

Total No. of Questions :10]

SEAT No. :

**P3465**

**[5560]-101**

[Total No. of Pages : 2

**T.E.(Civil)**

**HYDROLOGY AND WATER RESOURCES ENGINEERING**

**(2012Pattern) (Semester-I)**

*Time :3 Hours]*

*[Max. Marks :70*

*Instructions to the candidates:*

- 1) *Q.No.1 or Q.No.2, Q.No.3 or Q.No.4, Q.No. 5 or Q.No.6, Q.No.7 or Q.No.8, Q.No. 9 or Q.No.10.*
- 2) *Neat diagrams must be drawn whenever neccessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data, if necessary.*

- Q1)** a) State various applications of Hydrology & explain any one in detail. [5]  
b) Explain Theisen's polygon method with neat sketch. [5]

OR

- Q2)** a) State the formula to calculate optimum number of raingauges. Explain the terms in the formula. [5]  
b) State deltas for Gram, Maize, Sugarcane, Rice and cotton also explain methods to improve duty. [5]

- Q3)** a) Differentiate between furrow irrigation and sprinkler irrigation system.[5]  
b) Explain with neat sketch float type self-recording gauge to determine the stage of river and also state its advantages. [5]

OR

- Q4)** a) Derive the formula to calculate discharge of a well in a confined aquifer.[6]  
b) State various types of tube wells and explain construction of Slotted Type Tube well. [4]

- Q5)** a) What is Hydrograph? Explain all the parts of the typical Hydrograph. Explain fern shaped catchment. [8]  
b) Maximum values of 24 hour precipitation (mm) at a Raingauge station are 140, 113, 132, 115, 130, 118, 127, 123, 121. Estimate maximum and minimum precipitation having a recurrence interval of 5 and 15 years. Use Hazen's Method. Use graphical method. [10]

OR

**P.T.O.**

- Q6) a)** What is S- curve Hydrograph? Explain its construction with sketch. [8]  
**b)** In a 10 hr storm rainfall depths occurred over a the catchment are

Hour	1	2	3	4	5	6	7	8	9	10
Depths (cm/hr)	1	1.5	5	6	10.5	8.5	9	7	1.5	1.5

Surface runoff resulting from the storm is equivalent to 20 cm of depth over the catchment. Determine (i) Average infiltration, and (ii) Average rate of infiltration. [10]

- Q7) a)** Explain how will you fix the capacity of reservoir using annual inflow and outflow. [8]  
**b)** Explain fixation of reservoir capacity using elevation capacity curve and dependable yield. [8]

OR

- Q8) a)** What are various reservoir losses? What are various measures to control these losses. [8]  
**b)** What is reservoir sedimentation? What is the significance of trap efficiency? Explain with neat sketch. [8]
- Q9) a)** Write a note on ancient system of water distribution which still exist in North Maharashtra. [8]  
**b)** Explain Global Water Partnership (GWP). [8]

OR

- Q10) a)** What is water logging? Explain tile drain method and also state formula for spacing of tile drains. [8]  
**b)** Draw a neat section for lift irrigation scheme and state various components of lift irrigation scheme. Explain various design steps in lift irrigation system. [8]

