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ET-536(B)

U1369

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

June, 2011

ET-536(B) : HYDRAULIC STRUCTURES-II

Time : 3 hours *Maximum Marks : 70*

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

1. (a) What do you understand by the term permanent canal ? Explain with the help of a practical example. 7

   (b) Draw a typical cross - section of canal in partial cutting and filling. 7

2. (a) Explain the necessity of cross drainage works. 7

   Why do they cross the natural drainage at different levels ?

   (b) Define sensitivity of an outlet. Show that Flexibility (F) and Sensitivity (S) can be expressed as S = n F 7

3. (a) Using Lacey's basic regime equations, 7

Show that $V = \left(\frac{Qf^2}{140}\right)^{1/6}$

(b) Using Lacey's theory, design an irrigation channel section for the following data : 7
Discharge, Q = 40 cumec
silt factor, f = 1.00

side slope = $\frac{1}{2}$: 1

Also find longitudinal slope.

4. (a) Discuss the purpose of lining an irrigation canal. 7

(b) What is a barrage ? 7
How does a weir help in raising the water level or pond level ?

5. (a) What do you mean by scouring sluices ? 7
Explain their functions.

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

6. (a) Describe the particular river training measures for sediment control. 7

(b) What do you mean by Flood diversion and channel improvement ? 7
Explain with the help of suitable examples.

7. Write short notes on the following : 4x3½=14

(a) Cost of lining

(b) Canal Distribution System

(c) Fish Ladder

(d) Hydraulics of Locks

8. Differentiate between the following : 4x3½=14

(a) Alluvial and Non - alluvial Canal

(b) Aqueduct and Syphon Aqueduct

(c) Modular and Non - Modular Outlets

(d) Canal Head and Cross Regulator