

Total No. of Questions : 6]

SEAT No. :

P5003

[Total No. of Pages : 2

T.E./Insem.-501

T.E. (Civil)

HYDROLOGY AND WATER RESOURCES ENGINEERING

(2012 Pattern) (Semester - I)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Assume suitable data if necessary.*

UNIT - I

Q1) a) Briefly explain rainfall intensity duration frequency curves. **[4]**

- b) Calculate the optimum number of raingauge stations for the given catchment with following data. Assume the error in the rainfall estimation as 70%. **[6]**

Station Number	1	2	3	4
Rainfall in mm	700	500	300	440

OR

Q2) a) Calculate the value of ϕ -index from the following data of storm of 8cm precipitation that resulted in a direct run-off of 4.4 cm. **[6]**

Time in Hours	1	2	3	4	5	6
Incremental rainfall per hour in cm	0.57	0.58	1.25	3.00	1.4	1.2

- b) State the various methods of determination of the mean precipitation over a given catchment area. Explain giving neat sketches any one method. **[4]**

P.T.O.

UNIT - II

- Q3)** a) Define irrigation and state its necessity in our country. [4]
b) Explain the meaning of consumptive use of water and state the factors on which the consumptive use depends. [6]

OR

- Q4)** a) What are the various methods of assessment of canal revenue? Explain any one. [4]
b) Calculate the discharge required at the head of the distributary from the following : [6]
- i) Gross command area of distributary = 12000 hectares.
 - ii) Culturable irrigable area = 80% of gross area.
 - iii) Intensity of irrigation = 50% for Rabi.
 - iv) Intensity of irrigation = 25% for Kharif.
 - v) Average duty at the head of distributary = 2000 hect/cumecs for Rabi.
 - vi) Average duty at the head of distributary = 900 hect/cumecs for Kharif.

UNIT - III

- Q5)** a) Define (any 5) : [5]
- i) Aquifer
 - ii) Aquiclude
 - iii) Specific Yield
 - iv) Specific retention
 - v) Aquitard
 - vi) Coefficient of Transmissibility
- b) List the various types of tube well. Explain any one with neat sketch. [5]

OR

- Q6)** a) Explain the recuperation test for an open well. [5]
b) Discuss the assumptions and limitations of Dupits theory. [5]

