[5353]-501

T.E. (Civil)

HYDROLOGY & WATER RESOURCE ENGINEERING

(2015 Pattern)

Time : 2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1) *Attempt Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8 and Q9 or Q10 and Q11 or Q12.*

2) *Figures to the right indicate full marks.*

Q1) a) the isohytes due to storm were having following data;   **[4]**

isohytes[mm]	Area[km²]
150	40
170-150	150
150-140	70
140-130	200
130-110	25

Find the weighted precipitation for total catchment area

b) Why isohytel method of determination of average rainfall is more accurate than other two?   **[3]**

OR

Q2) a) What are the different types of rain gauges? Explain non-recording type rain gauge with neat sketch.   **[4]**

b) Explain any four factors affecting Evapouration of water from reservoir.**[3]**

Q3) a) Derive relationship between duty and delta.   **[4]**

b) Write a short not on assessment of canal revenue?   **[3]**

OR

Q4) Estimate the number of days required between two watering for a crop having following data : **[7]**

   i)   Field capacity = 30%,

   ii)   permanent wilting point = 15%

   iii) Apparent density of soil = 1.5

   iv) effective depth of root zone = 755.55 mm,

   v)   daily consumptive use of water for crop = 10 mm

Q5) a)   A 30 cm diameter well is pumped at a uniform rate of 3 m^3/min. in 230 m thick aquifer. Drawdown observed at 2m and 200m distances from center of well are 10 m and 0.5m respectively. Determine aquifer constant of water bearing statum. **[3]**

   b)   Distinguish between unconfined aquifer and perched aquifer. **[3]**

OR

Q6) a)   State assumption in Dupits theory. **[3]**

   b)   Explain application of Darcys law. **[3]**

Q7) a)   Define unit hydrograph. State factors affecting the unit hydrograph. Explain the components with the help of sketch. **[8]**

   b)   Explain extreme value (Gumbel) distribution. **[8]**

OR

Q8) a)   State various methods to estimate flood and explain rational method in detail. **[8]**

   b)   What is Scurve hydrograph? Explain its components and construction with a neat sketch. **[8]**

Q9) a) Explain the different steps involved in calculating the useful life of reservoir.

[8]

b) Write a note on B/C ratio for reservoir Explain any two methods. **[8]**

OR

*Q10)*a) Explain types of reservoirs and explain the points considered for selecting the site for a reservoir and state the investigations required for construction of reservoir. **[8]**

b) Explain I.S.D method of flood routing. **[8]**

*Q11)*a) What are the field information to be collected before providing Drainage channel to Irrigated Land? Explain Sub-Surface and Surface Drain. **[6]**

b) Explain the Participatory Irrigation Management? Explain Need and Objective of farmer Participation in Irrigation Management. **[6]**

c) How water management can be applied while Irrigation. **[6]**

OR

*Q12)*a) What is water logging? State methods to improve the sub-surface drainage.

[6]

b) Explain different irrigation acts? **[6]**

c) Explain different methods of reclamation of water logged land. **[6]**

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