

Time : 3 Hours]

[Max. Marks : 50

Instructions to the candidates:

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

Q1) a) Explain various methods to control reservoir 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. **[4]**

b) Explain in short Gumbel's method. **[6]**

- Q5)** a) Explain step by step design of tube well. [5]
- b) Design a tubewell to be sunk in confined aquifer of 20 m thickness fully. The yield required is 2400 m³/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]
- Q6)** a) What affects the quality of ground water in India. [6]
- b) Explain cavity type and slotted type tube well. [4]
- Q7)** a) Explain importance of ground water recharge in the present scenario. [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]

