(b) Sugar can be obtained from which sources ? In India, what is the key source of sugar ? Describe the processing process and identify the byproducts of the industry. 5

7. Write a detailed note on the following. Both questions carry equal marks : 15

(a) Cytodifferentiation of tracheary elements and sieve elements.

(b) The different ways wood can be categorized.

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756402

May 2026

M.Sc. (Botany) (Fourth Semester)

Plant Anatomy and Resource Utilization

(BOP-204-V)

Time : 3 Hours] [*Maximum Marks : 75*

Note : It is compulsory to answer all the questions (1.5 marks each) of Part A in short. Answer any *four* questions from Part B in detail. Different sub-parts of a question are to be attempted adjacent to each other. Support answers with relevant diagrams where necessary.

Part A

1. (a) Give botanical names of clove, jute, mango, bajra, chickpea and sugarcane. 1.5

(b) What is dendrochronology ? 1.5

(c) What is the purpose of quiescent centre ? 1.5

(d) Explain the role of cambium. 1.5

(e) What is the significance of Kranz's anatomy ? 1.5

(f) Identify the part harvested for commercial use from the following plants : wheat, groundnut, cinnamon, tea, linseed and cinchona. 1.5

(g) Why does lateral growth occur in plants ? 1.5

(h) Describe the purpose of a root cap. 1.5

(i) Mention the different types of stomata seen in plants. 1.5

(j) What are trichomes ? Identify their functions. 1.5

Part B

2. (a) Describe the economic potential of potato. Where is its centre of origin ? Identify some prominent cultivars grown in India. What key methods are involved in its production and processing ? 10

(b) With diagrams, explain the development of leaf. 5

3. (a) Describe the harvesting and processing of coffee. 5

(b) What is a periderm ? Describe its development ? Also identify the role of rhytidome and lenticel in it. 10

4. Write short notes on any *three* of the following : 15

(a) Structure of cotton fibre.

(b) Harvesting and processing of rubber.

(c) Classification of oil with examples.

(d) Difference between cereal and pseudocereal with examples.

5. (a) What is the source of opium ? How is it harvested ? Where is it used ? 5

(b) Draw a detailed diagram of T.S/L.S of root, stem and leaf of any hydrophyte. Identify the features which are different from the mesophytic stem and leaf. 10

6. (a) What is the role of vascular bundles ? Describe the different types of vascular bundles observed in angiosperms with supporting diagrams. 10