

B.Tech. Civil (Construction Management)**Term-End Examination****December, 2011**

00622

ET-535(A) : ELEMENTARY HYDROLOGY*Time : 3 hours**Maximum Marks : 70*

Note : Question no. 1 is compulsory. All questions carry equal marks. Answer any four from the remaining questions. The answer shall be in your own language.

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1. Define the following terms : 7x2=14
 - (a) Interception
 - (b) Interflow
 - (c) Unit hydrograph
 - (d) Snowfall Water Equivalent
 - (e) Evapotranspiration
 - (f) Infiltration
 - (g) Rating curve

 2.
 - (a) Define the hydrologic cycle and draw the same showing at least seven hydrologic processes.
 - (b) Describe the formation of precipitation and explain any three type of precipitation formation. 2x7=14

3. (a) Explain the Radar measurement of rainfall and use of satellites in short term weather forecasting (rainfall). 6
- (b) Calculate the daily average rainfall over a catchment by Thiessen Polygon method having the following 3 - hrly data. 8

Raingauge station	Area of Polygon (ha)	3 - hrly precipitation in mm							
		1	2	3	4	5	6	7	8
R ₁	50	2	8	4	0	0	2	4	0
R ₂	100	3	10	2	4	0	0	5	6
R ₃	75	5	12	8	0	5	7	2	3
R ₄	125	0	6	10	8	4	0	0	0

4. (a) Explain Depth Area Duration analysis of storm with a neat sketch. 5
- (b) Define and describe the use of 9
- (i) Probable maximum precipitation,
 - (ii) Design storm and
 - (iii) Standard project storm.
5. Differentiate between Actual Evapotranspiration and Potential Evapotranspiration and describe two methods of estimation of Actual Evapotranspiration. 14

6. (a) Name the factors affecting run off and discuss any three factors in detail. 7
- (b) Differentiate between non-recording and recording type of stream gauging methods. 7
7. (a) What are the assumptions made in theory of unit hydrograph ? 6
- (b) Given the ordinates of 4-hr. unit hydrograph as below, derive the ordinates of a 8-hr unit hydrograph for the same catchment. 8

Time (h)	0,	4,	8,	12,	16,	20,	24,	28,	32,	36,	40,	44
Ordinate of 2-hr UH	0,	20,	80,	130,	150,	125,	80,	50,	25,	10,	3,	0