

**B.Tech. Civil (Construction Management)**

**Term-End Examination**

**December, 2006**

**ET-535(B) : HYDRAULIC STRUCTURES**

Time : 3 hours

Maximum Marks : 70

**Note :** Answer any **five** questions. All questions carry equal marks. Use of calculator is allowed.

1. How does the sediment, carried by a stream, get accumulated in a reservoir ? What are the procedures available for its removal ? 14
2. (a) Explain various types of failures of an earth dam by giving sketches.  
(b) What measures, both design-wise and construction-wise, can be taken against these failures ? 10, 4
3. Give a typical layout of canal headworks including river training works. Explain the function of each feature. 14
4. How are canals aligned for a given topography ? Explain with neat sketches. 14

5. Draw a plan and section of a superpassage, and describe its various components. Where is a superpassage used ? 14
6. Explain the working of various types of modular, and non-modular outlets, using neat sketches. 14
7. Write short notes on any **four** of the following : 14
- (i) Lacey's theory
  - (ii) Arbitrary profile of a dam
  - (iii) Exit gradients
  - (iv) Canal modules
  - (v) Tractive force
  - (vi) Canal linings