

**M.Tech Even Semester (CBCS) Exam., April—2017**

**AGRICULTURAL ENGINEERING**

( Water Resource Development and  
Management)

**( 2nd Semester )**

Course No. : MAEEL-02

**( Land Husbandry and Watershed Management )**

*Full Marks : 50*

*Pass Marks : 15*

*Time : 2 hours*

*Note :* 1. Attempt **any five** questions.

2. Begin each answer in a new page.

3. Assume reasonable data wherever required.

4. The figures in the margin indicate full marks for the questions.

1. (a) Outline the types of soil erosion based on the agents that are responsible for the soil erosion. 5
- (b) List and discuss the problems associated with soil erosion on soil, water and air. 5

2. Differentiate between the following : 2×5=10

(a) Geological erosion and Accelerated erosion

(b) Erosivity and Erodibility

(c) Sheet erosion and Rill erosion

(d) Bunding and Terracing

(e) Contour farming and Strip cropping

3. List the different land capability classes based on land slope and state their land characteristics and recommended soil erosion control measures. 10

4. (a) Explain the importance and details of universal soil loss equation. If an area subjected to soil erosion having rainfall erosivity index of 1200 Mj-mm/ha-h-y, soil erodibility index of 0.20 t-ha-h/ha-Mj-mm, crop management factor of 0.60, conservation practice factor of 0.1, then what will the estimated annual loss? Explain how this soil loss will decrease by adopting conservation practice. 5

(b) Explain the USLE and MUSLE. 5

5. Write down the different steps for design principles of bunds and terrace. 5+5=10

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6. List and explain the role of different essential elements for plant. 10
7. List and describe the different criteria for restoring lost fertility and maintenance of soil nutrients. 10
8. List and explain the different phases for the planning and execution of management programme for watersheds. 10

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