No. of Printed Pages : 3

ET-536(A)

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

00657

June, 2014

ET-536(A) : HYDRAULIC STRUCTURES – I

Time : 3 hours *Maximum Marks : 70*

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

1. (a) Discuss in brief the zones of storage in a reservoir with the help of a neat sketch. *7*

(b) Describe the sediment accumulation in typical reservoir with the help of a neat sketch. *7*

2. (a) Distinguish clearly between a Low Gravity Dam and a High Gravity Dam. *4*

(b) Derive the expression used for such a distinction. *5*

(c) Determine the limiting height of a low gravity dam of concrete, taking specific gravity of concrete as 2·43 and allowable compressive stress as 343 t/m^2. *5*

3. (a) Explain the various types of dams that may be selected depending upon the materials available. 7

(b) Discuss in detail as to how you will test the stability of an earth dam constructed with cohesive soils. 7

4. (a) Define Barrage. How does a weir help in raising the water level or pond level ? 7

(b) What do you mean by Divide Walls ? Explain their main functions. 7

5. (a) Explain Khosla's theory for design of weir floors on permeable foundations. 7

(b) Name the most common types of spillways. Explain any one of them with the help of a neat sketch. 7

6. (a) What is Hydraulic Jump ? How does it help in dissipating the energy of the water falling over a weir or a dam. 7

(b) Describe the four methods for average velocity measurement. 7

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

(a) Mass curve

(b) Force acting on Gravity Dam

(c) Conjugate Depth

(d) Seepage and Leakage control in dams

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

(a) Overflow and Non-overflow Dams

(b) Diversion and Storage Headworks

(c) Retarding basin and Storage reservoir

(d) Firm and Design Yield