Seat No.: _____ Enrolment No._____

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) 2*H*-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 H_2 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 H_1 receptor antagonist with suitable example. Discuss SAR of H_1 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**

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