

Roll No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**B.E (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2013**

**CIVIL ENGINEERING**

**EIGHTH SEMESTER**

**CE 9038 WATERSHED CONSERVATION AND MANAGEMENT**

(Regulation 2008)

Time: 3 Hours

Answer ALL Questions

Maximum : 100 Marks

**PART-A**

**(10 x 2 = 20 Marks)**

1. Distinguish between watershed and catchment.
2. What are all the components of watershed?
3. Classify the gullies according to their sizes.
4. Write down the relationship between the parameters of USLE?
5. What is the need for water conservation?
6. During the implementation of water conservation techniques, what are the goals to be achieved?
7. What is meant by ESP?
8. What are all the factors to be considered in the Watershed management?
9. List the classification of wasteland in a watershed.
10. How to reclaim soil from salts and sodium content?

**Part – B**

**( 5 x 16 = 80 marks)**

11. a(i) Explain briefly about the delineation of watershed from the topographical data which is obtained for a hilly terrain like western Ghats. (9)
  - (ii) A watershed of area  $27.5 \text{ km}^2$  covered by agricultural land  $22 \text{ km}^2$ , barren land  $3.2 \text{ km}^2$  and remaining reserved forest land. The curve number for barren land is 78, for agricultural land is 83 and for forest land is 64. The rainfall over the watershed is  $37.2 \text{ mm}$  per day. Determine the total runoff generated in the watershed. (7)
  - 12 a) Explain briefly about the different types of soil erosion and how to control the gully erosion. (16)
- (OR)**
- 12 b) i. In a 20 ha catchment, soil erosion is to be evaluated. Calculate the soil loss by the

Universal Soil Loss Equation from the following information for the catchment (6)

$$R = 500 \left( \frac{i - m}{ha} \right) \left( \frac{mm}{h} \right) \text{ per year}$$

$$K = 0.35 \text{ t/ha/yr}$$

$$LS = 0.1$$

Contour Farming in 12 ha (P = 0.6)

Strip Cropping in 8 ha (P = 0.3)

Crops are maize and cowpea (assumed C = 0.5)

ii. Explain briefly with neat sketch about the design of dug-out farm pond. (10)

13 a) i. List the types of Water conservation measures practiced in a watershed. (5)

ii. Explain in detail about the physical and vegetative measures for water conservation for a watershed. (11)

(OR)

b) Explain the design criteria for water harvesting structures and also the techniques adopted for rain water harvesting. (16)

14 a) i. What are all the activities to be considered in the watershed development and management programme? (6)

ii. Explain briefly about the steps to be followed in the planning of watershed management programme. (10)

(OR)

b) i. Determine the concentration of salt in 2 litres of water, if 10 grams of sodium chloride has been dissolved. Express the concentration in ppm, EC and milli equivalence per litre. (7)

(ii) Explain briefly about the management of forest plantation with special reference to vegetative measures. (9)

15 a) Explain with suitable drawing about the procedure adopted in the Joint Forest Management practices. (16)

(OR)

b)(i) Write short notes on the waste land in Indian context. (8)

(ii) Explain briefly the importance of pasture and fodder cultivation in order to improve the livelihood of the watershed. (8)

-----