

Roll No. ....

**2269**

**B. E. 5th Sem. (Civil Engg.)  
Examination – December, 2011**

**HYDROLOGY**

**Paper : CE-311-E**

*Time : Three hours ]*

*[ Maximum Marks : 100*

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** Attempt any *five* questions. All questions carry equal marks.

1. (a) Define Hydrology. What role does hydrology play in the Water Resource Planning ? 10

(b) Discuss the statement :

"Hydrologic Cycle has no Beginning or Ending." 10

2. (a) What is the necessity of estimation of Evaporation ? Explain factors affecting evaporation. 10

(b) Describe sunken pan, with a neat sketch. 10

3. (a) Describe the process of Infiltration and Factors affecting infiltration. 10
- (b) Describe with neat sketch tube Infiltrometer. Compare it with double ring Infiltrometer. 10
4. (a) Explain the effect Over Runoff of :
- (i) Thick vegetal cover (ii) Snow cover (iii) Grass (iv) Permeable soil (v) Uneven land. 10
- (b) Explain Fern shaped and Fan shaped catchments. Discuss their characteristics. 10
5. The catchment area of a basin is in the shape of a regular hexagon of side 40 km. 7 raingauge stations were located at each end of hexagon and one at centre, they recorded precipitation of 10, 20, 30, 40, 50, 60 and 70 cm respectively. Using Thiessen polygon method, compute the average precipitation over the basin. 20
6. Define Unit Hydrograph.

The Unit Hydrograph Co-ordinates of a 1 cm-1h unit hydrograph are as follows :

Time (h)	0	1	2	3	4	5	6	7	8	9	10
Discharge (m <sup>3</sup> /s)	0	6	13	22	16	11	7	4	2	1	0

Find flood hydrograph for a storm of 2 cm/h for 1h also find area of Catchment in km<sup>2</sup>. 20

7. Write short notes on any *four* of the following :

4 × 5 = 20

- (a) Isohyet.
  - (b) Inglis formula.
  - (c) Confined and Unconfined Aquifer.
  - (d) Estimation of flood by Gumbel's Distribution.
  - (e) Yield of a Well.
  - (f) Infiltration-Evaporation-Evapotranspirations Comparison.
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