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ET-536(B)

B.Tech. Civil (Water Resources Engineering)

01345

Term-End Examination

June, 2010

ET-536(B) : HYDRAULIC STRUCTURES-II

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 detail how inundation canals are cost effective ? 7

   (b) Draw a schematic layout of a canal distribution system and explain the functions of its various parts. 7

2. (a) Using Lacey's basic regime equations, show that $S = \frac{f^{S/3}}{3340\, Q^{1/6}}$ 7

   Where S = slope of water surface f = silt factor, Q = discharge.

(b) Using Lacey's theory, design an irrigation channel section for the following data 7

Discharge, $Q = 30$ cumec

Silt factor, $f = 1.00$

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

Find also the longitudinal slope

3. (a) Suggest various measures to control and remove silt from a water course. 7

(b) Discuss in brief the various types of aqueducts. Also discuss the importance of cost factors while choosing an alternative out of these types. 7

4. (a) Discuss in brief the requirements of a good outlet. 7

(b) Describe the objectives of a distribution system. 7

How do you control a distribution system ?

5. (a) What do you understand by canal falls ? Discuss in brief the design criteria of a Sarda Type Fall. 7

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

6. (a) What is a navigation lock ? Draw its typical plan and longitudinal section. 7

(b) Describe the particular river training measures required for flood control. 7

7. Differentiate between the following : 4x3½

(a) Contour and Ridge canal

(b) Syphon and Super passage

(c) Semi-modular and Non-modular outlets

(d) Head and percolation losses

8. Write short notes on the following : 4x3½

(a) Silt control at offtakes

(b) Cost of lining

(c) Berms

(d) Flexibility of an outlet