

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm. – SEMESTER – V • EXAMINATION – WINTER • 2014

Subject Code: 250004**Date: 03-12-2014****Subject Name: Pharmaceutical Chemistry-VI (Medicinal Chemistry)****Time: 10:30 am - 01:30 pm****Total Marks: 80****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define asthma. Classify the drugs used in treatment of asthma and discuss bronchodilators in detail. **06**
- (b) Write an informative note on partition coefficient and hydrogen bonding. **05**
- (c) Draw the structural formula of the following. **05**
- (1) Isoxazole
- (2) 1,2-Diazine
- (3) Benzo[b]pyrrole
- (4) 2H-Pyrrole
- (5) N-Methyl piperidine
- Q.2** (a) Write the reaction and mechanism of the following. **06**
- (1) Fisher Indole synthesis
- (2) Skraup synthesis
- (b) Write a short note on expectorants and respiratory stimulants. **05**
- (c) Define following with suitable examples. **05**
- (1) Prokinetic agent
- (2) Carminative
- (3) Laxative
- (4) Antacid
- (5) Antidiarrheal agent
- Q.3** (a) Give any two methods each for the synthesis of **06**
- (1) Thiazole
- (2) Pyrimidine
- (3) Pyrazole
- (b) Define bioisosterism. Discuss its classification and application with suitable examples. **05**
- (c) Define and classify antiulcer drugs. Discuss how H₂ receptor antagonists are evolved as antisecretory agents? **05**
- Q.4** (a) Outline the synthesis of following drugs. **06**
- (1) Cetrizine
- (2) Diphenhydramine
- (3) Omeprazole
- (b) Explain chemistry and reactions of pyridine in detail. **05**
- (c) Justify with suitable examples: Stereochemistry of drug molecule influences the biological activity. **05**
- Q.5** (a) Enumerate the various physicochemical parameters which influence the biological activity and explain how ionization and solubility of drug affect the biological activity. **06**
- (b) Define mucolytics and decongestants. Write a note on antitussive agents. **05**

- (c) Define and classify eicosanoids. Discuss clinical use of various eicosanoid derivatives. **05**
- Q. 6**
- (a) Define and classify H₁ receptor antagonist with suitable example. Discuss SAR of H₁ receptor antagonist. **06**
- (b) Write a note on antiemetic and antispasmodic agents. **05**
- (c) Write name and structure of the heterocyclic ring present in the following drugs. **05**
- (1) Ranitidine
 - (2) Promethazine
 - (3) Pantoprazole
 - (4) Histamine
 - (5) Zolamine
- Q. 7**
- (a) Comment on the following. **06**
- (1) Thiophene is more aromatic than oxole.
 - (2) Five member heterocyclic rings are called π - excessive system.
 - (3) Furan gives Diels-Alder reaction.
- (b) Discuss various approaches of medicinal chemist towards drug discovery. **05**
- (c) Define and classify diagnostic agents. Give the synthesis of sodium iothalamate. **05**
