

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII • EXAMINATION – WINTER • 2014****Subject Code: 180601****Date: 04-12-2014****Subject Name: Design of Hydraulic Structures****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) Discuss factors affecting for the selection of dam site in detail. **07**
 (b) Explain briefly the factors affecting selection of dam type. **07**
- Q.2** (a) Explain how construction operation is carried out in earthen dams? **07**
 (b) Discuss briefly the structural failure of earthen dam. **07**
- OR**
- (b) Describe with neat sketch how to seepage line is drawn in homogeneous earth dam without any drainage arrangement? **07**
- Q.3** (a) Show forces acting on a gravity dam with sketch. **07**
 (b) Explain stability requirements of a gravity dam. **07**
- OR**
- Q.3** (a) Discuss the properties of concrete used in the construction of a gravity dam. **07**
 (b) Draw the elementary profile of a gravity dam and explain various forces acting on it. **07**
- Q.4** (a) Define spillway. What is the purpose of its provision? What are the essential requirements? Where the spillway is located? **07**
 (b) Describe briefly an ogee spillway. **07**
- OR**
- Q.4** (a) Define energy dissipaters. What are the needs to provide it? **07**
 (b) Determine the discharge through a chute spillway of ogee crest; length of spillway is 250m, height of spillway crest above u/s approach channel is 10m, width of approach channel is 250m and depth of water over spillway crest is 5m. **07**
- Q.5** (a) What is canal fall? Why is it required to provide in a canal? **07**
 (b) Write short note on cross regulator. **07**
- OR**
- Q.5** (a) Discuss the various considerations according to which the location of a fall is decided? **07**
 (b) Design a sarda type fall on a channel of 15cumecs, bed width 18m, depth 1.5m, u/s FSL 101m, bed level 99.5m, NSL 90.0, fall 1.0m and side slope 1/2:1. **07**
