

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VIII (NEW) EXAMINATION – WINTER 2024

Subject Code:2180601

Date:26-11-2024

Subject Name:Design of Hydraulic Structures

Time:02:30 PM TO 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.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Explain the factors governing the selection of site for a dam. **07**
(b) Classify various types of Dams and write down merits and demerits of each. **07**
- Q.2** (a) Define Phreatic line in earthen dam. Discuss the graphical method for the Phreatic line in a Homogeneous earthen dam with a horizontal drainage filter. **07**
(b) Explain causes of failure of earthen dam in brief. **07**
- OR**
- (b) Describe with neat sketches various methods adopted for controlling seepage through body of an embankment dam and through foundation. **07**
- Q.3** (a) Differentiate between horizontal and vertical piping in earthen dam. Suggest permanent measures to check vertical piping **07**
(b) Explain different types of galleries in the gravity dam. **07**
- OR**
- Q.3** (a) Differentiate between low gravity dam and high gravity dam? Determine the dimensions of the practical profile of the low gravity dam. **07**
(b) Illustrate the methods adopted to reduce uplift pressure in masonry gravity dams. **07**
- Q.4** (a) Discuss the practical profile of a Gravity Dam. **07**
(b) Explain how the ogee spillway is designed. **07**
- OR**
- Q.4** (a) “A Spillway is a safety valve in a dam” justify the statement. **07**
(b) Explain different types of spillway crest gates. **07**
- Q.5** (a) Describe with neat sketches different types of stilling basins. **07**
(b) Write design criteria for various components of Sarda type fall. **07**
- OR**
- Q.5** (a) Enlist different types of falls and explain any one. **07**
(b) Describe various design principles of cross regulator and head regulator. **07**
