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06CV65

Sixth Semester B.E. Degree Examination, June-July 2009
Irrigation Engineering and Hydraulic Structures

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Explain Flow irrigation with the help of neat sketches. **(08 Marks)**

b. List the methods of irrigation and explain any three methods. **(12 Marks)**

2 a. Explain frequency of irrigation and irrigation efficiency. **(06 Marks)**

b. Define Duty, Delta and Base period. Derive an expression to establish relation between Duty, Delta and Base period. **(06 Marks)**

c. After how many days will you supply water to soil (clay loam) in order to ensure efficient irrigation of the given crop if :

i) Field capacity of soil is 27% ii) Permanent wilting point is 14%.

iii) Density of soil is 1.5 g/cc iv) Effective depth of root zone is 75cm

v) Daily consumptive use of water for the given crop is 11mm. **(08 Marks)**

3 a. What is a Canal? Explain general consideration for alignment of Canal. **(08 Marks)**

b. Design an irrigation channel to carry a discharge of 45 cumecs. Assume N = 0.0225 and M = 1. The channel has a bed slope of 0.16 metre per kilometer. Use Kennedy's theory and trial depth D as 1.8m. **(12 Marks)**

4 a. Explain the investigation for reservoir planning. **(06 Marks)**

b. Explain the zones of storage in a reservoir. **(06 Marks)**

c. Explain the procedure for determining storage capacity and yield of a reservoir using mass curve. **(08 Marks)**

PART – B

5 a. Define a Weir and Barrage with the help of a neat sketch. **(06 Marks)**

b. Explain Bligh's creep theory for the design of impervious floor of weir. **(06 Marks)**

Fig.Q5(c) shows the section of a hydraulic structure founded on sand. Calculate the average hydraulic gradient. Also, find the uplift pressures at points 6, 12 and 18 m from the u/s end of the floor and find the thickness of the floor at those points.

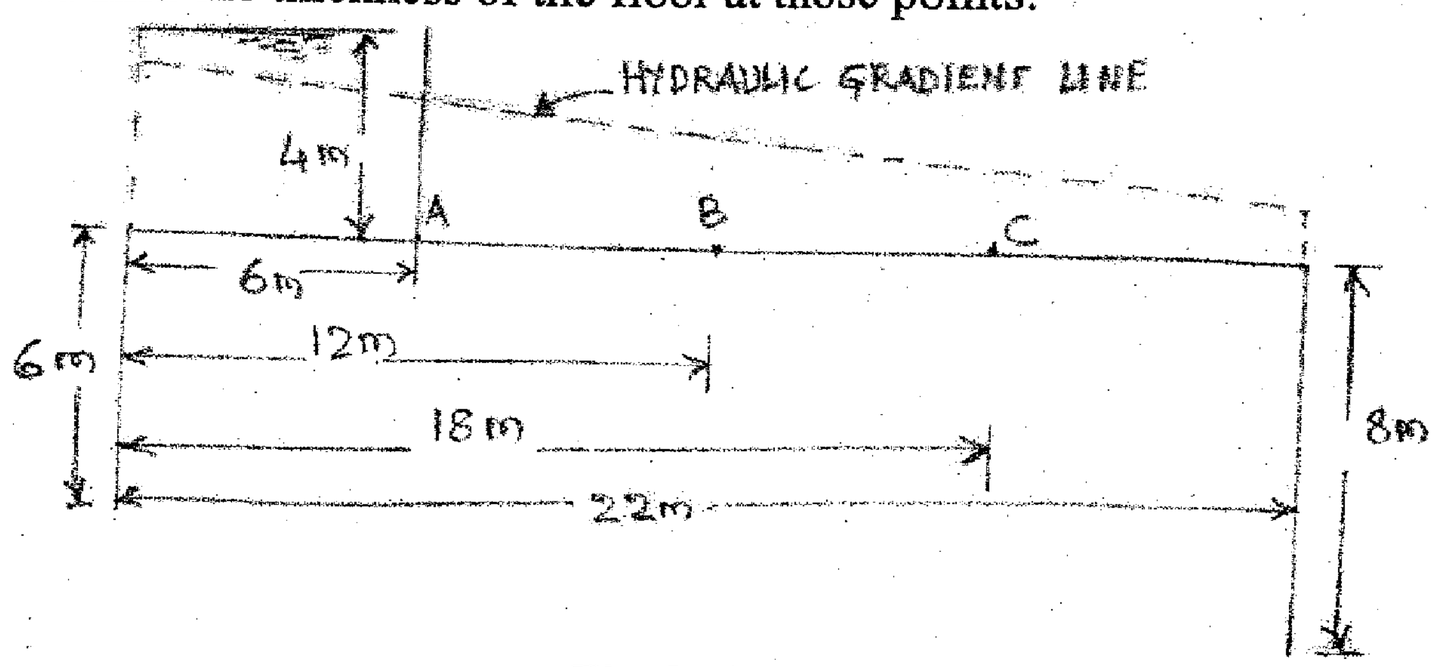

Fig.Q5(c) **(08 Marks)**

6 a. Discuss briefly forces acting on a gravity Dam with the help of a neat sketch. **(10 Marks)**
b. Explain the various modes of failure of gravity dam and mention their remedies. **(10 Marks)**

7 a. Explain with neat sketches different types of earth dams. **(10 Marks)**
b. Explain the causes of failure of earth dam. **(10 Marks)**

8 a. Define a spill way. Write neat sketches of different types of spillways. **(10 Marks)**
b. Explain an ogee spillway with a neat sketch. How it is designed? **(10 Marks)**

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