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B.E. DEGREE END SEMESTER EXAMINATION, APRIL/MAY 2013

13

VII SEMESTER

AGRICULTURAL AND IRRIGATION ENGINEERING

AI 9404 IT IN AGRICULTURAL SYSTEMS

(REGULATION 2008)

Time 3 hours

Max.Marks : 100

Note: Answer all questions

Part A

10 x 2 = 20 marks

1. Define geographic information data base.
2. What is the necessary for developing precision farming?
3. Why should we concern about the environmental flow in a river?
4. Define carbon credit?
5. What is an irrigation system and system approach?
6. Differentiate between reservoir simulation and release optimization.
7. What are the climate factors which affect the evapotranspiration?
8. Distinguish between expert system and Artificial Knowledge base system.
9. What are the functions of e-governance in agricultural system?
10. List the salient components of developing e-business system.

Part B

5 x 16 = 80 marks

- 11.a)(i) Explain briefly with necessary diagram about the agricultural yield mapping using the software tool namely geographic information system. (9)
- (ii) How to classify the stage of the crop and vegetative cover using Remote sensing technique in agricultural engineering? (7)
- 12.a) Explain the impact of various external factors which disturbs the carbon cycle. (16)
(OR)
- 12.b) (i) How to identify the pollution which affect the agricultural production? (6)
- (ii) Explain briefly the use of ground water mass transport model in controlling the contamination migration? (10)
- 13.(a)(i) What are the advantages of using optimization and write the objective and constraints in linear programming? (8)
- (ii) Explain briefly about reliability analysis of irrigation flow data with respect to head, and tail reaches of the irrigation distribution system. (8)
(OR)

13.b) Determine the optimum area of sugar cane and banana crop from the following data

$$\text{Maximize } Z = 5 \text{ Ba} + 8 \text{ Su}$$

Subjected to

$$2 \times \text{Su} + 1 \times \text{Ba} \leq 1000$$

$$3 \times \text{Su} + 4 \times \text{Ba} \leq 2400$$

$$\text{Su} + \text{Ba} \leq 800$$

$$\text{Su} > 0 \text{ and } \text{Ba} > 0$$

(16)

14. a) Determine the dependable flow in a stream for 50 % , 75 % and 90 % from the following observed flow data from the stream.

(16)

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Flow m^3/s	15.3	45.6	88.6	12.3	95.7	77.8	50.3	82.3	37.8	57.8

(OR)

14(b) (i) Explain steps involved in collection of all the meteorological data in order to identify the climate change? (6)

(ii) How to create the database management system for climate change data? (10)

15.a) Explain the development of data base (MS access or RDBMS) system for storing and retrieval of biological and agricultural activity data. (16)

(OR)

15.b) Explain the procedure involved in developing decision support system for an agricultural system. (16)
