



Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD (now MoE)

Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC

Coimbatore - 641 043, Tamil Nadu, India

Master's Degree Examination – May 2025

II Semester

Class : I P.G.

Major : Biochemistry/Biotechnology/Chemistry/FSN

Time: 3 Hours

Max. Marks: 100

23MBOI01 Microbial Technology and Herbal Drugs

Course Outcomes:

CO1:Analyze various secondary metabolites present in plants through preliminary screening tests

CO2:Observe the various natural colourants, nutritive and non-nutritive sweeteners and their principle

CO3:Understand the various types of drugs

CO4:Understand and apply the staining techniques for identification of microorganisms

CO5:Assess the serial dilution, Plate streaking, antimicrobial activity

Part A

10 x 1 = 10

Choose the Correct Answer

- In the oxidase test, a positive result is indicated by: CO1K1
a. Red colour b. Blue or purple colour c. Yellow colour d. No change
- Which of the following is a differential medium? CO1K1
a. MacConkey Agar b. Nutrient Agar c. Potato Dextrose Agar d. Sabouraud Agar
- In agar well diffusion, the zone of inhibition around the well indicates CO2K1
a. Microbial growth b. Antibiotic resistance c. Antibiotic effectiveness d. Contamination
- The lowest concentration of an antifungal agent that kills fungi is known as CO2K1
a. MIC b. MBC c. MFC d. Agar Well Diffusion
- Which active compound in *Solanum trilobatum* is known for its anti-asthmatic properties? CO3K1
a. Solasodine b. Diosgenin c. Vincristine d. Curcumin
- Dioscorea deltoidea* is a source for synthesizing CO3K2
a. Antibiotics b. Corticosteroids and birth control hormones
c. Anticancer drugs d. Antidiabetic drugs
- The colouring principle of saffron is CO4K1
a. Crocin b. Bixin c. Betanin d. Curcumin
- The biological source of turmeric is CO4K1
a. *Curcuma longa* b. *Bixa Orellana* c. *Beta vulgaris* d. *Crocus sativus*
- Quinine, used to treat malaria, is derived from CO5K1
a. *Cinchona officinalis* b. *Rauwolfia serpentine*
c. *Catharanthus roseus* d. *Papaver somniferum*
- Which of the following is a solid dosage form in Siddha medicine? CO5K1
a. Chooranam b. Kashayam c. Thailam d. Lehiyam

Part B

5 x 6 = 30

Answer ALL questions

Each answer should not exceed 400 words or two pages

- a. Differentiate between selective and differential media with examples. CO1K1
- (or)
- b. Discuss the procedure for the starch hydrolysis test and its application. CO1K2

- 12.a. Discuss the importance of the serial dilution technique in microbiology. CO2K2
(or)
- 12.b. What is the agar well diffusion method? Explain its significance in antimicrobial testing. CO2K1
13. a. Discuss the medicinal uses and phytochemical constituents of *Solanum trilobatum* in asthma treatment. CO3K4
(or)
- 13.b. Infer the anticancer properties of *Catharanthus roseus* and its important alkaloids. CO3K3
14. a. Explain the biological source and chemical structure of Glycyrrhizin. CO4K2
(or)
- 14.b. Describe any two non-nutritive sweeteners and their applications. CO4K1
- 15.a. Analyse the principles of Siddha medicine briefly. CO5K4
(or)
- 15.b. Discuss the importance of traditional medicine in modern drug discovery. CO5K2

Part C

5 x 12 = 60

Answer ALL questions

Each answer should not exceed 800 words or four pages

- 16 .a. Explain in detail the preparation, composition, and uses of Nutrient Agar and Potato Dextrose Agar (PDA). CO1K2
(or)
16. b. Write a detailed note on the identification of bacterial species using biochemical tests. CO1K2
- 17.a. Assess the various techniques used for microbial isolation and antimicrobial susceptibility testing. CO2K5
(or)
- 17.b. Examine various methods for maintenance and preservation of microbial culture. CO2K3
- 18 .a. Compare and contrast the phytochemical constituents and therapeutic uses of *Catharanthus roseus* and *Phyllanthus amarus*. CO3K4
(or)
- 18.b. Explain the phytochemical constituents and pharmacological uses of the following medicinal plants CO3K2
i. *Gymnema sylvestre* ii. *Solanum trilobatum*
- 19.a. Interpret the biological source, chemical structure, and pharmacological properties of Glycyrrhizin from *Glycyrrhiza glabra*. CO4K3
(or)
- 19.b. Compare the advantages and disadvantages of natural colorants and synthetic colorants. CO4K4
- 20.a. What is drug standardization? Discuss the importance and methods of standardization in traditional medicines. CO5K2
(or)
- 20.b. Compare and contrast the Siddha system with other medicinal systems in terms of principles, dosage and drug evaluation. CO5K4
