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B.E. / B. Tech (Full-Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2011

28

CIVIL ENGINEERING

SIXTH SEMESTER

(REGULATIONS 2008)

CE 9352 – IRRIGATION ENGINEERING

Time : 3 hr

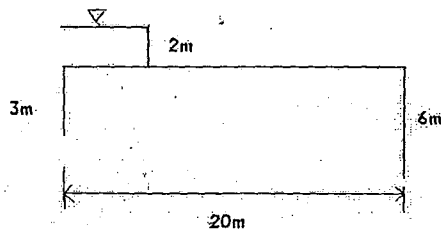
Max Marks : 100

Instructions: Draw neat sketches wherever necessary.

PART - A (10x2 = 20 Marks)

Answer ALL Questions

1. List down the allocation priorities as stated in the National Water Policy, 2002.
2. Which soil has been identified as the most suitable soil for crop growth, why?
3. Depict the moisture extraction pattern existing within the plant root zone.
4. Bring out the advantages of modified Penman's method used in the estimation of evapotranspiration over the temperature-based methods.
5. Sketch a canal escape indicating its location and also state its uses.
6. If wheat crop requires about 8 cm of water after every 35 days, and the base period of wheat is 140 days, find out the value of delta.
7. The following line sketch illustrates the line sketch of a hydraulic structure. Calculate the average thickness of the floor at a point 10 m from the u/s end.



8. State the major causes for water logging.
9. Differentiate between sodicity and salinity.
10. Draw the organogram of the water users' association.

PART B**5 x 16 = 80 Marks)**

11. Elaborate on any one of the efficient irrigation methods bringing out the layout, pattern of water distribution, merits and limitations. (16)
12. a. Explain how a tensiometer could be practically used for measuring the soil water tension and in turn the soil moisture content. (16)
- (OR)**
12. b. (i) Elaborate on the necessity of irrigation. (8)
12. b. (ii) Discuss on the forces acting on soil water. (8)
13. a. Explain the soil water constants and state that how this would help in maintaining the movement of water within the soils. (16)
- (OR)**
13. b. (i) Discuss on the various method available for the estimation of evapotranspiration. (10)
13. b. (ii) Elaborate on the critical stages of water need of crops using the growth curve. (6)
14. a. Explain the different cross drainage works with neat sketches stating their functions. (16)
- (OR)**
14. b. Incorporating the silt theory principles, design an irrigation channel to carry a discharge of 50 cumecs. Assume Kutter's constant = 0.0255 and critical velocity ration (m) =1. The channel has a bed slope of 0.16m/km. (16)
15. a. State the reasons for Participatory Rural Appraisal standing ahead of the traditional methods regarding the field research and explain the different tools that could be used for getting the information in PRA. (16)
- (OR)**
15. b. (i) Write short notes on irrigation scheduling. (6)
15. b. (ii) Calculate the farm conveyance efficiency and field application efficiency when a stream of 95 lit/sec received at the farm gate after being diverted from a canal delivered 72 lit/sec to the field. During irrigation to wheat crop for 8 hrs, 350 and 158 cumecs of water is respectively lost by deep percolation. (10)