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T.Y.B.Tech. (Civil Engineering) (CBCS) (Semester - V) Examination, November - 2023
WATER RESOURCE ENGINEERING - I
Sub. Code : 80763

Day and Date : Tuesday, 28 - 11 - 2023 **Total Marks : 70**

Time : 10.30 a.m. to 01.00 p.m.

Instructions :
1) **Q.4 and Q.8 are compulsory. In section I Attempt any two questions from Q.1,Q.2 and Q.3 and in section II attempt any two questions from Q.5, Q.6 & Q.7.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary and state them clearly.**
4) **Answer shall be supported by adequate sketches.**

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SECTION - I

Q1) a) Explain the construction and working of Tipping Bucket Type Rain gauge? **[5]**

b) The rain gauge station X was in operative for a part of a month during storm occurred. The storm rainfall recorded at the three surrounding stations A, B and C was 75, 55 and 85 mm respectively. If the average annual rainfall of the stations A, B, C and X are 780, 660, 850 and 700 mm respectively. Estimate the storm rainfall of station X. **[7]**

Q2) a) Explain Dalton's Law of Evaporation and factors affecting infiltration. **[5]**

b) The rate of rainfall for successive 30 min. periods of a 4h storm are as follows **[6]**

3.5, 6.5, 8.5, 7.8, 6.4, 4.0, 4.0,6 cm/h.

Taking the value of $\varnothing$ index as 4.5 cm/h compute the following

i) Total rainfall

ii) Total rainfall excess

iii) W index

Q3) a) Define various time parameters used in hydrograph analysis. **[6]**

b) The ordinates of 6 H unit hydrograph are given, calculate ordinates of 3 hours unit hydrograph **[6]**

Time (h)	0	03	06	09	12	15	18	21	24	27	30	33	36	39	42
Ordinates (cumecs)	0	9	20	35	49	43	35	28	22	17	12	9	6	3	0

Q4) Solve any two

a) Write Note On : Flood Discharge by rational Formula. **[6]**

b) Define Term Flood Hydrograph? Explain its components. **[6]**

c) Write Short Note on : Types of Precipitations **[6]**

SECTION - II

Q5) a) Explain in detail with neat sketch. **[6]**

i) Aquifer
ii) Aquiclude
iii) Aquifuge
iv) Aquitard
v) Perched Aquifer

b) Explain in detail constructional features of open well. **[6]**

Q6) a) Explain in detail general layout, main components & functioning of Percolation tank. **[5]**

b) Explain with neat sketch working of Drip Irrigation. State its advantages and disadvantages. **[6]**

Q7) a) Explain in detail classes and availability of soil water. **[6]**

b) Explain in detail methods of improving duty. **[6]**

Q8) Solve any Two

a) Write a detail note on confined aquifer and unconfined aquifer. **[6]**

b) Explain in detail general layout, main components & functioning of Bandara irrigation. **[6]**

c) Write Note on: Soil Moisture Constants. **[6]**

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