

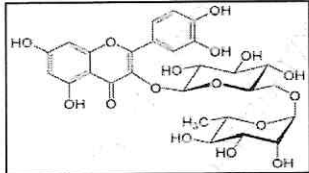
Duration: 3 Hours

Total marks: 75

- N.B.: 1. All questions are compulsory  
2. Figures to right indicate full marks

- Q. I Choose appropriate option for following multiple choice based questions. 20**
- 1 In the Acetate pathway, which of the following is a primary building block for the synthesis of secondary metabolites such as fatty acids and polyketides? **1M**
- a HMG-CoA
  - b Pyruvate
  - c Shikimic acid
  - d Oxaloacetate
- 2 Which of the following radioactive isotopes is commonly used in studying DNA replication in biogenetic studies? **1M**
- a Carbon-14 ( $^{14}\text{C}$ )
  - b Phosphorus-32 ( $^{32}\text{P}$ )
  - c Nitrogen-15 ( $^{15}\text{N}$ )
  - d Cobalt-60 ( $^{60}\text{Co}$ )
- 3 Which class of flavonoids is most commonly found in Ruta plant, contributing to its medicinal properties? **1M**
- a Anthocyanins
  - b Chalcones
  - c Isoflavones
  - d Flavonols
- 4 Which of the following structural features is common in lignans type of phenylpropanoid? **1M**
- a A single phenylpropane unit with a hydroxyl group
  - b Two phenylpropane units linked by a  $\beta$ - $\beta'$  bond
  - c A tricyclic ring system with one oxygen atom
  - d A tetrahydropyran ring with multiple hydroxyl groups
- 5 What is the mandatory procedure in isolation of diosgenin, from Dioscorea? **1M**
- a Acid hydrolysis
  - b Steam distillation
  - c Curing
  - d None of the above
- 6 Which secondary metabolite from clove has significant antimicrobial properties and is widely used in dental care products? **1M**
- a Linalool
  - b Eugenol
  - c Cinnamaldehyde
  - d Anethole

- 7 What is the main chemical class of secondary metabolites found in *Coriandrum sativum*? 1M
- a Flavonoids
  - b Lignans
  - c Terpenoids
  - d Saponins
- 8 Which reagent is typically used in the qualitative analysis of tannins during extraction from Catechu? 1M
- a Benedict's reagent
  - b Molisch's reagent
  - c Wagner's reagent
  - d Ferric chloride
- 9 *Pterocarpus marsupium*, a source of tannins, is commercially utilized for which medicinal application? 1M
- a Skin whitening products
  - b Fertility enhancement
  - c Treatment of diabetes
  - d Weight loss supplements
- 10 Which chemical test is commonly used to identify the presence of asafoetida? 1M
- a Bromine Water Test
  - b Ferric Chloride Test
  - c Salkowski Test
  - d Combined Umbelliferon test
- 11 Which secondary metabolite derived from Guggul is primarily known for its use in lowering cholesterol levels? 1M
- a Guggulosterone
  - b Benzyl benzoate
  - c Curcumin
  - d Eugenol
- 12 Bitter Almond contains amygdalin, a compound that belongs to \_\_\_\_\_ class of secondary metabolites 1M
- a Terpenoids
  - b Glycosides
  - c Phenolics
  - d Alkaloids
- 13 Which of the following chemical tests is commonly used to identify the presence of anthraquinones in Senna? 1M
- a Frothing Test
  - b Bornträger's Test
  - c Fehling's Test
  - d Biuret test

- 14 What is the key secondary metabolite produced by *Artemisia annua* (Sweet Wormwood)? **1M**
- Berberine
  - Taxol
  - Artemisinin
  - Gentianine
- 15 What is the primary purpose of curing *Curcuma longa* in boiling water? **1M**
- To reduce the drying time by gelatinization of starch
  - To enhance the flavour of the turmeric
  - To increase the nutritional value
  - To improve the colour of the turmeric
- 16 Identify the given structure? **1M**
- 
- Cyanidin
  - Quercetin
  - Kemferol
  - Rutin
- 17 Which of the following phytoconstituent is eliminated by treatment of sodium carbonate solution in the isolation of caffeine? **1M**
- Thebaine
  - Tannins
  - Resin
  - Tropane
- 18 Which of the following is not the use of Forskolin? **1M**
- Antibiotic agent
  - Antidepressant agent
  - Vasodilating agent
  - Antiasthmatic agent
- 19 Which type of method is commonly used for the separation of proteins and peptides in crude drug analysis? **1M**
- HPTLC
  - HPLC
  - Gel electrophoresis
  - Tandem mass spectroscopy
- 20 Which of the following modern extraction methods utilizes high pressure and temperature to extract phytoconstituents from plant materials? **1M**
- Steam Distillation
  - Pressurized extraction
  - Maceration
  - Supercritical Fluid Extraction

<b>Q.</b>	<b>Answer any TWO of the following</b>	<b>20</b>
<b>II A</b>		<b>M</b>
<b>1</b>	Answer the following	<b>10</b>
	a Write a short note on preparation and introduction of radioactive precursors in plant matrix.	<b>M</b>
	b Write a note on biological source, chemical constituents, chemical tests uses of colophony.	
<b>2</b>	Write a short note on source, industrial production, estimation and uses of the Digoxin?	<b>10</b>
		<b>M</b>
<b>3</b>	Write a short note on the following	<b>10</b>
	a. HPLC chromatography	<b>M</b>
	b. Electrophoresis in drug identification	
<b>Q.</b>	<b>Answer any SEVEN of the following</b>	<b>35</b>
<b>II B</b>		<b>M</b>
<b>1</b>	Illustrate amino acid (Tyrosine) biosynthetic pathway with the structures of 4 major intermediate product.	<b>5M</b>
<b>2</b>	Discuss source, chemistry and uses of tropane alkaloid.	<b>5M</b>
<b>3</b>	Illustrate pathway for biosynthesis of GPP with suitable structures.	<b>5M</b>
<b>4</b>	Classify triterpenoid glycosides. Write a note on source and chemistry of Liquorice with suitable structures.	<b>5M</b>
<b>5</b>	Discuss phytochemistry of C-glycosides of aloe with appropriate structures, mention the chemical test for identification .	<b>5M</b>
<b>6</b>	Discuss the extraction and isolation of Quinine	<b>5M</b>
<b>7</b>	Write a note on the isolation an analysis of following phytoconstituents:	<b>5M</b>
	a. Menthol      b. Citral	
<b>8</b>	Write a short note on modern methods of extraction.	<b>5M</b>
<b>9</b>	Write a note on principle, procedure and applications of gel electrophoresis in crude drug analysis.	<b>5M</b>