

Total No. of Questions : 8]

SEAT No. :

**PB3743**

**[6262]-1**

[Total No. of Pages : 2

**T.E.(Civil Engineering)**

**HYDROLOGY AND WATER RESOURCES ENGINEERING  
(2019 Pattern) (Semester -I) (301001)**

*Time : 2½ Hours]*

*[Max. Marks :70*

*Instructions to the candidates:*

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.

- Q1)** a) Explain Q-GIS and its application in hydrology. [10]  
b) Explain Rational formula and its importance. [8]

OR

- Q2)** a) Explain watershed delineation procedure using a topo sheet with neat sketches. [10]  
b) Explain flood routing in detail. [8]

- Q3)** a) Explain how will you fix the capacity of reservoir using annual inflow and outflow. [10]  
b) What are reservoir losses and suggest method to control leakages from reservoir. [7]

OR

- Q4)** a) What are various investigations required for reservoir planning. [10]  
b) State measures to control reservoir sedimentation. [7]

- Q5)** a) Derive the formula to calculate discharge of a well in a confined aquifer and unconfined aquifer. [10]  
b) What is water logging? Explain tile drain method and also state formula for spacing of tile drains. [8]

OR

**P.T.O.**

- Q6)** a) Explain reclamation of saline lands. [10]  
b) State various types of tube wells and explain construction of slotted type tube well. [8]

- Q7)** a) Explain Piped Distribution Network (PDN) and state its advantages. [10]  
b) Explain Hortons curve with neat sketch. [7]

OR

- Q8)** a) What is evaporation, state Meyer's formula and Rowher's formula and explain every term in formula. [10]  
b) Differentiate between surface irrigation and subsurface irrigation and explain drip irrigation in detail. [7]

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