GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – VIII.EXAMINATION – WINTER 2016

Subject Code: 180606   **Date: 24/10/2016**
Subject Name: Irrigation Water Management (Department Elective-II)
Time: 02:30 PM to 05:00 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)**	What should be the objectives for proper management of irrigation water? What is the scope of management of irrigation water in Gujarat?	**07**
	(b)	Explain various types of sprinkler irrigation system based on portability.	**07**
Q.2	**(a)**	Define land grading. Enumerate various benefits and factors influencing land grading process.	**07**
	(b)	Write short note on irrigation scheduling.	**07**
		OR	
	(b)	Explain Border specifications and stream size in detail.	**07**
Q.3	**(a)**	What are the specific advantages of drip irrigation system over sprinkler Irrigation system?	**07**
	(b)	Discuss the problems encountered in drip irrigation systems. Explain in brief how fertilizers and chemicals are applied in drip irrigation system.	**07**
		OR	
Q.3	**(a)**	Compute the time required to irrigate a square area of 4 ha to a depth of 5 cm with two movable laterals 200 m long each fitted with 16 sprinklers at an interval of 13 m on each lateral. A sprinkler applies 1.25 cm of water per hour and the laterals are spaced at 20 m interval. Five hours are required to move the laterals each time.	**07**
	(b)	What step-by-step procedures for the hydraulic design of sprinkler Irrigation systems?	**07**
Q.4	**(a)**	Calculate the farm conveyance efficiency and field water application efficiency when a stream of 90 litres/s received at the farm gate after being diverted from a canal delivered 62 litres/s to the field. During irrigation to wheat crop for 10 hour, 300 and 148 cu.m of water respectively were lost by runoff and deep percolation.	**07**
	(b)	Write short note on "Reclamation of saline soils by leaching method".	**07**
		OR	
Q.4	**(a)**	What is leaching requirement? Determine the depth of irrigation water which would be change 30 cm depth of loam soil in to saline condition, if the EC of irrigation water is 1 milliohms/cm. The bulk density of the soil is 1.2 grams/cu cm and the density of water is 1 gram/cu cm. The saturation percentage of the soil is 40.	**07**
	(b)	Define frequency of irrigation. Describe various factors affecting frequency of irrigation.	**07**
Q.5	**(a)**	Explain various factors should be considered to improve canal irrigation management.	**07**
	(b)	Write about the farmer's participation and role of irrigation managers in practicing the irrigation.	**07**
		OR	

Q.5 **(a)** What is water logging? Discuss causes and remedial measures of water logging. **07**

(b) What is water user organization? Explain merit and demerit of water user's organizations. **07**

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