

Total No. of Questions : 12]

SEAT No. :

**P2003**

**[4759] - 21**

**[Total No. of Pages :3**

**B.E. (Civil Engineering)**

**INTEGRATED WATER RESOURCES AND PLANNING**

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

*Time : 3Hours]*

*[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 side indicate full marks.*
- 5) *Use of calculator is allowed.*
- 6) *Assume suitable data if necessary.*

**SECTION - I**

- Q1)** a) What is National Water policy? Explain the recent norms of National Water Policy in detail. [8]
- b) Discuss in detail the present institutional frameworks for water management. [6]
- c) Write a short note on scope for privatization in the field of water resources. [4]

OR

- Q2)** a) Explain the variability of water in 'time & space', relationship and according to it write the importance of water as a 'finite resource'. [8]
- b) Write the basic principles of planning and financing of any water resources project. [6]
- c) What is acquisition and use of rights in water resources management. [4]

- Q3)** a) What are soft computing techniques? Enumerate various soft computing techniques. Write application of any one of the soft computing techniques for modeling stream flow. [8]
- b) Distinguish between probability density function and probability distribution function. [8]

OR

**P.T.O.**

- Q4) a)** Write short note on: [8]  
i) Application of GA in runoff prediction in a catchment.  
ii) Use of Fuzzy Logic in water resources planning & management.  
**b)** Define correlation and regression? What is difference between correlation coefficient and regression coefficient? What is the relation between them? [8]

- Q5) a)** 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]

OR

- Q6) a)** What is the use of geoinformatics in flood forecasting and its management? [8]  
**b)** Enumerate in detail the structural and non-structural measures to control the flood? Explain with suitable examples. [8]

### **SECTION - II**

- Q7) a)** Explain in detail 'recycling and reuse' of water resources. [8]  
**b)** What is 'inter-basin water transfer'? Explain its merits and demerits with suitable case study example. [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 is mean by Irrigation efficiency? Give the estimation of water demand for irrigation sector. [10]

- Q9) a)** Write a note on control of water logging and its different types. [8]  
**b)** Explain how the social impact of water resource development is related to agroindustry and what its impact on Hydro electric power generation. [8]

OR

- Q10)a)** Enlist the direct and indirect benefits of water resource development and explain any one of them in detail. [8]
- b) Correlate the various aspects of water quality management to protect the vital ecosystems. [8]

- Q11)a)** What is Decision Support System for Integrated Water Resource Planning and Management? Explain with suitable example. [8]
- b) Explain the concept of perspective plan for watershed development in a basin and its management. [8]

OR

- Q12)a)** Write short note on: [8]
- i) Applications of ANN in flood prediction
- ii) Basic concept of Fuzzy Logic and its applications related to IWRM.
- b) State and define four statistical parameters used in different statistical methods. [8]

