ET-536(B)

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

December, 2011

ET-536(B) : HYDRAULIC STRUCTURES-II

Time : 3 hours   *Maximum Marks : 70*

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

1. (a) Explain the features of a navigation canal ?   **7**
        Name some such canals that exist in India.

    (b) Describe various functions served by   **7**
        "Berms".

2. (a) Discuss various design parameters of a cross   **7**
        drainage work.

    (b) Define flexibility of an outlet.   **7**
        Show that

        $$\text{Flexibility (F)} = \frac{m}{n} \times \frac{h}{H}$$

3. (a) Using Lacey's basic regime equations,   **7**
        Show that $P = 4.75\sqrt{Q}$.

    (b) Explain the design procedure of channel by   **7**
        Kennedy's theory when Q, N, m and S are
        given.

4. (a) Describe the characteristics of material 7
selected for lining an irrigation channel.

(b) Draw a typical layout of canal Headworks 7
including river training works.

5. (a) Explain the design procedure of weir for 7
surface flow.

(b) What do you mean by uplift pressure ? 7
How can you provide safety against uplift
pressure as per Bligh's Creep Theory ?

6. (a) Describe the particular river training 7
measures required for navigation.

(b) Explain the different purposes of training a 7
river.

7. Write short notes on the following : 4x3½=14
   (a) Drainage Behind Lining
   (b) Canal Alignment
   (c) Components of a diversion headwork
   (d) Level crossing

8. Differentiate between the following : 4x3½=14
   (a) Weirs and Barrages
   (b) Lined and Unlined Canal
   (c) Flexibility and sensitivity
   (d) Syphon and superpassage