



10CV846

Eighth Semester B.E. Degree Examination, June/July 2019
Water Resources Engineering

Time: 3 hrs.

Max. Marks:100

- Note:1. Answer any FIVE full questions, selecting atleast TWO questions from each part.**
2. Assume missing data suitably.

PART - A

- 1 a. Give a detailed account of World's Water Resources. (10 Marks)
b. Explain any 5 water management sectors. (10 Marks)
- 2 a. Discuss the process of origin , occurrence and movement of water with neat sketch. (06 Marks)
b. Explain briefly the atmospheric and ocean circulation. (06 Marks)
c. Explain the forms and types of precipitation. (08 Marks)
- 3 a. Define Unit Hydrograph. State the underlying assumptions of the Unit Hydrograph theory. Write the limitations of Unit Hydrograph theory (10 Marks)
b. In a 350 ha. Water shed , the CN value was assessed as 70 for AMC – III. Estimate the value of direct run off volume for the following 4 days of rainfall. The AMC on July 1st was of category – III. Use standard SCS – CN equations. (10 Marks)

Date	July 1	July 2	July 3	July 4
Rainfall (mm)	50	20	30	18

- 4 a. Explain i) Drip Irrigation and ii) Sprinkler Irrigation. (10 Marks)
b. Explain any two Drought management options. (10 Marks)

PART - B

- 5 a. Give a detailed account of structural measures to control the floods. (10 Marks)
b. Define Flood Plain. Give the hydrologic , hydraulic and economic relationships used in flood damage reduction studies. (10 Marks)
- 6 a. Enumerate the general guidelines for the design of storm sewers. (07 Marks)
b. A catchment area of 120 hectares is drained by storm runoff which over a duration of 45 minutes results in 3cm of rainfall. The area has a time concentration of 30 minutes and runoff coefficient of 0.3. Estimate the resulting maximum rate of flow. (07 Marks)
c. Explain the types of surface detention ponds. (06 Marks)
- 7 a. Give a detailed account of drain inlets and their types. (06 Marks)
b. Determine the time concentration for an overland flow length of 100m, on a turf surface ($n = 0.4$) with an average slope of 0.02. Use a rainfall rate of 10cm/hr ($K = 26.285$). (06 Marks)
c. Give a brief account of design considerations for highway pavement drainage. (08 Marks)
- 8 a. Explain the function of Spillways. Differentiate between free fall spillways and ogee spillways. (12 Marks)
b. Write the design considerations for earth dams. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.