Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME- SEMESTER II– EXAMINATION – SUMMER 2015

Subject Code: 2723305 **Date: 01/06/2015**

Subject Name: Water Use Management

Time: 2:30 PM – 5:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain the factors affecting transpiration.	**07**
	(b)	Classify soil water with neat sketch. How do plants react with soil water deficit?	**07**
Q.2	**(a)**	Define permanent wilting point and temporary wilting point. Explain how sunflower helps in finding permanent wilting point of soil water.	**07**
	(b)	Enlist the methods for finding consumptive use of water by crops. Explain any one in detailed.	**07**
		OR	
	(b)	Explain how water allowance and irrigation requirement of crop decide the cropping pattern.	**07**
Q.3	**(a)**	Explain the critical stages of water need of plant with neat sketch. Give some example of such stages in crop.	**07**
	(b)	Write short notes on simulation modeling in surface irrigation systems.	**07**
		OR	
Q.3	**(a)**	Discuss the factors influencing the frequency of irrigation.	**07**
	(b)	What is desalination? Which technology is best suited for irrigating desalinated water? Discuss the environmental impact of desalination.	**07**
Q.4	**(a)**	Explain drip irrigation system in detailed. What are the advantages of drip irrigation as compare to any other methods of irrigation system?	**07**
	(b)	Describe the volumetric method of flow measurement. An oil drum of 50 cm diameter and 110cm depth is fitted in a vegetable plot near a channel to measure the stream flowing for irrigating the field. The drum was filled with water through a siphon tube from the stream in 2 min. Determine the discharge of water through the siphon tube.	**07**
		OR	
Q.4	**(a)**	Compare furrow and border method of irrigation. Determine the mean depth of irrigation in a furrow 80m long and spaced 60cm apart with an initial flow of 1.6 l/s for a period of 40m. The stream was then reduce to 0.6l/s after it reached the tail end of furrow and the irrigation was continued for another 45 min.	**07**
	(b)	What precautionary measures would you suggest when saline water is to be used for irrigating crops?	

Q.5	**(a)**	Define water application efficiency. An area of 3 ha of maize crop was irrigated by a stream of 75 l/s. The irrigation was applied at 50% soil water depletion. The available water holding capacity of the soil was 16 cm per meter depth. Soil water estimation two days after irrigation showed that the 3 ha of maize stored 18.5 cm depth of water in the 90 cm root zone. Estimate water application and water storage efficiencies.	**07**
	(b)	What do you understand by modernization of irrigation projects? How it helps in effective utilization of water resources.	**07**
Q.5	**(a)**	Describe any one method of drainage system. Explain how drainage provides favorable soil and land conditions for optimal plant growth and productivity.	**07**
	(b)	What do you understand by command area development authority (CADA)? Explain the function of an Irrigation officer /subordinate for effective water management for irrigation project.	**07**

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