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Monsoon, 2023

M.Pharm Semester Examinations

PHYTOCHEMISTRY

Course Code: MPG103T

Full Marks – 75

Time – 3 hours

The figure in the margin indicates full marks for the questions.

1. Answer the following questions: (Max. word limit - 50 words) (10 × 2 = 20)

- Distinguish between catabolic, anabolic and amphibolic pathways.
- Report the biological source, pharmacological profile and side effects of digitoxin.
- Give the applications of UV-visible, FTIR, Mass spectrometer and NMR spectrometer in compound elucidation.
- Examine the principles of traditional high-throughput screening (HTS) techniques.
- Differentiate between a hit and a lead molecule with suitable examples.
- Enumerate the different modern methods of extraction techniques.
- Give the advantages and disadvantages of Soxhlet extraction technique.
- Describe in brief the phytochemical screening process of alkaloids and steroids.
- Enumerate the different parts of the HPTLC system and their working condition.
- Briefly elucidate the structure of Kaempferol using IR and UV-visible spectrophotometry.

2. Short answers (*any seven*) (Max. word limit - 500 words) (7 × 5 = 35)

- Define tracer techniques and discuss the significance and application of tracer techniques. (5)
- Examine the biosynthesis and isolation of ephedrine. (5)
- Describe the different stages of drugs discovery and development process. (5)
- Explain in details the structure-based techniques in drug discovery (5)
- Examine the principles of structure based drug design and ligand based drug design. (5)
- Give a brief account on clinical studies emphasising on phases of clinical trials. (5)
- Create a brief overview of the drug registration procedures in the United States and India. (5)
- Write a note on *any one* from the following: (5)
 - Supercritical fluid extraction technique
 - Microwave-assisted extraction technique
- Examine in detail the process of isolation, purification and characterization of *any one* of the following secondary metabolites. (5)
 - Quinine
 - Guggulosterone

3. Long answers (*Any two*) (Max. word limit - 1000 words) (2 × 10 = 20)

- Examine in detail the biosynthesis, isolation, purification and characterization of berberine. (4+3+3)
- What is the principle involved in HPTLC? Describe the instrumental requirements of HPTLC. Discuss the method validation parameters of analytical procedures employed for method development according to ICH guidelines. (10)
- Elucidate and construct the structure of *any one* phytoconstituents from the following using spectroscopic techniques: (10)
 - Citral
 - Menthol
 - Caffeine