

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

June, 2017

00915

ET-536(A) : HYDRAULIC STRUCTURES – I

Time : 3 hours

Maximum Marks : 70

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

1. (a) With the help of neat sketches, discuss various types of reservoirs. 7
- (b) Give a brief note on cumulative plotting of net reservoir inflow against time with a neat sketch. Also give its uses. 7
2. (a) Describe the adverse environmental effects of dams and reservoirs. 7
- (b) What are the empirical relations for estimating sedimentation rates of major Indian rivers ? 7
3. (a) What are the various factors to be considered in the selection of a dam site ? 7
- (b) What are the various types of dams and how are they classified ? 7

4. (a) Explain the principle of wave force above the still water or reservoir level. 7
- (b) What purpose do galleries serve ? What is the function of a drainage gallery and where is it located in a dam ? 7
5. (a) What is the arbitrary section of a gravity dam and how would you design such a section ? 7
- (b) Describe different joints in a gravity dam. 7
6. (a) Briefly describe the failures in earthen dams. 7
- (b) How will you test the stability of an earthen dam constructed of cohesive and cohesionless soils ? 7
7. (a) What are the various stages of rivers where headworks may or may not be located ? 7
- (b) What aspects of floor on permeable foundations can be assessed by Khosla's curves ? 7
8. Write short notes on the following : $4 \times 3 \frac{1}{2} = 14$
- (a) Trap Efficiencies
- (b) Components of Spillway
- (c) Hydraulic Jump
- (d) Various Types of Gates