

**B.Tech. Civil (Water Resources Engineering)**

**Term-End Examination**

00281

**December, 2015**

**ET-534(C) : WATER RESOURCES PLANNING**

*Time : 3 hours*

*Maximum Marks : 70*

---

**Note :** Attempt any *five* questions. All questions carry equal marks. Use of non-programmable calculators is permitted.

---

1. (a) Define the following terms : 7
  - (i) Continental drift
  - (ii) Soil crust
  - (iii) Roof of the world
- (b) Write a short note on "Land Use Management". 7
  
2. (a) Define the following terms : 7
  - (i) Effluent streams
  - (ii) Intensity of rainfall
  - (iii) Runoff
  - (iv) Evapotranspiration
- (b) Differentiate between ultimate irrigation potential, irrigation potential created and irrigation potential utilized. How does cropping pattern affect the utilization of irrigation potential ? 7

3. (a) Describe and compare the strengths and weaknesses of different theories of population growth. List the various factors influencing population density and population distribution. 7
- (b) A Mexican wheat crop is grown in soil made up of fine sandy loam (14 cm top layer), light sandy clay (26 cm middle layer) and sandy clay loam (60 cm bottom layer) and moisture holding capacity is 0.13 cm/cm, 0.14 cm/cm and 0.15 cm/cm respectively. If the effective root zone is 91 cm thick, find out the net irrigation water application and rotation period of irrigation. Take peak moisture use rate as 5.08 mm/day. Assume that 80% of peak moisture consumption is met from root zone. Take field water application efficiency as 85%. Assume suitable data if necessary. 7
4. (a) Describe in brief the preliminary concepts in water treatment procedures. 7
- (b) What are the various stages identified in water resources planning ? Explain in brief the relevance of feasibility study. 7

5. (a) What is the importance of best economic policies for planning and management of a water resources project ? Discuss the feasibility aspects of a water resources project. 7
- (b) What are the various types of system analysis techniques ? Give their limitations in brief. 7
6. (a) What are the basic concepts of training of personnel in water resources management ? Identify the various sectors where such training is required. 7
- (b) Explain "reservoir routing". Describe the storage-indication method of reservoir routing. 7
7. Write short notes on the following :  $4 \times 3 \frac{1}{2} = 14$
- (a) Importance of Land Use Pattern
- (b) Annual Water Requirement of India
- (c) Irrigation Practices in India
- (d) River Sedimentation
-