

Total No. of Questions : 8]

SEAT No. :

P4226

[4860]-605

[Total No. of Pages : 2

M.E. (Civil) (WREE)
HYDROLOGY AND GROUNDWATER
(2012 Course)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answer any three questions from each section.*
- 2) Answers to the two sections should be written in separate books.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Figures to the right indicate full marks.*
- 5) Use of electronic pocket calculator is allowed.*
- 6) Assume suitable data, if necessary..*

SECTION - I

Q1) a) What is Depth-Area - Duration curve? Enumerate step by step procedure for drawing DAD cuves. **[8]**

b) The ordinates of 4 hr unit hydrograph of a basin in m³/s at one hour interval are as follows.

4, 25, 44, 60, 70, 61, 52, 45, 38, 32,

27, 22, 18, 14, 11, 8, 6, 4, 2, 1,

Calculate the area of basin and derive the ordinates of 2 hr unit hydrograph. **[8]**

Q2) a) Discuss 'Infiltration' as one of the most important parameters affecting runoff. **[8]**

b) Write a short note on time series. **[8]**

Q3) a) How the design flood is determined for a water resource project. **[8]**

b) Explain Gumbel's method. **[8]**

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Q4) Write short note on

[18]

- a) Methods of control evaporation loss.
- b) Flood Lift.
- c) Envelop curve.

SECTION - II

Q5) a) Briefly explain the processes of seepage and percolation.

[8]

- b) A well with a radius of 0.4 m completely penetrates an unconfined aquifer of thickness 45 m and $K = 30$ m/day. The well is pumped so that the water level in the well remains at 35 m above the bottom. Assuming that pumping has essentially no effect on water table at $R = 400$ m, what is the steady state discharge? **[8]**

Q6) a) Write a note on ground water quality.

[8]

- b) Write a note on ground water quantamination.

[8]

Q7) a) Explain about ground water recharge.

[8]

- b) Write a note on effective exploitation of ground water potential.

[8]

Q8) Write a short notes on

[18]

- a) Ground water salinity.
- b) Types of strainers.
- c) Method of images.

