| ET-536(A)

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

December, 2012

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 a neat sketch, briefly discuss   7
        the storage zones of a reservoir.

    (b) Describe various factors required to be   7
        considered in the selection of type of dam.

2. (a) How do waves affect the stability of a   7
        dam ? Explain the method for computing
        the wave pressure on a dam.

    (b) Discuss the design requirements of a gravity   7
        dam.

3. (a) Explain various types of earth dams.   7

    (b) Discuss in detail as to how you will test the   7
        stability of an earth dam constructed of
        cohesive soils.

4. (a) With the help of a neat sketch, explain   7
        various components of a diversion head
        works.

(b)   What do you mean by fish ladder ? Explain   7
the general requirements of a fish ladder.

5.   (a)   Define uplift pressure. Also describe the   7
procedure for checking safety against uplift
pressure.

(b)   Explain the most common types of spillways   7
- Any two

6.   (a)   What is hydraulic Jump ? How does it help   7
in dissipating the energy of water falling
over a weir or a dam.

(b)   Explain the method for controlling pore   7
pressure in embankment dams.

7.   Write short notes on the following : $4 \times 3\frac{1}{2} = 14$
(a)   Stability analysis of a gravity dam
(b)   Froude Number
(c)   Filling capacity of reservoirs
(d)   Khosla's theory

8.   Differentiate between the following : $4 \times 3\frac{1}{2} = 14$
(a)   Reservoir capacity and Reservoir yield
(b)   Exit gradient and safe exist gradient
(c)   Overflow and Non-overflow dams
(d)   Low gravity dam and High gravity dam.

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