



Name :

Roll No. :

Invigilator's Signature :

CS/B.Pharm (NEW)/SEM-6/PT-603/2011

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) Which one of the following functional groups is useful
for local anaesthetic activity ?

- a) Amide
- b) Aldehyde
- c) Ketone
- d) Carboxylic acid.

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ii) Felodipine can be synthesized by which of the following pathways ?

- a) Skraup synthesis
- b) Hantzsch synthesis
- c) Paal-Knorr synthesis
- d) Fischer synthesis.

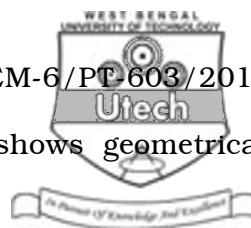
iii) Which of the following is a Pseudoalkaloid ?

- a) Nicotine
- b) Atropine
- c) Ephedrine
- d) None of these.

iv) The common side chain in Propranolol, Atenolol, Pindolol, Metopropol is

- a) Isopropyl aminopropan-2-ol
- b) Dimethyl aminopropan-2-ol
- c) Diethyl aminopropan-2-ol
- d) Dibutyl aminopropan-2-ol.

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- v) Which one of the following drugs shows geometrical (*cis-trans*) isomerism ?
- a) Tamoxifene b) Reloxifene
- c) Nafoxidine d) None of these.
- vi) 19 carbon atoms containing sex steroidal hormone is
- a) Androgen
- b) Estrogen
- c) Progestin
- d) None of these.
- vii) Alprazolam is a hypnotic drug, where benzodiazepine is fused with which of the following rings ?
- a) Imidazole
- b) Triazole
- c) Thiazole
- d) Pyridine.
- viii) Which of the following diuretic agents contains furfural moiety ?
- a) Furosimide
- b) Ethacrynic acid
- c) Acetazolamide.



ix) Four sets of intermediates are listed below. Choose the correct set for the synthesis of Bupivacaine IP.

- a) α -Picolinic Acid Chloride with 2, 6-Diethyl Aniline
 - b) β -Picolinic Acid Chloride with 2, 6-Diethyl Aniline
 - c) α -Picolinic Acid Chloride with Aniline Hydrochloride.
 - d) α -Picolinic Acid Chloride with 2, 6-Dimethyl Aniline
- x) Nordiazepam when alkylated with tri-fluoroethyl bromide yields
- a) Diazepam
 - b) Halazepam
 - c) Oxazepam
 - d) Clonazepam.
- xi) Organic nitrates are in the chemical class of
- a) Ester
 - b) Ether
 - c) Amide
 - d) Amine.
- xii) An electron withdrawing group is necessary for activity of Thiazide diuretics, in position
- a) 8
 - b) 6
 - c) 4
 - d) 7.

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GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following.

3 × 5 = 15

2. Classify general anesthetics. Write down the synthesis on any *two* of the following :
 - a) Thiopentone sodium
 - b) Halothane
 - c) Cyclopropane
 - d) Enflurane.
3. How do you determine the following functional groups by chemical reaction (qualitative and quantitative) ?
 - a) Phenolic hydroxyl group
 - b) Methoxy group.
4.
 - a) Why is carbidopa administered along with levodopa ?
 - b) Write down the biosynthesis of dopamine. 2 + 3
5. Discuss the SAR of phenothiazine derivatives.
6. Write the chemical classification of Ca^{2+} channel blockers.

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GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following.

3 × 15 = 45

7. a) Define Alkaloid.
- b) Write in detail the structure elucidation process of Atropine.
- c) Write in short about various identification tests for alkaloids.

1 + 10 + 4

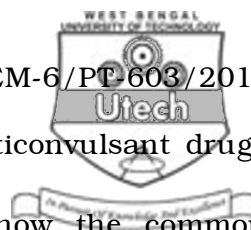
8. The structure $R_1 - \overset{\text{O}}{\parallel}{\text{C}} - \text{X} - (\text{CH}_2)_n - \text{Y} \begin{cases} R_2 \\ R_3 \end{cases}$ is common to many

local anaesthetic agents. Comment on the possible variations with respect to R_1 , R_2 , R_3 , X & Y & their effect on local anaesthetic activity. Give the synthesis of the following :

- a) Procaine
- b) Lidocaine
- c) Xylocaine.

6 + (3 × 3)

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9. Define Anticonvulsant drugs. Classify anticonvulsant drugs on the basis of chemical structure. Show the common structural features shared by them. Give the mode of action of hydantoin. Outline the synthesis of any two drugs of these groups.

2 + 3 + 1 + 3 + (3 + 3)

10. Classify anti-arrhythmic drugs. Write the M.O.A. of anti-anginal drugs. Write the SAR of 1, 4-dihydropyridines. Give synthetic pathway of propranolol hydrochloride from α -naphthol.

5 + 2 + 5 + 3

11. Define diuretics. Write chemical classification of diuretics. Write the SAR of Ethacrynic acid. Write the synthesis of

a) Acetazolamide

b) Furosimide.

1 + 4 + 4 + (2 \times 3)
