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B.E / B.Tech. (Full Time) DEGREE ARREAR EXAMINATION, NOV / DEC 2012

CIVIL ENGINEERING BRANCH

VI SEMESTER – (REGULATIONS 2008)

CE 9352 – IRRIGATION ENGINEERING

Time : 3 hours. Max Marks: 100

Answer ALL Questions

Part – A (10 x 2 = 20 Marks)

1. What is necessity for irrigation in India?
2. What are different forms of soil water?
3. What do you understand by consumptive use of water? How it is different from evapotranspiration?
4. Write the functions of irrigation water.
5. Write the relationship between duty, delta and base period.
6. How many hectare of paddy can be irrigated to satisfy a field duty and delta of 108 cm of water over a base period of 100 days, when the canal is maintained at 125 cumec.
7. Can we use poor quality of water for irrigation? If so what measure need to be adopted so that crop yield is not affected.
8. Define the term water logging?
9. What is meant by Kudimaramath?
10. One cumecs of water is pumped into a farm distribution system. 0.8 cumec is delivered to a turn-out, 0.9 kilometer from a well. Calculate the conveyance efficiency.

Part – B (5 x 16 = 80 Marks)

11. Decribe National water policy, briefly mention its salient features. What do you understand by National perspective plan? How is it going to benefit the nation? (16)

12. a) i. ntensity of irrigation, duties and base periods of various crops under a palar canal system are given in the Table below. If reservoir losses are 10% and conveyance in canal system 20%.Find out the storage capacity of the dam. (10)

Crop	Wheat	Sugarcane	Cotton	Rice	Vegetables
Base Period (days)	120	330	210	130	100
Duty (hectare/cumec)	1800	800	1200	800	700
Area under each crop in hectares	5400	6000	3000	3000	1500

ii. The monthly consumptive use values for paddy are tabulated in Table. Calculate the total consumptive use. What is the average monthly consumptive use and peak

monthly consumptive use? (6)

Month	Date	Rice (clay soil) C_u in cm
July	1-12	8.76
July	13-31	15.34
August	1-31	22.73
September	1-30	21.29
October	1-31	25.50
November	1-24	15.06

Or

b) i. Making use of the following information and Christiansen method calculate pan evaporation and consumptive use for the month of April: (12)
Consumptive use coefficient=0.8, Latitude of location=20°N, Mean temperature= 30°C, Mean wind velocity at 0.5m above ground= 180 km/day, Mean relative humidity= 38%, Mean sunshine percent=85%,. Elevation of location=400m and Extra-terrestrial radiation= 46 cm.
ii. What are the factors affecting irrigation water requirement of a crop? (4)

13. a) i. Describe an ogee and trapezoidal Notch fall with neat sketch. (6)
ii. With a neat sketch explain about aqueduct and level crossing. (6)
iii. What are the objects of canal lining? (4)

Or

b). Draw a neat sketch of the layout of the diversion headwork works, indicating the components and their functions of each. (16)

14. a). i. Explain briefly various surface method of distribution of water to field with a neat sketch. (12)
Ii Write down the advantage and disadvantage of drip irrigation method. (4)

Or

b). ii.What is the classification of irrigation water having the following characteristics: Concentration of Na, Ca and Mg are 22, 3 and 1.5 milli-equivalents per liter respectively, and the electrical conductivity is 200 µmhos/cm at 25°C? What Problems might arise in using this water on fine textured soils? (6)
ii.What are the causes of water logging? Descrbe the method of land reclamation. (10)

15. a) i.Discuss the roles and responsibilities of farmers and governmental agencies in the farmers organization. (14)
ii.Draw the neat sketch of structure of PSC and FC of farmer's organization. (2)

Or

b) i.Write briefly about Warabandi system of scheduling water for irrigation. (6)
ii. The depth of penetrations along the length of a border strip at points 30 meters apart were probed. Their observed values are 2.0, 1.9, 1.8, 1.6 and 1.5 meters. Calculate water distribution efficiency. (4)
ii.What do you mean by command area development? Why it is considered necessary? (6)