus drugs.

    c) Write the mode of action of each of these drugs.

    d) How will you synthesize amantadine hydrochloride ?

    3 + 3 + 6 + 3

12. Write briefly about the structure-activity relationships and therapeutic uses of sulphonamides. Show the synthesis of any two sulphonamide drugs. 5 + 4 + 6

13. a) What do you mean by peptidomimetics and nucleotidomimetics ?

    b) What are the limitations of peptided if used as drug ?

    c) Write about some peptidomimetics used as drug, giving their structures, mode of actions and uses. 15