

**B.TECH. CIVIL ENGINEERING
(BTCLEVI)**

Term-End Examination

December, 2013

**BICEE-019 : EARTH AND ROCK FILL DAM
ENGINEERING**

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions and each question carries equal marks.

1. Briefly describe the effect on stability of dams during : 10
 - (a) Construction phase
 - (b) Full reservoir condition
 - (c) Draw-down condition

2. What are the various methods of sub-surface exploration required for foundation in earth and rockfill dams ? Explain briefly. 10

3. (a) What are various types of earth and rockfill dams ? 5
(b) Explain the features of suitable construction material used in embankment. 5

4. Discuss shaffernak and Van Iterson solution used in analysis of earth and rock fill dams. 10

5. Explain Leo-Casagrande solution in analysis of earth and rockfill dams. 10

6. Describe the general features of Hydraulic fill dams and various methods of analysis of Hydraulic fill dams. 10
7. (a) What are the advantages of rockfill dam ? 5
(b) Illustrate with neat sketch the various components of rockfill dam. 5
8. (a) What are various methods to prevent under seepage in an earth dams ? 5
(b) Explain briefly the design methods of internal drainage system in earth dams. 5
9. (a) Briefly describe the design methods of internal drainage system in rockfill dams. 5
(b) Briefly explain the design consideration of earth dams on : 5
(i) Loose sand foundation
(ii) Soft clay and silt foundation
10. Write **short notes** on the following : 4x2½=10
(a) Flownet phreatic line on earth dam
(b) Piping and exit gradient
(c) Sliding block method
(d) Downstream slope protection
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