

**INTEGRATED WATER RESOURCES AND PLANNING  
(2008 Course) (Semester-II) (Elective-IV) (401008 A)**

*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 side indicate full marks.*
- 5) Use of Calculator is allowed.*
- 6) Assume Suitable data if necessary.*

**SECTION-I**

- Q1)** a) Write a short note on scope for privatization in the field of water resources. [4]  
b) What is National water policy? Explain the difference between national water policy 2007 and 2010. [6]  
c) What is the role of National water Laws? How these laws helps to integrate the water development in the society? [8]

OR

- Q2)** a) What are riparian rights? Explain any two. [6]  
b) Explain the significance of prior appropriation. [4]  
c) Discuss the different principals of planning and financing of water resource project. [8]

- Q3)** a) The runoff of stream in the month of October has mean and standard deviation of 165 and 200 cumec-months respectively. Assuming that lognormal distribution is a good fit. Find the probability that October runoff in the stream in any year exceeds 185 cumec months. What is the probability that the October runoff would fall in the range 100 to 250 cumec months. [8]  
b) Distinguish between probability density function and probability distribution function. [8]

OR

- Q4)** a) Write short note on: Application of ANN in flood prediction with four suitable examples. [8]  
b) Define mean, mode, median, standard deviation and coefficient of a distribution. [8]

- Q5) a)** What is the use of geoinformatics in flood forecasting explain with suitable examples. [8]  
**b)** Distinguish between the mitigation plans of flood management and drought management. [8]

OR

- Q6) a)** Explain the use of geoinformatics in drought management. [8]  
**b)** What are different types of Drought? Explain any two drought indices. [8]

## **SECTION-II**

- Q7) a)** State the different water requirements for environmental management and explain any three of them in detail. [9]  
**b)** What is water quality management? Discuss various issues related to water quality management. [9]

OR

- Q8) a)** What is 'Inter Basin Water Transfer', enumerate it with suitable example. [9]  
**b)** Write a short note on Aquaculture. [9]

- Q9) a)** Correlate direct and indirect benefits of water resource development to employment generation. [8]  
**b)** Explain 'Co-operative movement in the water resource development' with the help of case study. [8]

OR

- Q10) 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. [8]

- Q11) a)** What is Decision support system for Integrated Water Resource planning and Management? Explain with suitable example. [10]  
**b)** Explain the concept of perspective plan for basin development and management. [6]

OR

- Q12) a)** Explain the scope of Artificial Neural Network in water resource planning and development. [8]  
**b)** Explain the concept of perspective plan for basin development and management. [8]

