

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.Pharm - SEMESTER-IV • EXAMINATION – SUMMER - 2021**

**Subject Code: BP402TP**

**Date: 04/08/2021**

**Subject Name: Medicinal Chemistry I**

**Time: 10:30AM to 01:30PM**

**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) Enumerate and define physicochemical properties of drug molecules. Explain Ionization and Hydrogen bonding in detail. **06**
  - (b) What is Bioisosterism? Classify and Explain in brief with examples **05**
  - (c) Discuss importance of CYP450 in xenobiotics metabolism. **05**
- Q.2**
- (a) Define and classify sedative and hypnotics. Discuss SAR of Barbiturates. **06**
  - (b) Classify anticholinergic agents and discuss SAR of cholinergic blocking agents. **05**
  - (c) What are parasympathomimetics? Classify them with suitable examples. **05**
- Q.3**
- (a) Give synthesis of: **06**
    - i) Diazepam
    - ii) Phenytoin
    - iii) Propranolol
  - (b) Give Structure and IUPAC name of following drugs: **05**
    - i) Phenobarbital
    - ii) Loxapine succinate
    - iii) Naproxen
    - iv) Morphine sulphate
    - v) Thiopental sodium
  - (c) Give use and name the main heterocyclic ring present in the following drugs. **05**
    - i) Allopurinol
    - ii) Ibuprofen
    - iii) Halothane
    - iv) Amphetamine
    - v) Chlorpromazine
- Q.4**
- (a) What are NSAIDs? Classify them with two examples of each class. Write synthesis of one NSAID having one chiral center. **06**
  - (b) Give SAR of beta adrenergic blockers and benzodiazepines **05**
  - (c) Give chemical classification of Antipsychotics and discuss SAR of phenothiazine **05**

- Q.5** (a) Comment on following statements: **06**  
1. The more bulky the substituent on nitrogen,  $\alpha$ -receptor activity decreases and  $\beta$ -receptor activity increases in adrenergic series.  
2. Barbituric acid itself is pharmacologically inactive but barbiturates are used as hypnotic and sedative drugs.
- (b) Explain: Biosynthesis and catabolism of catecholamine. **05**
- (c) What are Analgesics? Write SAR and mode of action of morphine **05**
- Q.6** (a) Write short notes on general anesthetic agents. Give synthesis of Halothane **06**
- (b) Explain the term epilepsy. Discuss types of epilepsy and write a note on Hydantoins. **05**
- (c) Enumerate the structural features essential for directly acting Sympathomimetic agents. **05**
- Q.7** (a) Write the advantages of selective COX-2 inhibitors over non-selective NSAIDs. Give synthesis of Salbutamol **06**
- (b) Define Drug Therapy. Write a note on history of medicinal chemistry **05**
- (c) Write the factors affecting drug metabolism including stereo chemical aspects. **05**

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