ET-535(B)

B.Tech. Civil (Construction Management)

Term-End Examination

June, 2008

ET-535(B) : HYDRAULIC STRUCTURES

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any **five** questions. All questions carry equal marks. Give neat sketches in support of your answers, wherever required.*

1. (a) Explain how would you determine safe yield from the reservoir of a given capacity. 7

   (b) Distinguish clearly between a low gravity dam and a high gravity dam. Derive the expression for such a distinction. 7

2. (a) Explain, with the help of a labelled sketch, the components of a zoned embankment dam with their functions. 7

   (b) Discuss in brief the causes of failure of an earth dam. 7

3. (a) Explain with the help of a diagram, the various component parts, and their functions, of a diversion headworks. 10

(b) Explain how do you determine the safe floor thickness of hydraulic structure to counter uplift pressure. 4

4. (a) Differentiate between : 6

(i) Alluvial and Non-alluvial canals

(ii) Inundation and Permanent canals

(b) Outline how a barrage is designed for surface flow. 8

5. (a) Describe the method of designing a canal based on Lacey's theory. 7

(b) Define the sensitivity of an outlet. Find the relation between sensitivity and flexibility of an outlet. 7

6. (a) Distinguish clearly between non-modular and semi-modular outlets. Give examples, with sketches. 7

(b) Explain the method of determining the waterway of drain in aqueduct. 7

7. (a) Differentiate between : 6

(i) Syphon aqueduct and Canal syphon

(ii) Aqueduct and Super passage

(b) Explain the procedure for designing a Sarda type fall.

8. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2}$

(a) Safe exit gradient

(b) Level crossing

(c) Multipurpose reservoir

(d) Reservoir capacity

(e) Diaphragm dam

(f) Rockfill dam