



Name :

Roll No. :

Invigilator's Signature :

**CS/M.PHARM/SEM-2/MPT-203(1)/2010
2010**

ADVANCED PHARMACEUTICAL CHEMISTRY - III

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)

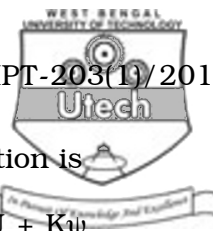
1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) For a molecule to exhibit antihistaminic activity the distance between the aryl and aliphatic N should be
- | | |
|------------|-------------|
| a) 5 – 6 Å | b) 4 – 5 Å |
| c) 3 – 4 Å | d) 6 – 7 Å. |
- ii) Ideal π value π_0 is equal to
- | | |
|------------------|------------------|
| a) $k_1 / 2 k_2$ | b) $k_2 / 2 k_1$ |
| c) k_1 / k_2 | d) k_2 / k_1 . |
- iii) 1-bromomethyl – 1 – methyl cyclohexane is the starting material for synthesis of
- | | |
|------------------|-------------------|
| a) Famotidine | b) Ciglitazone |
| c) Rosiglitazone | d) none of these. |



- iv) Empirical force field method is used to
- a) compute number of atoms in a chemical compound
 - b) compute energy involved in the chemical compound
 - c) produce a new derivative
 - d) determine the melting point of the chemical compound.
- v) In Hansch equation σ represents
- a) Lipophilicity
 - b) Electronic factor
 - c) Steric factor
 - d) Polarisability.
- vi) The mathematical equation that describes the energy and momentum of a system is called
- a) Schrödinger's equation
 - b) Arrhenius equation
 - c) Hamiltonian equation
 - d) none of these.
- vii) Which of the following antidiabetic agents is an alpha glucosidase inhibitor ?
- a) Miglitol
 - b) Ripaglinide
 - c) Troglitazone
 - d) Glimepiride.
- viii) In case of pharmacogenomics SNP stands for
- a) single nucleoside polymorphism
 - b) single nucleotide polymorphism
 - c) secondary nucleoside polymorphism
 - d) secondary nucleotide polymorphism.



- ix) The correct form of Schrödinger's equation is
- a) $H\psi = (U + K) \psi$ b) $H\psi = U + K\psi$
 c) $HQ = (U + K) \psi$ d) all of these.
- x) A sulfhydryl group containing ACE inhibitor is
- a) Lisinopril b) Captopril
 c) Ranipril d) Enalapril.
- xi) The software that uses quantum mechanical model is
- a) macromodel b) PC model
 c) AMBER d) DOCK.
- xii) 2D input can be converted to 3D output by the software
- a) concord b) CORINA
 c) both of these d) none of these.

GROUP – B

(Short Answer Type Questions)

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

2. Write a short note on 'Free Wilson Model'.
3. Write a note on asymmetric synthesis of Esomeprazole.
4. Explain briefly the superiority of second generation antihistamines over first generation.
5. What is lipophilicity parameter (π) ? How is it determined ?
6. What is molecular modelling ? Illustrate its utility in the discovery of a new chemical entity.



GROUP – C

(Long Answer Type Questions)

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

7. a) What do you mean by the term 'pharmacogenomics' ? Explain in short.
b) What are the anticipated benefits of pharmacogenomics ?
c) What are the main barriers to pharmacogenomics progress.
d) Write briefly the present use of pharmacogenomics. $2 + 6 + 4 + 3$
8. a) Give a brief account on metaglinide as rovel class of antidiabetic agent.
b) Write shortly the structure-activity relationship of ACE inhibitors.
c) Outline the synthesis of a thiazolidine dione antidiabetic and an ACE inhibitor. $4 + 5 + (2 \times 3)$
9. Define the terms 'Lead compound', 'Pharmacophore' and 'Analog Design'. What are the different strategies involved in analog design ? Write a note on conformationally restricted analogs. $(3 \times 2) + 3 + 6$
10. Write in brief about quantum mechanical models used in Computational Chemistry. Write a short note on use of Computational Chemistry for predictive ADME. $12 + 3$
11. Write short notes on any *three* of the following : 3×5
- a) HAMMET equation and its extension.
b) STERIMOL parameter.
c) Historical perspective of drug discovery
d) Indirect drug design.