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ET-534(C)

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

00667

December, 2017

ET-534(C) : WATER RESOURCES PLANNING

Time : 3 hours *Maximum Marks : 70*

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

1. Discuss briefly with neat sketches, the demand patterns for the following types of reservoirs : *10*

(a) Single purpose conservation reservoir

(b) Single purpose flood control reservoir

2. (a) Explain Ultimate Irrigation Potential. *5*

(b) What do you understand by continuous and intermittent system of water supply ? What are their relative advantages and disadvantages ? *5*

3. Define consumptive use of water by a crop and explain how it is determined under natural conditions. *10*

4. (a) Compute the population of the years 2000 and 2006 for a city whose population in the year 1930 was 25000 and in the year 1970 was 47000. Use the geometric increase method. *5*

(b) Describe the step-by-step procedure that you will adopt for flood routing computations required for reservoirs. *5*

5. (a) What are the factors on which the rate of silting of an impounding reservoir depends ? *5*

(b) What do you understand by land use pattern ? Discuss its importance and application. *5*

6. Explain the difference between a lake and a reservoir and discuss the characteristic difference between plains on the west or east coast of India. *10*

7. What is annual flow pattern in the Indian river system ? Give an account as to how much of the surface water resources of India may be beneficially utilized by the conventional methods of development. *10*

8. (a) The population of 5 decades from 1930 to 1970 are given below. Find out the population after one, two and three decades beyond the last known decade, by using the arithmetic increase method. *5*

Year	Population
1930	25000
1940	28000
1950	34000
1960	42000
1970	47000

(b) Design an open well in coarse sand for a yield of 0·004 cumec when operated under a depression head of 3 metres. *5*

9. The command area of a channel is 4000 hectares. The intensity irrigation of a crop is 70%. The crop requires 60 cm of water in 15 days, when the effective rainfall is 15 cm during that period. Find :

(a) The duty at the head of field

(b) The duty at the head of channel

(c) The head discharge at the head of channel

Assume total losses as 15%. *10*

10. (a) What is the importance of forecasting water demand and how does it help in planning ? *5*

(b) Briefly describe the uncertainties associated with the design of reservoirs and canals for an irrigation command area. *5*
