B.E. Sixth Semester (Civil Engineering) (CGS)

10204 : Water Resources Engineering - I : 6 CE 03

P. Pages : 2

Time : Three Hours

AU - 2735

Max. Marks : 80

Notes :
1. All question carry equal marks.
2. Answer **three** question from Section A and **three** question from Section B.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Illustrate your answer necessary with the help of neat sketches.
6. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1. a) Explain the different types of precipitation. **6**

b) A precipitation station X was inoperative for some time during which a storm occurred. The storm totals at three stations A, B and C surrounding X, were respectively 6.60, 4.80 and 3.70 cm. The normal annual precipitation amounts at stations X, A, B and C are respectively 65.6, 72.6, 51.8 and 38.2 cm. Estimate the storm precipitation for station X. **7**

OR

2. a) Define hydrology. State it's importance in the water resources planning. **6**

b) What is rain gauge network? Explain factors to be considered for selection of rain guage stations. **7**

3. a) What is runoff? What are the factors affecting runoff from a catchment area. **6**

b) What is potential evapotranspiration? Discuss Blaney criddle method for estimating potential evapotranspiration. **7**

OR

4. a) Discuss the methods for control of evaporation. **6**

b) What is infiltration? What are the various methods of measuring infiltration. **7**

5. a) Define flood and explain various measures to control floods. **7**

b) What is s-curve? The ordinates of a 6-hour unit hydrograph are given, obtain the ordinates of a 12 – Hour unit hydrograph. **7**

Time (h)	6-h UHO (m^3/sec)
0	0
6	8
12	14
18	30
24	34
30	32
36	20
42	17
48	15
54	7
60	0

OR

6. a) Describe briefly, the technique of flood routing. 7

b) What is a unit hydrograph? List the assumptions involved in the unit hydrograph theory. 7

SECTION – B

7. a) What do you understand by irrigation? What are advantages and disadvantages of irrigation. 6

b) What is percolation tank? Discuss with the help of neat sketch the different components of percolation tank. 7

OR

8. a) Explain the salient characteristics of irrigation water determining it's quality. 6

b) What are the advantages and disadvantages of minor irrigation schemes. 7

9. a) Define the following terms. 6

i) Duty	ii) Delta
iii) Crop Ratio	iv) Outlet factor
v) Time factor	vi) Paleo

b) Define consumptive use. What are the factors which influence consumptive use of water for any crop? 7

OR

10. a) Compare Drip irrigation and sprinkler irrigation method. 6

b) An area of 300 ha is to be irrigated from a minor channel with one outlet. Culturable commanded area is 80% of total area. The intensity of irrigation is 50% for Rabi crop and 30% for kharif crop. Taking loss in conveyance system as 5% of outlet discharge, determine the head discharge of the channel. Take outlet discharge factor for Rabi season as 1500 ha/m^3/sec and for Kharif season 1000 ha/m^3/sec. 7

11. a) Derive the equation for discharge from confined aquifer. 7

b) Explain briefly the elements of typical water harvesting system. 7

OR

12. a) Discuss in brief the estimation of cost of water harvesting. 7

b) A well penetrates fully a 10 m thick water bearing stratum of medium sand having coefficient of permeability of 0.005 m /sec. The well diameter is 20 cm and to be worked under a drawdown of 4m at the well face. calculate the discharge from the well. what will be the percentage increase in the discharge, if the diameter of the well is doubled? Take R = 300 m in each case. 7

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