

**III B. Tech II Semester Supplementary Examinations, April - 2021**  
**WATER RESOURCES 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) Define hydrology. [2M]
- b) What is Evapotranspiration? [2M]
- c) Draw flow mass curve. [2M]
- d) Write the Factors affecting runoff. [3M]
- e) What are the types of wells? [3M]
- f) Write briefly on Clark's model. [2M]

**PART -B****(56 Marks)**

2. What do you understand by precipitation? Explain various types and forms of precipitation. [14M]
3. The infiltration capacity in a basin is represented by Horton's equation as  $f=3+e^{-2t}$ , [14M]  
 where  $f$  is in cm/hr, time is in hours. Assuming the infiltration to take place at capacity rates in a storm of 60 min duration. Estimate the depth of infiltration for:  
 (i) The first 30 min., (ii) Second 30 min.
4. a) Explain with the help of a diagram the hydrologic cycle with components. [7M]  
 b) Explain construction and limitations of Unit Hydrograph analysis. [7M]
5. What do you understand by unit hydrograph? How is it derived? Explain its use in construction of flood hydrograph resulting from two or more periods of rainfall. [14M]
6. a) State and discuss assumption and limitation of Dupit's theory. [7M]  
 b) List out the field measurement of infiltrometer and briefly explain. [7M]
7. a) Explain about runoff modeling. [7M]  
 b) Discuss about IUH. [7M]

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