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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Sixth Semester, B.E. - Civil Engineering

Semester End Examination; June - 2016

Irrigation Engineering and Hydraulic Structures

Time: 3 hrs *Max. Marks: 100*

***Note**: i) Answer **FIVE** full questions, selecting **ONE** full question from each **unit**.*
ii) Missing data if any, may suitably assume.

UNIT - I

1 a. Define irrigation. Discuss in brief the benefits and ill effects of irrigation. 8

b. Discuss in brief various methods of Surface irrigation. Explain anyone with neat sketch. 6

c. Write a note on Sprinkler method of irrigation. 6

2 a. Define Duty, Delta, and Bare period. Obtain the relation between them. 8

b. Describe with the help of diagram various forms of soil moisture. What do you under strand by available moisture? 6

c. After how many days will you supply water to soil in order to ensure efficient irrigation of the given crop if ;

Field capacity of soil = 27% , Permanent wilting point = 14%, Density of soil = 1.5 g/cm^3

Effective root zone depth = 75 cm

Daily Consumptive use of water for given crop =11 mm 6

UNIT - II

3 a. What is a canal? Explain with classification of canals based on nature of source on function and based on alignment. 6

b. Explain various considerations for alignment of a canal. 6

c. Design an irrigation channel to carry a discharge of 45 cusecs. Assume N = 0.0225, m = 1.0. The Canal has a bed slope of 0.16 metre per kilometer. Adopt Kennedy's theory. 8

4 a. What do you understand by Balancing depth? 6

b. Describe with the help of sketches :

(i) Aqueduct

(ii) Super Passage 8

c. What is canal lining? What are its advantages? 6

UNIT - III

5 a. Describe in brief various investigations required for reservoir planning. 8

b. Explain various Zones of storage in a reservoir with sketch. 6

c. What are the factors on which the selection of the bite of a reservoir depends? 6

Contd…2

6	a.	What do you understand by mass inflow curve and how is it prepared?	6
	b.	Write a note on Reservoir sedimentation. Discuss various methods of reservoir sediment control.	8
	c.	Explain how you would determine safe yield from a reservoir of a given capacity?	6

UNIT - IV

7	a.	What is meant by gravity dam? Explain various forces that act on a gravity dam.	8
	b.	Distinguish clearly between low gravity dam and high gravity dam. Derive an expression used for such distinction.	8
	c.	What do you understand by elementary profile of a gravity dam?	4
8	a.	Enumerate the different types of spill ways which are used in dam construction.	8
	b.	Discuss in brief various modes of failure of gravity dam.	6
	c.	What is meant by stilling basins? With a neat sketch explain stilling basic type-I.	6

UNIT - V

9	a.	Explain with the help of a sketch, the components of a zoned embankment dam, with their functions.	6
	b.	Explain with neat sketch surplus escape weirs.	6
	c.	Explain with a neat sketch explain various kinds of drains.	8
10	a.	Discuss in brief the causes of failure of earth dams.	6
	b.	Define tank irrigation. Differentiate between isolated and group of tanks.	8
	c.	Explain the method of seepage control through earth dam.	6

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