B.Tech Even Semester Examination, May, 2025

Agricultural Engineering

(8th Semester)

Course No: AE-E02

[Open Elective (Engironmental Engineering and Fundamentals)]

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. Define:

   a. Standing biomass

   b. Primary production c. Incineration

   d. Ecological pyramid e. NPP

   f. Vermicompost g. Food chain

   h. Trophic structure i. Food web

   j. Landfill 1x10=10

2. a. Explain the in-situ and ex-situ conservation of biodiversity.

   b. Explain the different levels of biodiversity. 4+6

3. a. Define homeostasis.

   b. Explain the negative and positive feedback mechanisms of ecosystem with the help of a diagram.

   c. Discuss how matter is produced by ecosystem. 1+4+5

4. a. Discuss the stages of ecological succession.

   b. Using the 1st law and 2nd law of thermodynamics, explain how does energy flow in an ecosystem. 5+5

5. a. Briefly outline the different unit operation that takes place in a waste water treatment plant with proper diagram.

   b. Discuss the preliminary treatment of wastewater. 6+4

6 a. Briefly discuss the principle and types of settling in a waste water treatment process.

   b. Explain the different water quality parameters which are important for waste water treatment process. 5+5

7. Explain the process of aerobic and anaerobic digestion involved in waste water treatment. Also write down its advantages and disadvantages of each process. 5+5

8 a. Explain briefly the different ways and means of treatment of solid waste.

   b. Briefly discuss the sources, effects and control measures of air pollution. 5+5

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