

**B.Tech Odd Semester (CBCS) Exam.,
December—2017**

AGRICULTURAL ENGINEERING

(7th Semester)

Course No. : AE-703 (C)

(Tea Technology)

Full Marks : 75

Pass Marks : 30

Time : 3 hours

- Note :*
1. Attempt **one** question from each Unit.
 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 figures in the margin indicate full marks for the questions.

UNIT—I

1. (a) Why is climate change unfavourable for tea production? What points to be considered while planting and management of young tea? 4+4=8
- (b) How the shade will help to grow a young and matured tea in field? Give a suitable example of shade tree. 7

2. (a) Write short notes on the following : 2×4=8
 - (i) Field capacity and permanent wilting point
 - (ii) Methods of planting
 - (iii) Types of planting
 - (iv) Vegetative propagation
- (b) Write a brief note on manuring for nursery and matured tea. What type of micronutrients is recommended particularly in skiffed tea? 4+3=7

UNIT—II

3. (a) Elaborate design and the performance of sprinkler irrigation system for tea plantation with specific components. 4+4=8
- (b) A sprinkler irrigation system is to be designed to irrigate 16.2 hectare of pasture on a silt loam soil. The intake rate of the soil is 15 mm/h, the available moisture holding capacity of the soil is 150 mm/h, the depth of root zone is 0.6 m. Assuming a water application efficiency of 70%, determine the limiting rate of application, the irrigation period, the net depth of water per application, the depth of water pumped per application and the required system capacity in hectare per day. 7

(3)

4. Design a tile drain system with the suitable points of consideration. Derive an expression for spacing of drains by the Dupuit-Forchhemeir assumptions. 5+10=15

UNIT—III

5. (a) What are the factors responsible for influencing oxidation during CTC tea manufacturing? 5
(b) What is the role of rotorvane in CTC manufacturing? 3
(c) What are the different types of primary grades for CTC tea? 3
(d) Explain why during orthodox green tea processing, the first fire is very important for the quality and grade percentage. 4
6. (a) List down all the general specifications of a CTC roller. 5
(b) What is the role of cyclone separator in fluidized bed dryers? 2
(c) How does one understand the correct level of withering? 3
(d) Explain about some problems and their possible solutions related to withering. 5

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(Turn Over)

(4)

UNIT—IV

7. (a) Write short notes on the following : 4×3=12
(i) Herzberg's two-factor theory
(ii) Maslow's hierarchy of need theory
(iii) Expectancy and equity theory
- (b) What are the legal requirements must follow while selecting or hiring new employees? 3
8. (a) Distinguish between the following : 4×2=8
(i) Voluntary turnover and Involuntary turnover
(ii) Downsizing and Outsourcing
- (b) Explain the process of employee's motivation using a proper flowchart. 3
- (c) What are the major responsibilities involved in human resources management? 2
- (d) Explain about the competitive unions and management tactics. 2

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(Continued)

UNIT—V

9. (a) What are the key points a farm management body must follow for waste management purpose? 6
- (b) What are the critical criteria a farm management must follow at the time of social and environmental management? 4
- (c) What are the steps involved in ecosystem conversation in any farm? 5
10. (a) As a speaker on an Occupational Health and Safety Program, what are the points you will discuss to minimize or eliminate workers' occupational risks? 5
- (b) Elaborately explain about the major problems that Indian tea industries are facing in recent days. 5
- (c) What are the practices a farm manger must introduce in the farm to build a strong community relation? Give proper justification against your answer. 5

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