

**B.Tech. Civil (Water Resources  
Engineering)**

**Term-End Examination**

**December, 2012**

**ET-532(A) : HYDROLOGY**

*Time : 3 hours*

*Maximum Marks : 70*

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*Note : Answer any five questions. Use of calculator is allowed.  
The answers shall be in your own language.*

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1. (a) Explain the Hydrologic Cycle with the help of a neat sketch. 7
- (b) What is precipitation ? How does it form ? Explain. 7
  
2. (a) What is rain - gauge ? Write about Non - recording type and recording type rain - gauges. 7
- (b) What is evaporation ? What are the factors that affect the evaporation ? 7
  
3. (a) How can you estimate the Depression Storage ? 7
- (b) What is run off ? What are the factors affecting run off ? Explain them in brief. 7

4. (a) What is meant by Stage ? How the stage is measured ? 7
- (b) Write about the following discharge measurement Techniques. 7
- (i) Electromagnetic Method
- (ii) Ultrasonic method
5. The ordinates of 6 hr. unit hydrograph (UH) are given below : 14
- Time : 0 6 12 18 24 30 36 42 48 54 60
- 6 hr UHO 0 5 13 30 35 32 20 14 8 4 0
- (m<sup>3</sup>/sec) :
- Derive the 12 hr. UH ordinates.
6. (a) Explain : 7
- (i) Simple linear regression
- (ii) Least squares method
- (b) Explain Risk and reliability analysis. 7
7. (a) Explain the methods of channel routing. 7
- (b) A 30 cm well fully penetrates a confined aquifer 30 m deep. After a long period of pumping at a rate of 1200 lpm, the drawdowns in wells at 20 and 45 m from the pumping well found to be 2.2 m and 1.8 m respectively. Determine the transmissibility of the aquifer. What is the drawdown in the pumped well ? 7