

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

June, 2017

00035

ET-534(C) : WATER RESOURCES PLANNING

Time : 3 hours

Maximum Marks : 70

Note : Attempt any **seven** questions. All questions carry equal marks.

1. Define hydrology and discuss critically the statement "Thorough knowledge of hydrology is a must for water resources planning." 10

2. (a) Define the following terms : 5
(i) Temperature lapse rate
(ii) Dew point

- (b) Explain the following : 5
(i) Swamps
(ii) Plateaus

3. (a) Discuss the characteristic features of the following : 5
(i) Plains on East and West Coasts of India
(ii) Indian Islands situated in the Arabian Sea

- (b) Write a note on identification of various land use categories. 5

4. After how many days will you supply water to soil in order to ensure sufficient irrigation of the given crop, if
- (a) Field capacity of the soil = 28%
 - (b) Permanent wilting point = 13%
 - (c) Dry density of the soil = 1.3 g/cc
 - (d) Effective depth of root zone = 70 cm
 - (e) Daily consumptive use of water for the given crop = 12 mm

Assume any other data not given.

10

5. During a recuperation test, the water in an open well was depressed by 2.5 m and is recuperated by an amount of 1.6 metres in 70 minutes.

- (a) Determine the diameter of the well to yield 10 litres/second under a depression head of 2.5 metres.
- (b) Determine the yield from a well of 0.3 metre diameter under a depression head of 3.5 metres.

10

6. (a) Write brief notes on the following :

5

- (i) Coagulation
- (ii) Sand filter

- (b) Discuss the investigation required for reservoir planning.

5

7. Define and explain the following terms as used in relation to water requirements of a crop : 10
- (a) Base period
 - (b) Cash crop
8. What are the different bases for classification of reservoirs ? Discuss in brief, various losses from a reservoir. 10
9. (a) Define the following terms : 5
- (i) Delta
 - (ii) Duty
 - (iii) Effective rainfall
 - (iv) Field capacity
 - (v) Potential evapotranspiration
- (b) Discuss the investigations required for reservoir planning. 5
10. What is the annual flow pattern in Indian river systems ? Give an account as to how much of surface water resources of India may be beneficially utilised by the conventional methods of development. 10
-