

Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.PHARM/SEP.SUPPLE/SEM-7/PT-703/2012**  
**2012**

**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 :

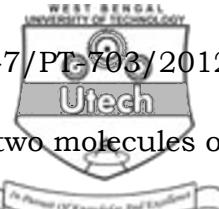
$$10 \times 1 = 10$$

- i) Identify the antineoplastic agent that is intercalating and Topoisomerase-II poison.
  - a) Doxorubicin                  b) Mitomycin
  - c) Etoposide                  d) Camtothecin.
- ii) Introduction of methoxy group at C-7 position of cephalosporin generates
  - a) cefpirome                  b) cefoxitin
  - c) cefuroxime                  d) ceftazidime.
- iii) In vivo, prontosil is converted to
  - a) sulphanilamide                  b) sulphacetamide
  - c) sulphadiazine                  d) sulphathiazole.



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- iv) Which of the following moieties is present in the structure of acyclovir ?
- a) Adenine                          b) Cytosine  
c) Guanine                          d) Thymine.
- v) The structure of biguanides contain
- a) 6 nitrogen atoms                b) 5 nitrogen atoms  
c) 3 nitrogen atoms                d) 7 nitrogen atoms.
- vi) Lente insulin consists of
- a) 70% ultralente insulin + 30% semilente insulin  
b) 70% semilente insulin + 30% ultralente insulin  
c) 50% semilente insulin + 50% NPH insulin  
d) 40% regular insulin + 60% NPH insulin.
- vii) The only structural difference between teniposide and etoposide in
- a) Ethyl & Thiophenyl            b) Propyl & Benzyl  
c) Phenyl & Methyl              d) Thiophenyl & Methyl.
- viii) Insulin is well stabilized at a pH range of
- a) 1·5 – 2·5                        b) 2·5 – 10  
c) 3·5 – 4·5                        d) 0 – 2.
- ix) Mebendazole, an anthelmintic drug, has one group at 5 position in the benzimidazole structure. It is
- a) — S — CH<sub>2</sub> — CH<sub>2</sub> — CH<sub>3</sub>  
b) — S — Ph —  
c) Ph — SO<sub>2</sub> —  
d) PH — COO — .






**GROUP – B**

### ( Short Answer Type Questions )

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

2. Explain 'immunostimulant' and 'immunosuppressive' agents with examples.
  3. Discuss the SAR of Tetracyclines.
  4. What are the objectives of prodrug formation ? Explain their application with examples.
  5. Write down the synthesis of ( any two ) :
    - i) Ketoconazole
    - ii) Chloramphenicol
    - iii) Tamoxifen.
  6. Classify antineoplastic agents with examples.

**GROUP – C**

### ( Long Answer Type Questions )

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

7. a) Briefly discuss the chemistry and mechanism of action of penicillins.



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- b) Write a note on classification and spectrum of activity of  $\beta$ -lactam antibiotics.
- c) Show the structure of the following compounds : benzyl penicillin, amoxycillin, cephalexin, ampicillin.
- 5 + 5 + 5
8. a) Define antivirals. Classify them with appropriate examples.
- b) Write briefly the stages of replication of a DNA virus.
- c) Show the synthesis, mechanism of action and therapeutic uses of the following compounds (any two) : methisazone, azidothymidine, rimantadine. 4 + 3 + 8
9. Write briefly about the structure, activity, relationship and therapeutic uses of sulphonamides. Show the synthesis of any two sulphonamides. 5 + 4 + 6
10. a) Explain the SAR, mode of action and route of synthesis of the following antitubercular drugs (any three) :
- (i) Isoniazid (ii) Pyrazinamide (iii) Ethambutol (iv) PAS.
- b) Write the name of organism responsible for Leprosy. Classify antileprotic drugs with suitable example.

$(1\frac{1}{2} + 1 + 1\frac{1}{2}) \times 3 + (1 + 2)$

11. Define antidiabetic and antithyroid with appropriate examples. Explain briefly the SAR of thiazolidinedione class of oral antihyperglycemic agent. Write synthesis, mode of action and uses of the following compounds (any three) :
- (i) Chlorpropamide (ii) Phenformin (iii) Tolbutamide  
(iv) Methimazole (v) Metformin. 4 + 5 + (3 × 2)

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