Code No: R1632014 **R16** SET - 1

III B. Tech II Semester Supplementary Examinations, November -2019

WATER RESOURCE ENGINEERING–I

(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A **(14 Marks)**

1. a) How to estimate the optimum number of rain gauges required in a basin? [2M]
   b) Distinguish between return period and exceedence of probability. [2M]
   c) What is Maximum probable flood and Standard project flood? [2M]
   d) Draw a neat diagram of IS standard non-recording rain gauge. [3M]
   e) What is S-hydrograph? [3M]
   f) Write short note on rainfall-runoff modeling. [2M]

PART –B **(56 Marks)**

2. a) Explain the different types with which we can find the average precipitation over a basin. [7M]
   b) Explain the Depth-Area-Duration curves. [7M]

3. a) Estimate the total volume of rainfall received in m^3 in a basin consisting of 5 rain gauges. The polygon area of each station in hectare are 518, 777, 906, 1495 and 748. The corresponding rainfalls in mm at each rain gauge station in the same order are 267, 198, 142, 114 and 81. [7M]
   b) How do you measure evapotranspiration using a Lysimeter? Explain. [7M]

4. a) What is meant by Probable Maximum Precipitation over a basin? Explain how PMP is estimated. [7M]
   b) Explain Muskingum and puls method of Routing. [7M]

5. a) Describe the method of estimating a T-year flood using Log-Pearson type-III distribution. [7M]
   b) Explain various methods for the control of floods. [7M]

6. a) Derive an expression for the steady state discharge of a well fully penetrating into a confined aquifer. List out the assumptions made. [7M]
   b) Explain the various types of wells. [7M]

7. a) Describe any one hydrological model. [7M]
   b) Explain Clark's conceptual model. [7M]
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