Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY PDDC - SEMESTER-VII • EXAMINATION - SUMMER • 2014

Subject Code: X 70605 Date: 05-06-2014

Subject Name: Irrigation Water management

Time: 02:30 pm - 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) Give a comparison of sprinkler and drip irrigation under the following heads: i). 07 initial cost ii). Operation cost iii). Uniformity of Irrigation
 - (b) Find the variation of flow for the first and the last emitter of a drip system for a variation of 40% and 20% respectively of emitter head for the first and the last emitter.
- Q.2 (a) Discuss in detail how the on farm application efficiency of irrigation water can be increased.
 - (b) Discuss how remote sensing and GIS can be used in monitoring and managing of command area of a canal.

OR

- (b) State and explain the parameters used for evaluation of a canal irrigation scheme. 07
- Q.3 (a) State and explain the objectives of water use cooperatives and their benefits to the farmers.
 - (b) Explain the factors affecting land leveling for agricultural purpose 07

OR

- Q.3 (a) Explain for border irrigation, time of advancement and time of recession. Develop 07 an expression for time of water front advancement "t" to cover a distance "x".
 - (b) Classify the water resources of India in form of surface water and ground water, river and lake water, fresh water and salty water frozen water and water in other forms.
- Q.4 (a) Explain irrigation with saline irrigation water and acceptable standards of irrigation water.
 - (b) An area of 1 hectare was irrigated in 10 hours with streams of 30 litres/second. Depth of root zone was 1 meter and available moisture holding capacity was 16cm/m. Irrigation was given when 50% of the available moisture was depleted. Water application efficiency was 60%. Find the storage efficiency.

OR

- Q.4 (a) Enlist the preventive and curative measures to avoid water logging. Explain the preventive measures.
 - (b) (i) Give the suitability of furrow irrigation and the explain advancement and the ponding time for the check basin method.
 - (ii) Give the furrow spacing for potatoes and onion crop
- Q.5 (a) Give the difference between surface and sub surface drainage and comparative 07 advantage and disadvantage.
 - (b) Explain different type of sprinkler irrigation systems and when the use of each type becomes necessary.

OR

- Q.5 (a) Explain how uniformity coefficient for sprinkler irrigation is determined to monitor 07 the distribution efficiency
 - (b) Explain the canal operations and methodology related to "Fixation of Turns" **07** method of irrigation of fields in the command area.
