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GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016

Subject Code:2170609 Date: 23/11/2016 **Subject Name:Irrigation Engineering** Time: 10.30 AM to 1.00 PM **Total Marks: 70 Instructions:** 1. Attempt all questions. Make suitable assumptions wherever necessary. **Q.1 07** (a) Explain with neat sketch classification of soil-water in detail. (b) Define diversion headwork. Describe the function of each component of 07 Diversion head work with a neat diagram. Define water logging? Discuss causes and remedial measures of water **Q.2** logging. (b) Define duty and delta. Derive a relationship between duty and delta for a 07 given base period. Also briefly discuss factors affecting duty. OR (b) Describe with neat sketches various methods adopted for controlling seepage 07 through the body of an embankment dam and through foundation. A field channel has a culturable commanded area of 3000 hectares. The 07 Q.3 intensity of irrigation for gram is 30% and for wheat is 50%. For gram kor period is 16 days and kor depth is 10 cm. For wheat kor period is 12 days and kor depth is 12 cm. Calculate the discharge of the field channel required. Discuss in brief the causes and failure of earthen dams. **(b)** 07 Describe Bligh's creep theory for the design of weir over pervious foundation. 0.3 **07** (a) **(b)** Explain Border strip method of irrigation in detail. 07 0.4 Explain the procedure for designing an irrigation channel using Lacey's 07 theory. **(b)** Explain the procedure for designing an irrigation channel using Kennedy's **07** theory, when Q, N, m and S are given. Define Canal. Explain classification of Irrigation canal in detail. 0.4 07 (a) (b) Design an irrigation canal to carry discharge of 5 cumecs. Take m =1.0, N = **07** 0.0225 and B/D ratio = 4.40. **07** 0.5 What is function of Canal escape? Discuss different types of Canal escapes. (a) What is canal fall? Why is it necessary to provide a fall in a canal? Explain 07 **(b)** with sketch Ogee fall. OR List out the various silt control devices used for sediment control in the off **Q.5** taking channel? Explain any two in detail. (b) Define Canal Outlet. Explain submerged pipe outlet and Kennedy's Gauge 07 outlet in detail.
