

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University)



M.Tech. (Second Semester - Regular) Examinations, May - 2026
24MBPC12002 - Medicinal Plants and Natural Products

Time: 3hrs

Maximum: 60 Marks

(The figures in the right-hand margin indicate marks)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

- | | CO # | Blooms Level |
|--|------|--------------|
| a. Write on Medicinal and Aromatic Plants? | CO1 | K1 |
| b. What is ethnomedicine? | CO1 | K1 |
| c. Why is germplasm storage important? | CO3 | K2 |
| d. What are alkaloids? Give two examples?. | CO5 | K1 |
| e. Define target-based drug discovery. | CO6 | K1 |

PART – B

(10 x 5 = 50 Marks)

Answer **ALL** the questions.

- | | Marks | CO # | Blooms Level |
|---|-------|------|--------------|
| 2. a. Explain the economic importance of Medicinal and Aromatic Plants (MAPs). | 5 | CO2 | K2 |
| b. Write on <i>ex situ</i> conservation strategies for medicinal plants? | 5 | CO1 | K2 |
| (OR) | | | |
| c. Explain the role of tissue culture in medicinal plant conservation | 5 | CO3 | K2 |
| d. Discuss biopiracy issues associated with medicinal plants | 5 | CO3 | K5 |
| 3. a. Explain the role of State Medicinal Plant Boards in the conservation of medicinal plants | 5 | CO2 | K4 |
| b. Explain the role of herbal industries in the economic development of the medicinal plant sector. | 5 | CO1 | K2 |
| (OR) | | | |
| c. Explain the cultivation practices of important aromatic plants used in the essential oil industry. | 5 | CO4 | K3 |
| d. Explain the factors affecting secondary metabolite production <i>in vitro</i> . | 5 | CO5 | K2 |
| 4. a. Explain the industrial applications of immobilized plant cell systems | 5 | CO3 | K4 |
| b. Describe the role of bioreactors in secondary metabolite production from medicinal plants | 5 | CO6 | K3 |
| (OR) | | | |
| c. Discuss the synthetic seed technology in medicinal plant conservation | 5 | CO4 | K5 |
| d. Explain the pharmacological properties of <i>Phyllanthus amarus</i> . | 5 | CO6 | K4 |
| 5. a. Explain the distribution and therapeutic applications of <i>Adhatoda vasica</i> | 5 | CO2 | K2 |
| b. Design a protocol for <i>in vitro</i> propagation of an economically important medicinal plant. | 5 | CO3 | K6 |
| (OR) | | | |
| c. Explain the concept of pharmacophore and its role in drug design | 5 | CO4 | K3 |
| d. Discuss the isolation and purification of bioactive natural products. | 5 | CO6 | K3 |
| 6. a. Discuss the pharmacophore and drug target interaction of quinine | 5 | CO5 | K4 |
| b. Explain the role of computational biology in natural-product-based drug discovery | 5 | CO1 | K3 |
| (OR) | | | |
| c. Discuss the role of marine natural products in the discovery of novel therapeutics | 5 | CO2 | K4 |
| d. Discuss the importance of receptor binding and molecular interactions in drug efficacy. | 5 | CO4 | K4 |

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