Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. Sem. – III - Examination –June- 2011

Subject code:731202

Subject Name: Water Use Management

Date:07/06/2011 **Time: 10.30 am – 01.00 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)**	Discuss briefly the factors affecting the choice of the method of irrigation. Discuss in brief the check basin method.	**07**
	(b)	Compare in a tabular form, furrow, sprinkler and drip irrigation methods.	**07**
Q.2	**(a)**	Explain the following terms: (i) Infiltration capacity (ii) Deep percolation ratio (iii) Depletion phase (iv) Recession time (v) AWHC (vi) Water requirement efficiency (vii) Irrigation efficiency	**07**
	(b)	Explain the following stages of planning and design of sprinkler system. (i) Capacity of the system. (ii) Operating pressure. (iii) Spacing between sprinklers and laterals.	**07**
		OR	
	(b)	Discuss the hydraulics of flow in the drip irrigation method.	**07**
Q.3	**(a)**	Define and explain consumptive use of water. List the various factors which affect it.	**07**
	(b)	Enumerate the conditions which are favorable for the adoption of sprinkler irrigation system. Write the limitations of this method.	**07**
		OR	
Q.3	**(a)**	What is crop planning? What are the various crop patterns? Discuss the methods of crop improvement.	**07**
	(b)	What are the types of soils, crops and terrains which are suitable for drip irrigation system? State the limitations of this method.	**07**
Q.4	**(a)**	What are the main objectives of providing drains? List the essential requirements of a drain. Classify the surface drainage system.	**07**
	(b)	Discuss methodology for management of waterlogged and saline and alkaline soils.	**07**
		OR	
Q.4	**(a)**	Discuss the basic concept and approach in planning of drainage network. Explain the factors which affect the design capacity of drainage channel	**07**
	(b)	Determine drain spacing for an area where impermeable bed exists 4.6 m below ground surface. The water-table should be 0.6 m below the ground level. The rate of discharge per unit area of land surface is 0.75 cm per day and coefficient of permeability is 1.26 cm/hour.	**07**
Q.5	**(a)**	Write short note on "water use management"	**07**
	(b)	Explain soil water relationship in detail	**07**
		OR	
Q.5	**(a)**	Describe conjunctive use of surface water and ground water	**07**
	(b)	Discuss command area development.	**07**

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