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ET-535(A)

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B.Tech. Civil (Construction Management)

Term-End Examination

June, 2019

ET-535(A) : ELEMENTARY HYDROLOGY

Time : 3 hours *Maximum Marks : 70*

Note : *Answer **any five** questions. **All** questions carry **equal** marks. Use of scientific calculator is permitted.*

1. (a) With the help of a neat sketch show various processes involved in hydrological cycle. 7

   (b) What are various ways of expressing water vapour content in the atmosphere. Describe each in brief. 7

2. (a) Describe in detail the method of estimating missing precipitation data at a given rain gauge station. 7

   (b) Estimate the depth of rainfall over the watershed within which the given isohyets (Table 1) could be drawn. The storm centre can be assumed near the centre of the watershed and the boundary of the catchment can be assumed to coincide with the outermost isohyet. 7

Table 1

Isohyet (mm)	21	19	17	15	13	11
Area Enclosed (KM^2)	543	2030	2955	3535	3880	4310

3. (a) Describe various factors affecting evaporation and their effects on evaporation. 10

(b) How does evapotranspiration differ from evaporation ? Explain. 4

4. (a) What is infiltration ? Discuss the factors affecting infiltration. 7

(b) What is ϕ-index ? Discuss the practical importance of ϕ-index. 7

5. Discuss the effect of following factors on runoff : **4x3½=14**

(a) Rainfall distribution

(b) Catchment factors

(c) Drainage networks

(d) Human factors

6. With the help of neat sketches, describe the working of two non-recording type of stream-gauges. 14

7. Write short notes on **any four** of the following : **4x3½=14**

(a) Unit Hydrograph

(b) Slope-area method of discharge measurement

(c) Estimation of snow melt

(d) Methods to reduce lake evaporation

(e) Double-mass curve analysis.
