[5060] - 555

M.E. (Civil) (Water Resources and Environmental Engg.)
HYDROLOGY
(2013 Pattern)

Time : 3 Hours]   *[Max. Marks : 50*

Instructions to the candidates :-
1) *Answer any FIVE questions.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*
4) *Use of Calculator is allowed.*
5) *Assume Suitable data if necessary.*

Q1) a) Explain instrumental, empirical, combined energy balance and mass transfer and water balance method to measure evaporation **[8]**

b) Explain Horton's infiltration curve and state the equation for infiltration capacity. **[2]**

Q2) a) Draw a flow chart for mathematical methods in hydrology and explain stochastic hydrology applications **[7]**

b) Explain normal distribution (statistical) **[3]**

Q3) a) What is design flood. How it is calculated for various hydraulic structures **[4]**

b) Explain log-normal distribution method **[6]**

Q4) a) How inflow and outflow relation is useful to determine reservoir surplus water and capacity of reservoir **[5]**

b) Explain the Goodrich method of flood routing **[5]**

Q5) a) Explain step by step design of tube well **[5]**

b) Design a tubewell to be sunk in confined aquifer of 20 m thicknessfully.The yield required is 2400 m^3/day. Coefficient of permeability of aquifer was found to be 40 m/day. The drawdown in the well was taken to be 4 m.**[5]**

P.T.O.

Q6) a) What affects the quality of ground water in India [6]

b) Explain cavity type and slotted type tube well [4]

Q7) a) Eplain any one widely used method of ground water recharge [4]

b) State various methods to conserve ground water and explain any two [6]

Q8) a) Explain sand tank model and transparent model for ground water modeling [6]

b) Explain electric analog model for ground water modeling [4]

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