



University of Ruhuna- Faculty of Technology
Bachelor of Biosystems Technology Honours Degree
Level IV (Semester II) Examination, November/December 2025
Academic year 2023/2024

Course Unit: BSTE4222 Forest Resources and Wood Science (Written)
Duration: 1.5 hours

- Answer **ONLY THREE (03)** questions.
- Use a separate book for answering the questions.
- Each question should start with a new page.

Question One

(50 Marks)

"Assume you are managing a 50-hectare forest plantation in Moneragala District, Sri Lanka for timber production. Design a forest management plan that includes:

- A. Which silvicultural system would you choose (clearcutting, shelterwood, selection, or coppice)? Explain why. (12 marks)
- B. How will you establish the forest? Give reasons. (10 marks)
- C. What post-plantation operations will you do, Explain briefly? (18 marks)
- D. How will you ensure sustainable timber production while protecting the environment? (10 marks)

Question Two

(50 Marks)

"A furniture manufacturing company in Sri Lanka wants to use timber for outdoor garden furniture that will be exposed to rain, sunlight, and potential insect attack. As a wood technologist, prepare a technical recommendation that includes:

- A. Identify and explain five (5) important characteristics of good timber suitable for outdoor furniture. (10 marks)
- B. What are the common wood defects that would make timber unsuitable for outdoor use? For each defect, explain why it reduces the quality or durability of the timber. (8 marks)

C. Recommend a suitable wood preservation method and type of preservative for this application. Justify your choice with advantages and disadvantages. (20 marks)

D. Explain the wood seasoning process and why seasoning is necessary before applying preservation treatment. (12 marks)

Question Three

(50 Marks)

"Sri Lanka produces only 400,000-500,000 m³ of timber per year but requires 1.5-2 million m³, as a result, our country import 60-70% of its timber needs. Local sawmills recover timber at a very low rate (45-55%) compared to international standard (65-75%). However, the wood industry still employs 150,000-200,000 people and earns USD 80-120 million from furniture exports annually. Assume you are appointed as a consultant to prepare a 10-year strategic plan to improve Sri Lanka's wood industry, your plan should address the followings.,

- A. How can Sri Lanka increase domestic timber production sustainably?
- B. How can sawmills and wood processing industries to be modernized to reduce waste and improve value addition?
- C. What new wood-based products should Sri Lanka develop and which export markets should be targeted?
- D. How can the industry expand while protecting the environment?
- E. What government policies, incentives and institutional support are needed to help industrial growth?

Question Four

Write short notes on the following.

(50 Marks)

- A. Forest mensuration and its objectives
- B. Modern approaches in forest inventory (Remote sensing and digital tools)

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