

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

**Term-End Examination**

**June, 2012**

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

*Time : 3 Hours*

*Maximum Marks : 70*

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*Note : Attempt any five questions.*

*All questions carry equal marks. Use of scientific calculator is permitted.*

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1. (a) What do you mean by " Mass curve"? 7  
How is it prepared ?
- (b) With the help of a neat sketch describe the 7  
sediment accumulation in a typical  
reservoir.
2. (a) Explain the elementary profile of a gravity 7  
dam.
- (b) Describe various types of weirs in brief. 7
3. (a) What is a divide wall ? Explain its functions. 7
- (b) Explain the Khosla's theory for design of 7  
weir floors on permeable foundations. How  
do you apply corrections for thickness of  
floor ?

4. (a) Describe the types of canals according to various classification systems. 7
- (b) Explain the design of unlined channel by Kennedy's theory. 7

5. (a) Starting from the basic principles, show that capital recovery factor ( $r$ ) can be expressed as :

$$r = \frac{i (l + i)^y}{[(l+i)^y - 1]}$$

where all symbols carry their usual meaning.

- (b) Define the sensitivity of an outlet. 7
- Derive the relationship between sensitivity and flexibility of an outlet.

6. (a) Explain the necessity of cross drainage works. 7
- (b) What is a distributory head regulator ? 7
- Explain its functions.

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

- (a) Storage zones of a reservoir
- (b) Canal distribution system
- (c) Exit gradient
- (d) Syphon Aqueduct

8. Differentiate between the following :  $4 \times 3\frac{1}{2} = 14$

- (a) Inundation and Permanent canals
  - (b) Weirs and Barrages.
  - (c) Design yield and Firm yield.
  - (d) Diversion and Storage head works.
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