

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

December, 2014

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

Time : 3 hours

Maximum Marks : 70

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

1. (a) What are the general features of earth and rock-fill dams ? 7
- (b) Discuss the influence of topography on site selection for dams. 7

2. (a) Define and explain the term 'phreatic line' in earthen dams. 7
- (b) How can we determine the phreatic line through homogeneous earthen dams provided with a horizontal filter ? 7

3. A section of a homogeneous earth dam is shown in Fig. 1. Calculate the seepage discharge per metre length through the body of the dam. The coefficient of permeability of the dam material be taken as 8×10^{-5} m/sec. 14

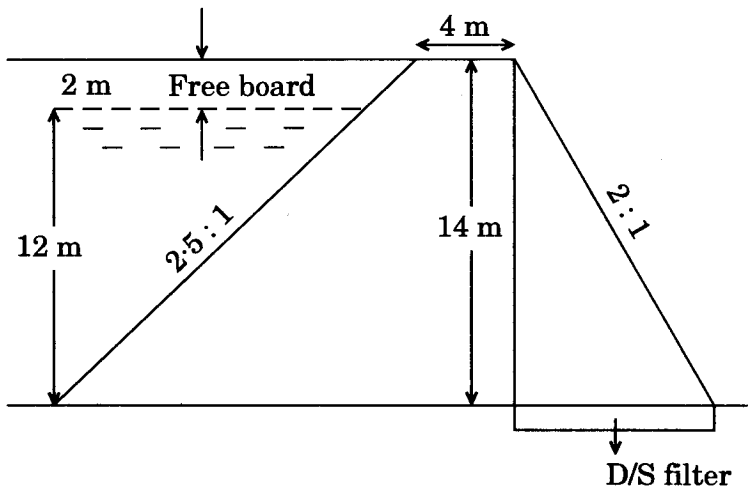


Fig. 1

4. Explain how the following parameters affect the design of an earthen dam : 14
- (i) Optimum moisture content
 - (ii) C and ϕ value of soil
 - (iii) Sudden drawdown of the reservoir
5. Designs the earthen dams for different available materials and the governing geology on the site with the help of simple outline sketches. 14

6. (a) Explain in details the steps involved in the construction of rock-fill dams. 7
- (b) What are hydraulic fill dams? 7
7. (a) What is meant by pore water pressure? Explain its significance in design of earthen dams. 7
- (b) What are the advantages of rock-fill dams over earthen dams? 7
-