

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

00605

June, 2014

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

Time : 3 hours

Maximum Marks : 70

Note : Answer any *five* questions. All questions carry equal marks. Assume the suitable missing data, if any.

1. What are the geological parameters for selection of site for construction of Earthfill Dam ? Discuss in detail with suitable examples. 14

2. Explain the meaning and importance of equipotential lines and streamlines in connection with seepage analysis of earthen dams. 14

3. Elaborate the steps for design of rockfill dams and its components. 14

4. In order to determine the factor of safety of the d/s slope during steady seepage, the section was drawn to 1 cm = 10 m scale. The following results were obtained :
Area of N-diagram = 12.15 cm²
Area of T-diagram = 6.50 cm²

Area of U-diagram = 4.2 cm^2

Length of arc = 11.60 cm

Dam Material has following properties :

Effective angle of internal friction = 26°

Cohesion $c = 2 \text{ t/m}^2$

Unit weight of soil = 2 t/m^3

Determine the factor of safety of the slope. 14

5. What precautions and remedial measures are taken to control the 'seepage' through earthen dam foundations ? 14

6. Explain the various tests done on rock to determine the shear strength parameters for selecting material for dam site. 14

7. Write short notes on any *four* of the following :

$$4 \times 3 \frac{1}{2} = 14$$

(i) Rock toe

(ii) Chimney drain

(iii) Relief wall

(iv) Slope protection in earthen dams

(v) Hydraulic fill dams

(vi) Quick conditions