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Name.....

Reg. No.....

SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2008

CE 04 702—DESIGN OF HYDRAULIC STRUCTURES

(2004 admissions)

Time : Three Hours

Maximum : 100 Marks

Answer **all** *questions.*

1. (a) Write short note on drainage galleries.
   (b) Discuss the evolution of final profile of a gravity dam.
   (c) What is meant by "the best central angle of an arch dam" and what is its value ?
   (d) What is an outlet ? Write down the requirement that an outlet should fulfill.
   (e) What is meant by "falls" and where are they loaded ?
   (f) Discuss briefly the components of various types of falls with neat sketches.
   (g) What is meant by a cross drainage work ?
   (h) Write short notes on :
      (i) Syphon.
      (ii) Super passage.

(8 × 5 = 40 marks)

2. Design a sluice taking off from a tank irrigating 200 hectares at 1000 duty. The tank bound with sluice has a top width of 3 m. and 2 : 1 side slopes.

   The top level of bank is + 50.00 and ground level at site is + 44.50. Good hard soil for foundation is available at + 43.50. The sill of sluice at off-take is + 44.00. the maximum water level in tank is + 48.00. The full tank level is + 47.00. Average low water level of the tank is + 45.00. The details of the channel below the sluice are as under :

Bed level	:	+ 44.00
FSL	:	+ 44.50
Bed width	:	1.35 m.

   Site slopes 1½ to 1 with top of bank at + 45.50.

   Design the vent way sluice barrel, R.C. slab, tower head, cistern.

(30 marks)

Draw : Longitudinal section, half plan at top and half at foundation, sections across barrel, section across wall.

(30 marks)