

22/11/13

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**B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2013**

**AGRICULTURAL AND IRRIGATION ENGINEERING**

V Semester

12

**AI9023-Irrigation Water Quality and Modeling**

(Regulation 2008)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

**PART-A (10 x 2 = 20 Marks)**

1. What are the problems experienced if the TSS of irrigation water increase?
2. How to define the quality of irrigation water based on EC?
3. What are the two types of automatic samplers?
4. What are the types of DBMS in water quality investigation? Name any four DBMS for water quality studies.
5. What is the structural damage expected in the plants if the salinity of irrigation water is high?
6. What is the need for saline water/poor-quality water for irrigation?
7. Differentiate dispersion and diffusion.
8. What are the soil properties that determine the leaching of agrochemicals?
9. What are the advantages of ecological farming?
10. How to quantify the water quality parameters using single index?

**Part – B ( 5 x 16 = 80 marks)**

11. Explain briefly the physical and Chemical properties of water used to determine the Irrigation water quality. (16)
12. a) i. Explain briefly the steps involved in water quality investigation. (8)  
ii. Write short notes on the principle and working of automatic samplers. (8)  
(OR)  
b) i. Explain with a suitable flowchart the steps in statistical analysis of water quality data. (8)  
ii. What are the technical, managerial, Institutional and agronomic application of water quality studies (8)
13. a) i. What are the problems caused by saline water and how to manage it? (12)  
ii. What are the different water quality standards and reports available nationally and internationally? (4)  
(OR)  
b) i. What is the need for waste water irrigation? What are the problems faced due to waste water irrigation and their management measures. (10)  
ii. What are the future strategies available in irrigation for betterment of the quality problems? (6)

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14. a) i. Define leaching of agrochemicals. What are the properties that affect leaching? (12)  
ii. What is the need for NPS model and what are the types available? (4)  
(OR)  
b) With a suitable case explain the principle and working of AGNPS model. (16)
15. a) Explain briefly the structure and functioning of Agro-ecosystems. (16)  
(OR)  
b) What is sustainable agriculture? What are the components, functions and practices of sustainable agriculture? (16)