No. of Printed Pages : 4

ET-534(C)

00475

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

June, 2010

ET-534(C) : WATER RESOURCES PLANNING

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any **seven** questions. Give sketches/examples in support of your answers. Use of calculator is permitted.*

1. (a) Explain the difference between a lake and a swamp. 3

   (b) How do the Himalayan mountain ranges differ from peninsular mountains, especially with respect to the Water Resources considerations ? 4

   (c) Explain the difference between plains and plateaus. 3

2. (a) What do you understand by land use pattern ? Describe its importance and application. 5

   (b) What are the various modes of use of Remote Sensing Techniques ? Enumerate the Information/Data that can be obtained by Remote Sensing. 5

3. Explain the hydraulic budget equation for *any two* of the followings : 10

(a) Recharge area and discharge area of a basin.

(b) Saturated portion of a ground water basin.

(c) Inland drainage basin in an arid region.

4. (a) Define the terms : 3

(i) ultimate irrigation potential

(ii) irrigation potential created

(iii) irrigation potential utilized

(b) From the observed runoff data given in following table for the years 1920 to 1930 in cumecs. Compute 80% dependable flow (in cumecs) : 7

Year	Run off (cumecs)
1920	340
1921	320
1922	105
1923	276
1924	208
1925	156
1926	654
1927	453
1928	459
1929	402
1930	378

5. (a) Explain the following : 6

(i) Optimum population

(ii) Population density

(iii) Population growth rate

(b) What is "Rotation of Crops" ? Suggest some crop sequences explaining advantages thereof. 4

6. (a) List common chemical impurities found in water. 4

(b) Name the most common method used for disinfecting public water supply and explain the process in brief. 6

7. (a) Define the following terms : 5

(i) Consumptive use of water

(ii) Delta

(iii) Duty

(iv) Crop water requirement

(v) Crop water use efficiency

(b) List various methods for surface irrigation and describe any one of them. 5

8. (a) What do you mean by regression ? State the steps involved in development of a regression equation. 6

(b) Differentiate between simulation and optimization models. 4

9. (a) What would you suggest to be the scope of Training for Assistant Engineers/Junior Engineers of Water Resources Department ? 5

(b) What role can "Water User Associations" play in Irrigation Management ? 5

10. Explain the following :

(a) Reservoir trap efficiency 4

(b) Dead and useful storages 3

(c) Mass curve method for computation of reservoir storage capacity 3