Subject code: 731202

Subject Name: Water Use Management

Date: 05-06-2014

GUJARAT TECHNOLOGICAL UNIVERSITY M. E. - SEMESTER – III • EXAMINATION – SUMMER • 2014

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** Discuss briefly the factors affecting the choice of the method of irrigation 07 **(a)** and briefly explain Furrow method. Give advantages and disadvantages of surface and sub-surface irrigation. 07 **(b) Q.2 (a)** Describe the criteria which governs the layout of the sprinkler system. 07 **(b)** What do you understand by drip irrigation? Discuss component parts of drip 07 irrigation. OR **(b)** Discuss the hydraulics of flow in the drip irrigation method. 07 Q.3 Draw sketch and describe briefly the working of a sprinkler irrigation **(a)** 07 system. 07 **(b)** On an area of 20 ha great millet is to be irrigated by a sprinkler system. Moisture use rate is 5 mm per day and irrigation is done after 10 day interval. Time taken to complete watering is 12 days. The system works for 16 hours each day. Irrigation efficiency is 68%. Calculate discharge capacity of the pump. OR With the help of sketch, explain the design procedure for drip irrigation. 07 0.3 **(a)** Briefly explain types/classification of sprinkler system. **(b)** 07 0.4 Define and explain consumptive use of water. Discuss the various factors 07 **(a)** which affect it. Explain the various methods of measurement of irrigation water. 07 **(b)** OR **Q.4 (a)** Explain in brief, drainage requirements in an irrigation command area. List 07 the essential requirements of a drain. **(b)** Discuss methodology for management of waterlogged and saline and 07 alkaline soils. Q.5 07 **(a)** Describe automation and control and regulation of canals. Discuss command area development in detail. 07 **(b)** OR What is waterlogging? What are the ill-effects of waterlogging? Q.5 07 **(a)** Explain soil water relationship in detail. 07 **(b)**
