C 56408 (Pages : 2) Name.....

Reg. No.....

SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION JUNE 2009

CE 04 702—DESIGN OF HYDRAULIC STRUCTURES

(2004 admissions)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

I. (a) What are the methods adopted to reduce uplift in masonry dams ?

(b) What is meant by "Low dam" ?

(c) How does the practical profile of a low gravity dam differs from that of theoretical one and why ?

(d) Distinguish clearly between non-modular and semi-modular outlets. Give examples.

(e) How to select the location of site for a canal escape ?

(f) Describe with neat sketches the different types of canal escapes, that may be constructed on modern and projects.

(g) Under what conditions of drainage and canal crossings are syphons provided ?

(h) What are different types of cross drainage works that are necessary on a canal alignment.

(8 × 5 = 40 marks)

II. Design a regulator-cum road bridge with following data :

Canal upstream :

Full supply discharge	:	25 cumecs
Bed width	:	17 metres
Bed level	:	+ 30.00
Full supply depth	:	2.25 m
F.S.L.	:	+ 32.00
Top level of bank	:	+ 33.00
The right bank	:	5 m wide
Left bank	:	2 m wide

Canal D/S :

F.S.D.	:	21 cumecs
Bed width	:	17 metres
Bed level	:	+ 30.00
F.S. Depth	:	2.00 m
F.S.L.	:	+ 31.75
Top level of bank	:	+ 32.75 m

Turn over

Top width of banks are same as those one u./s side.

The regulator carries a roadway single lane designed for IRC loading class 'A'. Provide char free board of one meter above FSL for the road bridge.

Good foundation soil is available at + 29.00. Ground level at site + 32.00.

(30 marks)

Draw :

(i) Half sectional elevation. (10 marks)

(ii) Half plan at top and half at foundation. (10 marks)

(iii) Section through regulator vent. (10 marks)