SEAT No. :

P-7504

[6180]-11
T.E. (Civil)
HYDROLOGY AND WATER RESOURCES ENGINEERING
(2019 Pattern) (Semester - I) (301001)

Time : 2½ 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.*

2) *Neat diagrams must be drawn whenever 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]**

P.T.O.

b) What is water logging? Explain tile drain method and also state formula for spacing of tile drains. **[8]**

OR

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) State principle Indian crops and explain their planning and agricultural practices. **[2+4+4]**

b) Differentiate between surface irrigation and subsurface irrigation and explain drip irrigation in detail. **[7]**

❧❧❧