

B.TECH. CIVIL (WATER RESOURCES MANAGEMENT)

Term-End Examination

December, 2013

ET-534(C) : WATER RESOURCES PLANNING

Time : 3 hours

Maximum Marks : 70

Note : Attempt *any seven* questions. All questions carry equal marks. Use of scientific calculator is *permitted*.

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| 1. | (a) | Explain the difference between a lake and a swamp. Discuss the characteristics features of plains on west and east coasts of India. | 5 |
| | (b) | Explain the following :
(i) Sialic crust
(ii) Plaelean | 5 |
| 2. | (a) | What do you mean by land use changes ? Discuss the main causes for change in land use. | 5 |
| | (b) | Describe the classification of land capability based upon cultivation. | 5 |
| 3. | (a) | Discuss the evolution of ground water resources. What do you mean by perennial yield ? | 5 |
| | (b) | Give the water balance equation for an inland drainage basin in an arial region. Explain the hydrologic budget equations for the recharge area and discharge area of a basin, respectively. | 5 |

4. (a) How does cropping pattern affect utilization of irrigation potential ? Also briefly explain the need for inter-basin water transfer schemes. 5
- (b) Explain the reasons for gap between irrigation potential created and its utilization. 5
5. (a) What do you understand by optimum population ? Find out the growth rate of population in India during 1961 to 71. Given Population 1961 = 439,234,771
Population 1971 = 548,159,652. 5
- (b) What are the main causes of population explosion ? State the consequences of over population. 5
6. (a) Workout a relationship between duty, delta and base-period. Also find out duty of water in hectare/cumec if one cumec flow is allowed to the field for a base-period of 13.7 weeks with total irrigation requirement is 45 cm. 5
- (b) Explain the following terms : 5
- (i) Consumptive use of water
- (ii) Crop water requirement.
7. (a) Why does ground water usually have higher TDS ? List the common chemical impurities found in water. 5
- (b) Differentiate between domestic and industrial water demand. How will you control the water pollution ? 5
8. (a) What are the different phases in water resource planning process ? Discuss the development of conjunctive use planning in India. 5

- (b) How the cost is allocated in a multi-purpose project ? Discuss in brief with suitable examples. 5
9. (a) Explain the concept of system analysis and its application to a water resource project. List various components of a water resource system. 5
- (b) Write a short note on "Developments in Water Resources Management Training". 5
10. (a) What are the different basis for classifications of reservoirs ? Discuss the reservoir losses in brief. 5
- (b) Discuss the basic concept of reservoir routing, with mathematical analysis. 5
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