



Name :

Roll No. :

Invigilator's Signature :

**CS/M.Pharm/SEM-1/MPT-103(2)/2010-11
2010-11**

ADVANCED PHARMACEUTICAL CHEMISTRY – II

Time Allotted : 3 Hours

Full Marks : 70

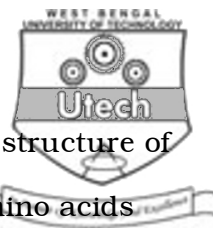
The figures in the margin indicate full marks.

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

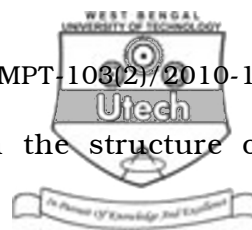
GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :
 $10 \times 1 = 10$
- i) Safety catch linker composed of which two of the following amino acids ?
- a) Lysine and tryptophan
 - b) Isoleucine and tryptophan
 - c) Leucine and tryptophan
 - d) Lysine and tyrosine.
- ii) The active functional group placed in Wang resin is
- a) amino
 - b) hydroxyl
 - c) tetrahydro-pyran
 - d) none of these.
- iii) The nature of Shappard's Polyamide resin is
- a) hydrophilic
 - b) hydrophobic
 - c) dienophilic
 - d) all of these.



- iv) Human somatotrophin pertaining to the structure of
- a) 191 amino acids b) 166 amino acids
c) 143 amino acids d) 157 amino acids.
- v) Advantages of enzyme immobilization are all the following, *except*
- a) continuous use b) less contaminated
c) instability d) cost effectiveness.
- vi) The functional groups on which the combinatorial synthesis is carried out generally located on
- a) the compounds to be attached
b) the solid supports
c) the linker
d) all of these.
- vii) Which of the following microorganisms is involved in the conversion of progesterone to 11α -hydroxy progesterone ?
- a) *B. subtilis* b) *R. nigricans*
c) *E. coli* d) *S. mediterranea*.
- viii) Which one of the following is suitable resin used for the combinatorial synthesis of non-peptide ?
- a) Sheppard's polyamide
b) Tentagel resin
c) Cross-linked polystyrene
d) Wang resin.



- ix) Number of chiral centre present in the structure of atenolol is
- a) 3 b) 1
c) 2 d) 5.
- x) Diastereomers possess
- a) same physical and chemical properties
b) same physical but different chemical properties.
- xi) *Streptomyces venezuelae* is involved in the production of
- a) chloramphenicol b) rifampicin
c) penicillin G d) streptomycin.
- xii) Which of the following is used as a coupling reagent during peptide and protein drug synthesis ?
- a) DCC b) BOC
c) TOS d) BUM.

GROUP - B

(Short Answer Type Questions)

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

2. What are the advantages of microbial transformations over the chemical transformations ?
3. Enumerate the objectives of enzyme immobilization.
4. Write a short note on the linkers/anchor used in the combinatorial synthesis.
5. What are the different methods employed in measuring the activity in the process of high throughput screening ?
6. Write a short note on radiometric assay.



GROUP – C

(Long Answer Type Questions)

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

7. a) What are the advantages and disadvantages offered by enantiomerically pure drugs over racemates ?
- b) Show how the following enantiomerically pure drugs can be synthesised (any two) :
- i) S-Naproxen
 - ii) *l*-Diltiazem
 - iii) S-Timolol. 5 + 2 × 5
8. a) Describe in general terms, how the technique of deconvolution can be used to identify most active component in a combinatorial library consisting of mixtures of compounds.
- b) Outline the parallel synthesis for a combinatorial synthesis. How does this method differ from Furka's mix and split method ? 8 + 7
9. a) Write a brief note on chemistry, structure and stability of protein and peptide drugs. What are the different techniques of minimizing proteolysis ?
- b) What are the major methods of peptide synthesis ? Write shortly on solution phase peptide synthesis.
- c) Mention the various advantages and disadvantages of Boc and Fmoc as α -amino group blocker. 6 + 4 + 5
10. a) What are the different type of reactions involved in the microbial transformation with the references related to the steroids ?
- b) What are the different methods of enzyme immobilization techniques ? Describe briefly the method of enzyme immobilization on a support. 8 + 7