

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014****Subject code: 1724305****Date: 23-06-2014****Subject Name: Earth and Rockfill Dams****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.
4. Use of Programmable calculator is strictly prohibited

Q.1 Attempt any seven out of the following. Answer only in two-three lines with proper reasons: **14**

- i. Rolled earth fill type of embankment is favorable under which conditions and why?
- ii. Which is most suitable foundation for rockfill dams and why?
- iii. Why slanting core is more advantageous compare to central core?
- iv. Which criteria should be followed for selection of rock toe? Is there any relation between height of dam and rock toe?
- v. Which type of material is preferable on u/s of dam so as to control pore water pressures when reservoir is lowered after being full for some time?
- vi. How thickness and vertical interval between filter layers are decided?
- vii. Define Sloughing and which type of failure is observed under such phenomena?
- viii. Which type of material is preferable on u/s of dam so as to control pore water pressure when reservoir is lowered after being full for some time?
- ix. Under which conditions grouting is preferable technique for treatment of foundations?
- x. What is the advantage of asphaltic concrete membranes?

Q.2(a) Define earthen dam and show the comparison between rigid dams and embankment dams with respect to their characteristics. **07**

Q.2(b) Discuss the various types of foundations and its suitability for earthen dams. Enlist the various features required to be followed in selection of dam section as per IS: 8826-1978. **07**

OR

Q.2(b) Draw a neat sketch of earthen and rockfill dam as per IS: 8826-1978 showing all their components. Explain the function of each component in one line only. **07**

Q.3(a) State the various criteria given by Sherard for classification of core materials on the basis of resistance to concentrated leak. Also state the criteria given by Sherard for deciding core thickness. **07**

Q.3(b) Categorized location of core in dam section. Explain various conditions under which they are provided and explain why slanting core is more advantageous compare to central core. **07**

OR

Q.3(a) Write a detail note on concrete diaphragm and grout curtain with reference to IS: 8414-1977.

Q.3(b) Describe the various types of failure for earthen dams. Support your answer with any one case study.

Q.4(a) Explain Terzaghi criteria for design of transition filters. Explain briefly rock toe and chimney drain. **07**

