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ET-532(A)

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B.Tech. Civil (Water Resources Engineering)

Term-End Examination
December, 2010

ET-532(A) : HYDROLOGY

Time : 3 hours *Maximum Marks : 70*

Note : *All question carries equal marks. Answer* ***any five*** *quesions. Use of calculator is allowed.*

1. Define the followings :- **14**

(a) Evapotranspiration

(b) Interception

(c) Baseflow

(d) Synthetic unit hydrograph

(e) Hyetograph

(f) Direct runoff

(g) Recording type raingauge

2. (a) Differentiate between evaporation and evapotranspiration. Discuss the factors affecting evaporation. **4+4**

(b) Draw a self explanatory block diagram representing the hydrologic system. **6**

3. (a) Differentiate between non-recording and recording type rain gauges. 6

(b) Explain Thiessen Polygon method and Isohyetal method for estimation of average depth of precipitation over a catchment. 8

4. (a) What is drought ? Define Meteorological drought, Hydrological drought and Agricultural drought. 6

(b) The average monthly inflow into a reservoir during 2008 is given below : 8

Month	Jun	July	Aug	Sep	Oct	Nov	Dec
Mean monthly flow (m^3/s)	20	60	200	300	200	150	100

continue.

Jan	Feb	Mar	Apr	May
80	60	40	30	25

If a uniform discharge at 90 m^3/s is desired from this reservoir, what minimum storage capacity is required ? (Assume : Similar flow during the next year).

5. With the help of neat diagram, explain the working principle and construction of : 7+7

(a) Bubble Gauge recorder

(b) Propeller type current meter

6. (a) Explain the Muskingum method of channel routing and derive the equation used. 10

(b) Explain Nash's conceptual model for routing. 4

7. (a) Draw a neat sketch showing different zones of subsurface water in soil mental. 6

(b) Define the following terms in ground water hydrology - 8

(i) Aquifer (ii) Aquitard

(iii) Aquiclude (iv) Aquifuge