

B.Tech. Civil (Construction Management)

Term-End Examination

June, 2015

00931

ET-535(B) : HYDRAULIC STRUCTURES

Time : 3 hours

Maximum Marks : 70

Note : Attempt any **five** questions. Each question carries equal marks. Use of non-programmable calculator only is allowed.

1. (a) What are various uses of a reservoir ? What do you understand by a conservation and a flood control project ? Explain normal pool level, minimum pool level, dead storage, live storage and valley storage. 7
- (b) What are the design requirements of a gravity dam ? What do you understand by combination of loads in the design of a gravity dam ? 7
2. (a) What are the various types of earth dams ? Enumerate various causes of failure in earth dams in brief. 7
- (b) What is a barrage ? How does a weir help in raising the water level or pond level ? Compare the salient features of a weir and a barrage. 7

3. (a) What different types of gates are provided in a barrage ? Distinguish between a divide wall and a fish ladder in a canal irrigation system of diversion head work. 7
- (b) How do you define uplift pressure ? How can you provide safety against piping ? Where are the pile lines used ? 7
4. (a) Differentiate in detail between alluvial and non-alluvial canals. What do you understand by the terms permanent and inundation canals ? Give examples from field in practice. 7
- (b) Design an irrigation channel to supply 30 cumecs of water. Assume Lacey's silt factor as 1.0. 7
5. (a) Describe the various types of canal linings with their respective advantages and disadvantages. 7
- (b) What are the various design parameters of an outlet ? Discuss the significance of each of them in brief. What is meant by setting of an outlet ? 7
6. (a) Why are the cross-drainage works needed ? Why do they cross the natural drainage at different levels ? What do you mean by level crossing ? 7
- (b) What are the various types of falls commonly adopted on canals ? Discuss the stability of each type. 7

7. Write short notes on the following :

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| (a) Canal head regulators | 5 |
| (b) Distributary head regulators | 5 |
| (c) Cross regulators | 4 |
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