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ET-535(B)

00121

B.Tech. Civil (Construction Management)

Term-End Examination

December, 2013

ET-535(B) : HYDRAULIC STRUCTURES

Time : 3 Hours *Maximum Marks : 70*

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

1. (a) What are the uses of mass curves ? How is the capacity curve of a reservoir prepared? What do you understand by trap - efficiency ? 7

   (b) What is a gravity dam ? How will you decide the top - width and free-board of a gravity dam economicaly ? How is the free-board related with wave-height ? 7

2. (a) How would you select a homogeneous dam depending upon the materials available ? Explain the features of a rock-fill dam with suitable sketches. 7

   (b) What are head works ? Describe the two types of canal head works ? What are the various stages of river where headworks may or may not be located ? 7

3. (a) What are the scouring sluices ? What are the usual functions of scouring sluices ? How do you fix the discharge capacity of under sluices ? 7

(b) List the various corrections applied in the design of weir floors on permeable foundations using Khoslas theory (graphical method). 7

4. (a) What are the various losses encountered during transmission of water through a canal in an irrigation section ? 4

(b) Design a trapezoidal channel (side slope 2H:IV) to carry 14 cumecs of water with a bed slope of 1/9000. The canal bed and banks consist of coarse sand of 3mm size(angle of repose, Q=31°). Use tractive force approach. 10

5. (a) What are the basic purpose of lining a canal? How will you select materials for lining? 4

(b) A water course is to tape a flow of 0.04 cumecs. Design an open flume outlet from the concerned distributary if the full supply depth=0-70m 10

6. (a) What is an aqueduct ? Describe the variuos types of an aqueducts with suitable sketches. 7

(b) What are different types of canal falls ? Explain any two of them with suitable sketches. 7

7. (a) What is a canal head regulator ? Elaborate in detail the purpose of a canal head regulator. 7

(b) What is a cross-regulator ? Describe its functions with suitable sketches and field examples. 7

8. Write short notes on ***any four*** of the following : **3½x4=14**

(a) Reservoir planning

(b) Capacity of a canal

(c) Seepage failures of earth dams

(d) Canal outlets

(e) Level crossing

(f) Friction blocks.