No. of Printed Pages : 3

ET-535(A)

01169

B.Tech. Civil (Construction Management)

Term-End Examination

June, 2011

ET-535(A) : ELEMENTARY HYDROLOGY

Time : 3 hours *Maximum Marks : 70*

Note : *Question no. **1** is **compulsory**. Answer **any four** from the remaining questions. **All** questions carry **equal** marks.*

1. Define the following terms (any seven) : **7x2=14**

(a) evapotranspiration
(b) interception
(c) infiltration
(d) surface run off
(e) base flow
(f) hyetograph
(g) unit hydrograph
(h) basin lag
(i) raingauge
(j) snow melt

2. (a) Draw a block diagram representing the hydrologic cycle. 7

(b) Draw a neat sketch of ISI modified class A pan with dimensions. State its use. 7

3. (a) Differentiate between non - recording and recording type raingauges. Explain functioning of Tipping bucket type raingauge. 7

(b) Enumerate various methods for estimation of average depth of precipitation over a catchment and describe any one method with an example. 7

4. (a) What are Direct and Indirect methods of discharge measurement ? Explain briefly. 7

(b) Describe the steps involved in Slope - Area method of discharge measurement. 7

5. In a 15.0 m wide rectangular channel, the depth of flow and cross - sectional area were measured as 3.2 m, 4.8 m^2 and 3.1 m, 46.5 m^2 at two sections 250 m apart. The drop in water surface elevation was found to be 0.11 m. Assuming Manning's coefficient as 0.015, estimate the discharge through the channel. 14

6. (a) What are the assumptions made in the theory of unit hydrograph ? 6

(b) Describe the basic steps involved in the derivation of a unit hydrograph from the observed hydrograph. 8

7. (a) Draw a neat sketch showing Float Gauge Recorder and Stilling Well Installation. 6

(b) Given below the ordinates of a 4 - h unit hydrograph. Derive the ordinates of a 12 - h unit hydrograph for the same catchment. 8

Time (h)	0,	4,	8,	12,	16,	20,	24,	28,	32,	36,	40,	44,
Ordinate of 4-h UH	0,	20,	80,	130,	150,	130,	90,	52,	27,	15,	5,	0,