

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER- VIII• EXAMINATION – SUMMER 2015

Subject Code: 180606**Date: 05/05/2015****Subject Name: Irrigation Water Management****Time: 10.30AM-01.00PM****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 applications of remote sensing in irrigation. **07**
 (b) (i) Classify sprinkler irrigation system based on portability. **04**
 (ii) Write a brief note on “Emitters”. **03**
- Q.2** (a) Define land grading. Enumerate various benefits and factors influencing land grading process **07**
 (b) Write a short note on “Reclamation of saline soil by leaching”. **07**
- OR**
- (b) Write a short note on “Water user organization”. **07**
- Q.3** (a) Determine capacity of sprinkler irrigation system to apply water at a rate of 1.25 cm/hr. Two 186 meters long sprinkler lines are required. Sixteen sprinklers are placed at 12 m intervals on each line. The spacing of line is 18 m. Also determine diameter of sprinkler nozzle, if pressure head at nozzle is 30 m and dose of fertilizer required if recommended fertilizer dose is 75kg/ha. **07**
 (b) Discuss moisture distribution pattern of sprinkler under windy condition of pressure. Also explain uniformity coefficient. **07**
- OR**
- Q.3** (a) Explain maintenance and trouble shooting of sprinkler irrigation system. **07**
 (b) How fertilizers and chemicals are effectively applied through drip irrigation? **07**
 How dose of fertilizer is decided?
- Q.4** (a) Define irrigation scheduling. Discuss role of irrigation indices to achieve optimum scheduling of irrigation. **07**
 (b) A canal diverted 80 liters/sec of water to the field. An area of 1.6 ha was irrigated in 8 hrs. Depth of root zones was 1.4 m. The loss due to surface runoff was 375 m³. The depth of water varied linearly from 1.5 m at head to 1.0 m at tail end. Available moisture holding capacity of soil is 18 cm per meter depth of soil. Find water application efficiency, water storage efficiency and water distribution efficiency. **07**
- OR**
- Q.4** (a) Define frequency of irrigation. Describe various factors affecting frequency of irrigation. **07**
 (b) Discuss the problems arise from using poor quality of irrigation water. **07**
- Q.5** (a) Explain various factors should be considered to improve canal irrigation management. **07**
 (b) Explain role of drainage system for preventing water logging. **07**
- OR**
- Q.5** (a) Discuss in detail operation and maintenance of canal irrigation system. **07**
 (b) Discuss causes and remedial measures of water logging. **07**
