

No. of Printed Pages : 4

ET-534(C)

**B.TECH. CIVIL (WATER RESOURCES
ENGINEERING)**

Term-End Examination, 2019

ET-534(C) : WATER RESOURCES PLANNING

Time : 3 Hours

Maximum Marks : 70

Note : Attempt any five question.

1. (a) What are the various modes of use of remote sensing technology ? Enumerate the information/ Data that can be obtained by remote sensing. [8]
- (b) Explain the following : [3×2=6]
- (i) Population density
- (ii) Optimum population
- (iii) Population growth rate
2. (a) List various methods used for disinfecting public water supply and explain any two of them in brief. [8]
- (b) Define the following terms : [6×1=6]

- (i) Delta
- (ii) Duty
- (iii) Crop water requirement
- (iv) Consumptive use of water
- (v) Crop water use efficiency
- (vi) Drizzle

3. (a) Discuss critically the statement "Knowledge of Hydrology is must for any water resources planning". [6]

(b) Explain the following : [4×2=8]

- (i) Run off coefficient
- (ii) Direct run off
- (iii) Base flow
- (iv) Flow characteristics of a stream

4. (a) What are the factors affecting completion of irrigation projects in time ? Explain the need of inter basin water transfer scheme. [7]

- (b) The population of 5 decades from 1970 to 2010 are given below. Find the population after one, two and three decades beyond the last known decade by arithmetic increase method. [7]

Year	1970	1980	1990	2000	2010
Population	25000	28000	34000	42000	47000

5. (a) Write detailed notes on following : [2×3½=7]
- (i) Coagulation
 - (ii) Sand filter
- (b) What are the simulation models used in Water Resources Planning ? Discuss advantages and disadvantages of such models. [7]
6. (a) Discuss the flexibility of a water resources project with respect to engineering, economic, financial and environmental aspects. [7]
- (b) Discuss the investigations required for reservoir planning. [7]

7. (a) Discuss the role of conjunctive use of ground water in water resources planning. [6]
- (b) Write short notes on the following : [4×2=8]
- (i) Porosity
 - (ii) Specific yield
 - (iii) Coefficient of permeability
 - (iv) Stratification

----- X -----