

Roll No.

Total Pages : 3

CMDQ/M-24

5615

FORENSIC PHARMACOLOGY AND DRUG ANALYSIS

Paper–M–FSC–404

Time Allowed : 3 Hours]

[Maximum Marks : 80

Note : Attempt **five** questions in all, selecting **one** question from each Unit. Question No. **1** is compulsory. All questions carry equal marks.

Compulsory Question

1. Explain the following in brief : 8×2=16
- (a) Basic concept of Pharmacology.
 - (b) Drug-drug interaction related to half-life.
 - (c) Role of Pharmacogenetics in Drug development and therapy optimization.
 - (d) Difference between Natural and Synthetic narcotics.
 - (e) Classes of stimulants on the basis of Chemical structure.
 - (f) Advantages and limitations of Microcrystal tests in drug identification.
 - (g) Separation of Alkaloids and Barbiturates present together.
 - (h) Principle behind HPLC-MS analysis.

UNIT-I

2. (a) Describe the processes involved in pharmacokinetics and how they influence the concentration of a Drug in the Body over time. 8
- (b) Explain the different types of Drug clearance and what are the factors effecting pharmacokinetics. 8
3. What is a Phase I reaction in Drug metabolism? Enlist Phase I Drug metabolizing enzymes.. Explain mechanism of Phase I metabolism taking a suitable example. 16

UNIT-II

4. What are Barbiturates? Explain in detail the chemistry, method of isolation and characterization of Barbiturates. 16
5. (a) Explain the method of extraction of alkaloids from Opium and Datura using spot test and micro crystal test. 8
- (b) Explain Narcotic Drugs and Psychotropic substances (NDPS) Act 1985. What is the difference between section 21 and 22 of this Act. 8

UNIT-III

6. Which chemical substances are categorized as stimulants? State their types and explain their chemistry and identification specificity. Describe their mode of action and effects. 16

7. Explain the chemistry and spot test for following :

4×4=16

- (a) Cannabis. (b) LSD.
- (c) Psilocybine. (d) Mescaline.

UNIT-IV

8. Write notes on the following :

- (a) Supercritical fluid extraction method. 8
- (b) Solid phase Micro extraction techniques. 8

9. (a) Explain the method of extraction of volatile compounds. 8

- (b) How do you remove ammonium sulphate from water?
Explain Dovbriey Nickolls (Ammonium sulphate)
method and its applications 8