B.Tech. Civil (Water Resources Engineering)

Term-End Examination

00755 **December, 2014**

ET-536(B) : HYDRAULIC STRUCTURES – II

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any* ***five*** *questions. All questions carry equal marks.*

1. (a) Describe the various losses encountered during transmission of water through a canal in an earthen section and how they are accounted for in design procedures. 7

(b) What do you mean by Berms ? Explain the various purposes served by it. 7

2. (a) Describe the design parameter of a Cross Drainage Works. 7

(b) Explain the salient features of design of unlined channel by Lacey's Theory. 7

3. (a) Name the various types of Lining. Explain any one in detail. 7

(b) What do you mean by flexibility of an outlet ?

Show that flexibility can be expressed as 7

$$F = \frac{m}{n} \times \frac{h}{H}.$$

4. (a) Describe the objectives of a distribution system. How do you control a distribution system ? 7

(b) Discuss the methods available for controlling entry of silt into a canal. 7

5. (a) What do you understand by Silt Ejector ? Explain the functions served by it with the help of a neat sketch. 7

(b) Describe the design criteria for Distributory Head Regulator. 7

6. (a) Discuss the purpose of training a river. 7

(b) Describe the particular river training measures required for the stabilisation of a river channel. 7

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

(a) Alignment of a Canal

(b) Permanent Canal

(c) Drainage Behind Lining

(d) Navigation Lock

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

(a) Contour and Watershed Canal

(b) Suspended and Bed load

(c) Alluvial and Non-alluvial Canals

(d) Modular and Semi-modular outlets