B.Tech Even Semester Examination, May, 2025

Agricultural Engineering

(8th Semester)

Course No: AE-B03

[Open Elective (Tea Technology]

Full Marks: 50

Pass Marks: 25

Time: 2 hours

Note:

1. Attempt any five questions.
2. Begin each answer in a new page
3. Answer parts of a question at a place
4. Assume reasonable data wherever required
5. The figure in the right margin indicates full marks for the question
6. All the mathematical symbols and abbreviations have their usual meanings.

1. What is biclonal seed stock (BSS)? Briefly explain the clonal tea nursery management. [4+6]

2. (i) Explain the soil and water conservation measures of tea plantation. [5]

   (ii) Determine the size of the irrigation stream required to irrigate 20 ha tea garden having no effective rainfall in the region and peak consumptive use rate of 9 mm/day. The irrigation system is operated for 8 hrs/day. The field irrigation efficiency is 0.8. Assume the irrigation depth per application is 10 cm. [5]

3. (i) What is the use of mulching? Differentiate between pollarding and lopping. [5]

(ii) A subsurface drainage should be provided through a tea estate of several kilometeres long. Average expected recharge to the water table in the area is about 3mm/d. It is required to maintain the water table not closer than .2m from the soil surface. The value of hydraulic conductivity up to 2.o m is 40 mm/d and below that is 42 mm/d. Relatively; impervious layer exists 8 m below the soil surface. Determine the drain spacing. [5]

4. (i) Write the short notes (any two)

(a) Spacing and bush population of tea estate

(b) Centering & two tier tipping

(c) Pruning [5]

(ii) A sodic soil has an ESP of 35 and CEC of 22 meq/100 g soil. Calculate the amount of gypsum required to reduce the ESP to 15 at a depth of 40 cm. [5]

5. Explain the tea processing steps with necessary flowchart. [6+4]

6. (i) Explain the quality standards and specifications of tea. [5]

(ii) Write the short notes (any two)

(a) Decaffeinated tea

(b) Flavoured tea

(c) Storage and packaging aspects [5]

7. (i) Explain the procurement function in tea plantation with the steps involved [5]

(ii) Explain with flowchart about the organizational structure of a typical tea estate. [5]

8. (i) Define performance appraisal and incentives of tea estate workers. [2]

(ii) Enlist and explain the maintenance function in tea estate. [8]

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