No. of Printed Pages : 3

ET-534(C)

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

00054

June, 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 calculator only is permitted.*

1. (a) Differentiate between the following : *6*

(i) Plains and Plateaus

(ii) A Lake and a Swamp

(iii) Islands and Peninsula

(b) What do you understand by land use pattern ? Describe the application of land use pattern and its importance. *8*

2. (a) Explain the importance of hydrologic cycle. What are its various components ? Describe with the help of a suitable sketch. *7*

(b) Define major, medium and minor irrigation projects. What are the factors affecting the completion of irrigation projects in time ? *7*

3. (a) What is growth rate curve ? Find out the growth rate of India during 1961–71. Given $p_{1971} = 548159652$ and $p_{1961} = 439234771$. 7

(b) What do you mean by crop rotation ? What are its basic advantages ? Discuss with suitable examples from the Indian point of view. 7

4. (a) Distinguish between bacteria and viruses. How do they affect the human health ? 7

(b) What is the importance of forecasting water demand and how does it help in planning ? What do you mean by regression ? 7

5. (a) Government construction of a hydroelectric project would cost ₹ 70 crore. The project has an annual operation and maintenance cost of ₹ 40 lakhs and a 50 year life. What is the annual cost of the project if a planning discount rate of 3% is to be used ? 7

(b) Define the term System. What is the basic necessity for the application of systems analysis ? Also give one important reason as to why it is preferred as a procedure in the decision-making process. 7

6. (a) Differentiate between induction and in-service training. What are the steps needed in identifying training needs of personnel in an organization ? 7

(b) Describe the factors that should be kept in mind while selecting the site for a reservoir. 7

7. Write short notes on the following : $4 \times 3\frac{1}{2} = 14$

(a) Aquiclude, Aquifer, Aquifuge and Aquitard

(b) Duty and Delta

(c) Simulation and Optimization Models

(d) Multipurpose Reservoir Projects