

Code : 011512

B.Tech 5th Semester Examination, 2016

Engineering Hydrology

Time : 3 hours

Full Marks : 70

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Instructions :

- (i) There are Nine Questions in this paper.
- (ii) Attempt Five questions in all.
- (iii) Question No. 1 is compulsory.
- (iv) Make the diagram essentially wherever it is required.
- (v) Marks are assigned against each question.
- (vi) Calculator is allowed.

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1. Write in short limiting to five sentences. 14
 - (a) Factors of well loss.
 - (b) Infiltration Capacity. akubihar.com
 - (c) Types of Aquifer.
 - (d) Zone of aeration and infiltration.
 - (e) Different components of unit hydrograph.
 - (f) Steady Flow.
 - (g) Saturation Pressure.
 2. (a) Describe the concept of run-off computation and its equation.

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(b) Explain the estimation of flood using empirical formula.

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14

3. Write short notes on any four of the followings. 14

- (a) Soil moisture deficiency
- (b) Rainfall distribution
- (c) Evapotranspiration and its measurement
- (d) Synthetic and instantaneous unit hydrograph
- (e) Time series analysis and its limitation
- (f) Explain the time area relationship and importance in flood assessment.

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4. (a) Describe the S-curve and its application. 14

(b) Concept of time series analysis of rainfall and its application in drought forecasting.

5. (a) Differentiate between the well loss and formation loss.

(b) Explain the rainfall run-off relationship with suitable diagram.

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14

6. (a) Write about the different types of precipitation.

(b) Calculate the net run-off and the value of w index if following parameters are given; Rainfall intensity (cm/hr) in successive 20 minutes for the period 120 minutes storm are

3.0	4.0	5.5	6.5	7.8	4.0
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Value of ϕ index is 4.5cm/hr.

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7. (a) Calculate the specific capacity and formation loss. Data pertaining to SDT is given.

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Step	Time (minutes)	Discharge (lpm)	Drawdown (m)
I	60	700	1.5
II	60	600	2.0
III	60	900	3.5

(b) Explain the flow equation for unsteady flow of groundwater. 14

8. (a) Write down the different types of droughts and parameters of drought Classification.

(b) Write about the design flood and its importance. 14

9. (a) Write down the factors affecting the infiltration capacity.

(b) Find the equation for infiltration capacity in the exponential form if following data are given.

Time (hours)	0	0.20	0.40	0.60	0.80
Infiltration capacity (cm/hr)	10	7.00	4.0	2.3	1.5

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7+7
