

Total No. of Questions : 4]

SEAT No. :

PE15

[Total No. of Pages : 2

[6579] 315

T.E. (Civil Engineering) (Insem)

HYDROLOGY AND WATER RESOURCES ENGINEERING

(2019 Pattern) (Semester - I) (301001)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) Solve Q.No. 1 or 2, 3 or 4.
- 2) Figures to the right indicate full marks.
- 3) Draw neat diagram wherever necessary.
- 4) Use of logarithmic table, slide rule and electronic pocket calculator are allowed.
- 5) Assume suitable data if necessary, stating it clearly.

Q1) a) What are the applications of Hydrology in Engineering? Explain applications of hydrology in irrigation Engineering. [5]

b) Which are the government organizations involved meteorological, hydrologic monitoring and studies in India. Briefly explain activities of IMD. [5]

c) Precipitation measurement is necessary for various hydrological studies, discuss. How precipitation is measured, explain any one type with neat sketch. [5]

OR

Q2) a) What are the different methods to estimate the average depth of rainfall over a catchment? Explain any one method. [5]

b) Discuss the importance of infiltration measurement in hydrology. Explain Φ index, W index in infiltration studies [5]

c) How can the consistency of rain gauge be checked. [5]

Q3) a) Explain BINNI's method & BARLOW Tables for runoff estimation. [4]

b) Explain how Runoff is generated in hydrological cycle and what are the three types of runoff. How does topography and geological characteristics affect runoff. [5]

c) Explain components of typical hydrograph with neat sketch. Explain factors affecting runoff. [6]

OR

P.T.O.

Q4) a) State the assumptions made in Unit Hydrograph theory. [3]

b) Given below are ordinates 4-h unit hydrograph as below derive the ordinates of 12 h unit hydrograph for the same catchment. [7]

Time (h)	0	4	8	12	16	20	24	28	32	36	40	44
Ordinates	0	20	80	130	150	130	90	52	27	15	5	0
4 Hrs UH (m ³ /s)												

c) Explain velocity area method for stream gauging. Draw neat sketch. [5]

