

Total No. of Questions : 12]

SEAT No. :

P1054

[Total No. of Pages : 3

[4659]-21

B.E. (Civil Engineering)

a-INTEGRATED WATER RESOURCES AND PLANNING

(2008 Course) (401008) (Semester-II) (Elective-IV)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Answers to the two sections should be written in separate answer books.*
- 2) *Answer any three questions from each section.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*
- 5) *Use of calculator is allowed.*
- 6) *Assume suitable data if necessary.*

SECTION-I

- Q1)** a) What is the difference between National water policy and National water laws? Explain the impact of National water laws on the plan of integrated water resources planning and development projects? **[8]**
- b) Explain the variability of water in 'time & space' relationship and according to it write the importance of water as a 'finite resource'. **[6]**
- c) What are the riparian rights? Why these are necessary to develop a water resource project? **[4]**

OR

- Q2)** a) Estimate the different types of costs in the economic analysis of water resources projects. **[8]**
- b) Discuss in detail the present institutional frameworks for water management. **[6]**
- c) Write any four feasibility test for a water resource project as per the Indian Government rules. **[4]**

- Q3)** a) What are the different conventional techniques which are commonly used to do the effective planning and management of water resources by the water supply division and explain one of them in detail. **[8]**
- b) Define the Regression and correlation analysis process and how it is useful in the analysis of a water resource problem. **[8]**

OR

P.T.O.

- Q4) a)** Write short notes on: [8]
- i) Application of GA in streamflow prediction.
 - ii) Use of Artificial neural Networks in water resources planning & management.
- b) Explain normal and lognormal distribution in detail. [8]

- Q5) a)** Write a note on different hard and soft methods of flood forecasting? [8]
- b) What are causes of Drought? Explain different structural and non-structural measures to control the severity of Drought? [8]

OR

- Q6) a)** What is the use of geoinformatics in flood management? State and explain general methods of flood damage assessment. [8]
- b) What are different types of Drought? Explain severity index of drought with suitable examples in India. [8]

SECTION-II

- Q7) a)** Explain 'inter-basin water transfer' with two suitable examples. [8]
- b) Explain the recycling and reuse of surface water and ground water resources in India. [10]

OR

- Q8) a)** Write a note on estimation & forecasting of water demands of domestic & industrial sector, navigation and recreational water demands. [8]
- b) What are Consumptive & non consumptive demands of water and its effect on the 'demand and supply based management system' of water resources? [10]

- Q9) a)** Explain the impact of water resources development on the management of rehabilitation & resettlement. [8]
- b) Write detail features of control of water logging problem and explain the different methods to control water logging. [8]

OR

Q10)a) Write a note on siltation of storages with suitable horizons and regions of water resources systems. [8]

b) What are the water requirements for environmental development and management projects? Explain the rules and regulations required for it. [8]

Q11)a) Write note on Decision Support System. How it can be implemented to enrich the available water resources in India? [8]

b) Explain the concept of perspective plan for basin development and management. [8]

OR

Q12)a) Write a note on Artificial Neural Network (ANN) and how it is useful in applications of water resources development as a soft tool? [8]

b) What is the role of geoinformatics in basin planning and management? [8]

