

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

**Term-End Examination**

**June, 2017**

**00483**

**BICEE-019 : EARTH AND ROCKFILL DAM  
ENGINEERING**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Attempt any **five** questions. All questions carry equal marks. Assume suitable missing data, if any. Use of scientific calculator is permitted.

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1. (a) Enlist different types of Rolled-fill earth dams. Describe each type in brief with the help of neat sketches. 7
- (b) Discuss the influence of topography on site selection of earth dams. 7
2. Elaborate the steps for design of rockfill dams and its components. 14
3. What are the various phases in earth dam construction ? Discuss in detail. 14

4. Discuss the Taylor's modified Swedish method for stability analysis of a dam. 14

5. (a) What is meant by pore water pressure ? Explain its significance in design of earth dams. 7

(b) For a homogeneous earth dam which is 52 m high and has 2 m free board, a flow net was constructed and the following results were obtained :

Number of potential drops = 25

Number of flow channels = 4

The dam has a horizontal filter of 40 m length at its downstream end. Calculate the discharge per metre length of the dam if the coefficient of permeability of the dam is  $3.5 \times 10^{-3}$  cm/sec. 7

6. (a) What is measured by Brazilian test ? Describe the procedure of this test. 7

(b) What is a phreatic line ? What is its use ? How would you locate the phreatic line in an earth dam with a horizontal drainage filter ? 7

7. Write short notes on any **four** of the following :  $4 \times 3 \frac{1}{2} = 14$

- (a) Earth Core Type Rockfill Dam
  - (b) Piping and its Prevention
  - (c) Surface Protection of Upstream Face of Earth Dam
  - (d) General Features of Hydraulic Fill Dams
  - (e) Laplace Equation
  - (f) Relief Wall
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