

Roll No.

Printed Pages : 3

35149**BT-5 / D-17****HYDROLOGY****Paper-CE-305 N**

Time allowed : 3 hours]

[Maximum marks : 75

Note :- Attempt any five questions selecting at least one question from each unit. All questions carry equal marks/ Assume any missing data.

Unit-I

1. (a) What do you mean by "hydrologic cycle". Explain its parts with a neat diagram. 7.5
- (b) The normal annual rainfall at stations P, Q, R and S are 81, 66, 76 and 91 cm respectively. In one of the year, the station S was not working. The stations P, Q and R recorded annual rainfall as 91, 72 and 80 cm respectively. Estimate rainfall at station S. 7.5
2. (a) What do you mean by precipitation? Describe Thiessen polygon method of computing average rainfall. 7.5
- (b) One day maximum rainfall at a station is 300 mm with a return period of 50 years. Determine the probability of a one day rainfall depth equaled or greater than 300 mm occurring once in 20 years, two times in 15 successive years and at least once in 20 successive years. 7.5

Unit-II

3. (a) Write down Penman's equation with its meaning used in Evapotranspiration along with data needed. 7.5

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(2)

- (b) Describe energy budget method of evaporation estimation. 7.5
4. (a) Explain briefly phi index, W-index and infiltration capacity. 7.5
- (b) Describe procedures for determining infiltration characteristics of a soil of a plot of land. Explain clearly relative advantages and disadvantages of the methods. 7.5

Unit-III

5. (a) A 500 g/l solution of sodium dichromate was used as chemical tracer. It was dosed as a constant rate of 4 l/s at a downstream section. The equilibrium concentration was measured as 4 ppm. Estimate discharge in the stream. 7.5
- (b) Explain stepwise procedure of Gumbel's method of flood estimation in a catchment. 7.5
6. Ordinates of 4-h Unit hydrograph are given, using this data, derive 2-h unit hydrograph. 15

Time(h)	0	4	8	12	16	20	24	28	32	36	40	44
Ordinate of 4-h UH(m ³ /sec)	0	20	80	130	150	130	90	52	27	15	05	0

Unit-IV

7. (a) What is the difference between porosity and water content? Define the volumetric and gravitational water contents. 7.5

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(3)

- (b) Differentiate between confined, unconfined aquifer and perched aquifer with a suitable diagram. 7.5
8. (a) How do you determine EC of ground water sample? Explain it. 7.5
- (b) What are the possible sources of pollution of ground water? Also mention remedial measures. 7.5

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