



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.PHARM (N)/SEM-7/PT-703/2011-12**

**2011**

**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 )**

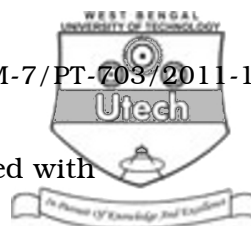
1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10
- i) Skraup synthesis is used for synthesis of
    - a) Quinoline moiety
    - b) Purine moiety
    - c) Furan moiety
    - d) Isoxazole moiety.
  - ii) The presence of dimethylamino moiety at what carbon position is essential for bioactivity of tetracycline ?
    - a) C-4
    - b) C-6
    - c) C-7
    - d) C-5a.
  - iii) Ritonovir is synthesized starting from
    - a) phenylalanine
    - b) hydrocynamyl chloride
    - c) dioxolane
    - d) epichlorhydrin.

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- iv) The chemical structure of Tolnaftate contains
- a) two benzene rings
  - b) two naphthalene rings
  - c) one benzene & one naphthalene ring
  - d) one benzene & one pyridine rings.
- v) Which of the following quinolones does not contains cyclopropyl group ?
- a) Gatifloxacin
  - b) Ciprofloxacin
  - c) Moxifloxacin
  - d) Lomefloxacin.
- vi) Which of the following group is not present in macrolide antibiotic ?
- a) A large lactone
  - b) One or two amino sugars
  - c) Dimethyl amino moiety
  - d) A spiroketal group.
- vii) The anti-fungal agent that has pyrimidine derivative in its structure is
- a) Ketoconazole
  - b) Griseofulvin
  - c) Flucytosin
  - d) Tolnafete.



- viii) In cephalosporin  $\beta$ -lactum ring is fused with
- a) Thiazolidine                      b) Dihydrothiazine  
c) Oxazolidine                      d) Amino Pyrazine.
- ix) Starting material for the synthesis of glipizide is
- a) 3-carboxy-5-methyl pyridine  
b) 3-carboxy-5-methyl piperazine  
c) 3-carboxy-5-methyl piperadine  
d) 2-carboxy-5-methyl piperazine.
- x) Folic acid comprise of all the following residues *except*
- a) Pteridine                      b) Glutamic Acid  
c) Phenyl Benzoate              d) PABA.
- xi) An amino acid which is required for the biosynthesis of thyroid hormones is
- a) Phenylalanine                  b) Tyrosine  
c) Leucine                          d) Serine.
- xii) A benzoyl group containing anthelmintic agent is
- a) Thiabendazole                  b) Alberdazole  
c) Pyrantel pamoate              d) Mebendazole.

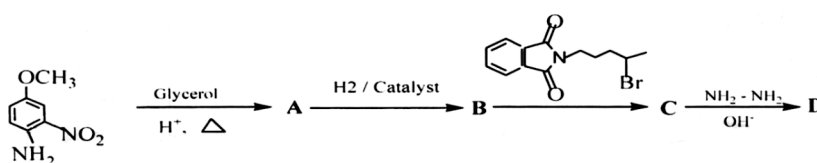


**GROUP – B**

**( Short Answer Type Questions )**

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

2. Synthesis of Primaquine is outlined below. Give the structure of A to D.



3. a) Classify antifungal drugs with proper example.  
 b) Synthesize any one antifungal drug having triazole nucleus in it's structure.  $2\frac{1}{2} + 2\frac{1}{2}$
4. a) Give the example of anthelmintic drugs that generate following kind of worm paralysis :  
 (i) Spastic paralysis (ii) Flaccid paralysis.  
 b) Write a note on Benzimidazole derivatives involved with worm infection.  $1 + 4$
5. Outline the biosynthesis, storage and release of thyroid hormones.
6. Give the synthetic procedure of :  
 (i) Isoniazid (ii) Dapsone.  $2\frac{1}{2} + 2\frac{1}{2}$



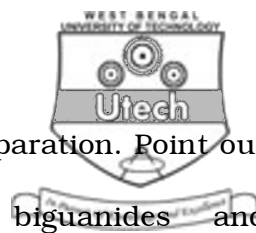
**GROUP – C**

**( Long Answer Type Questions )**

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

7. a) 'Cross Linking' and 'Mis-Pairing' of DNA is the basic mechanism of alkylating agents. Justify it with an example. (Show the possible structure and reactions)
- b) Synthesize the following drugs (any *two*) :
- (i) Carmustine
  - (ii) Chlorambuci
  - (iii) Cyclophosphamide
  - (iv) Tamoxifen.
- c) Give the structure and chemical name of any three of the following :
- (i) Mercaptopurine (ii) Fluorouracil, (iii) Busulfan,
  - (iv) Azaserine (v) Melphalan.  $5 + (2 \times 2) + (3 \times 2)$

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8. Discuss in brief about various insulin preparation. Point out the structural differences between biguanides and diguanides. Write down the SAR of thiazolidinedione derivatives as oral hypoglycemic agent. Outline the synthetic procedure for the preparation of any two oral hypoglycemic agents.

$$4 + 3 + 3 + 2 \frac{1}{2} \times 2$$

9. Classify antiamoebic drugs with suitable examples. What are the main features of an ideal amoebicide? Write down the SAR of 8-hydroxyquinoline and imidazole derivatives as antiamoebic agent. Enumerate the synthetic procedure for the preparation of metronidazole and diloxamide furoate.

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

10. a) An antibiotic isolated from *Streptomyces venezuelae* having an aromatic nitro group, on hydrolysis gives (A) dichloro acetic acid (B) 2 - amino - 1-p- nitrophenyl - 1 : 3 - propanediol.

- (i) What is the structural formula of the antibiotic?
- (ii) How many asymmetric carbon atoms are present in (B)?

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(iii) What is the optical activity & configuration of the active form of the antibiotic ?

(iv) What are the important hydrolytic products of Streptomycin ? Give their names & structure both.

b) Define antibiotic, write down the name of the antibiotic obtained from *Micromonospora purpuria*.

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

11. a) Classify  $\beta$ -lactam antibiotics.
- b) Briefly discuss the chemistry of penicillins.
- c) Show the structure of the following : Benzylpenicillin, amoxicillin, cephalexin, ampicillin.
- d) Outline the synthetic scheme for preparing penicillin G.

$$2\frac{1}{2} + 2\frac{1}{2} + 5 + 5$$

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