



Paper ID : 250452

Printed Page: 1 of 2
Subject Code: BP504T

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BPHARM
(SEM V) THEORY EXAMINATION 2024-25
PHARMACOGNOSY II – THEORY

TIME: 3 HRS**M.MARKS: 75**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

10 x 2 = 20

a.	Distinguish between the acetate-mevalonate (MVA) and methylerythritol phosphate (MEP) pathways in the biosynthesis of terpenoids.
b.	Describe the function of the amino acid pathway in the production of tropane alkaloids, including one example
c.	Clarify the reason that lignans derived from Podophyllum are categorized as aryltetralin lignans and their importance in cancer treatment.
d.	In what way does the chemical makeup of menthol (Mentha) lead to its cooling effect?
e.	How do glycosides of anthraquinone (Senna, Aloes) stimulate peristalsis, and what is their aglycone form?
f.	In what way does the existence of α,β -unsaturated aldehyde in citral affect its UV-spectral examination?
g.	Explain the essential pH modification needed for extracting atropine from Atropa belladonna and the biochemical reasoning behind it
h.	What analytical method is favored for quantifying Digoxin in digitalis leaves?
i.	What are the differences between HPLC and TLC in the analysis of phytochemicals?
j.	Explain the industrial process used for extracting caffeine from coffee beans.

SECTION B

2. Attempt any two parts of the following:

2 x 10 = 20

a.	I. Clarify the function of the Shikimic acid pathway in the production of aromatic amino acids and its importance in the development of phenylpropanoids. (5M) II. What are the differences in chemical composition and therapeutic uses between volatile oils derived from Mentha and Cinnamon? (5M)
b.	I. Examine the structural characteristics and therapeutic significance of Artemisinin derived from Artemisia annua. How does its anticancer activity compare to Taxol from Taxus? (5M) II. Analyze the pharmacological effects of Quinine and Caffeine, with an emphasis on their structural-activity relationship (5M)
c.	I. Elaborate on the sequential industrial methods to obtain Diosgenin from Dioscorea species, focusing on solvent extraction and hydrolysis. (6M) II. In what ways does electrophoresis contribute to the quality control of compounds derived from plants? (4M)



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TIME: 3 HRS**M.MARKS: 75****SECTION C****3. Attempt any five parts of the following:****7 x 5 = 35**

a.	Examine the importance of radioactive isotopes (e.g., C ¹⁴ , H ³) in tracking biosynthetic pathways in plants. Provide an example demonstrating how isotopic labeling clarified the mevalonate and non-mevalonate pathways in terpenoid biosynthesis.
b.	Discuss the significance of Dioscorea and Liquorice in contemporary medicine. Emphasize their main chemical components, medicinal applications, and market uses in the pharmaceutical sector.
c.	Explain the chemical composition, medicinal benefits, and industrial uses of Guggul resin.
d.	Scrutinize the structural characteristics, therapeutic effects, and market importance of Vinca and Rauwolfia alkaloids
e.	Outline the chemical assays and TLC analysis for the identification of glycyrrhetic acid. In what way does acid hydrolysis assist in characterizing glycyrrhizin?
f.	Skeleton the fermentation-driven industrial synthesis of Forskolin, its spectrophotometric measurement, and its therapeutic applications in cardiovascular diseases.
g.	Explain the operational principle of Gas Chromatography-Mass Spectrometry (GC-MS) in the analysis of phytochemicals. Why is it sometimes essential to perform derivatization prior to GC-MS analysis?