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

(An Autonomous Institution affiliated to VTU, Belgaum)

Fifth Semester, B.E. - Civil Engineering

Semester End Examination; Dec. - 2014

Irrigation Engineering and Hydraulic Structures

Time: 3 hrs *Max. Marks: 100*

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

PART - A

1. a. Discuss in brief various methods of surface irrigation. 10

   b. Discuss briefly about advantages and disadvantages of Drip irrigation. 10

2. a. Write a note on irrigation efficiencies. 12

   b. A water course has a culturable commanded area of 1200 hectares. The intensity of irrigation for crop A is 40% and for B is 35% both the crops being Rabi crops. Crop A has a K or period of 20 days and Crop B has K or period of 15 days. Calculate discharge of the water course it if the depth for crop A is 100 mm and for B is 160 mm. 8

3. a. Design an irrigation channel to carry a discharge of 45 m^3/s. Assume N = 0.0225 and m = 1 and channel bad slope = 0.16 m per km. Use Kenndy's theory. 10

   b. With neat sketches, write a note on different types of crops, drainage works based on relative levels of Canal and drainages. 10

4. a. Write a note on points to be considered for selection of reservoir site. 10

   b. Explain in detail mass curve with neat sketches. Also, explain how the storage capacity of a reservoir can be fixed for a known demand. 10

PART - B

5. a. With a neat sketch, explain the component parts of a Diversion Head works. 14

   b. Write a note on limitations of Bligh's theory. 6

6. a. Write a neat sketch, list out and explain forces acting on a gravity dam. 10

   b. Design and sketch the practical profile of a Gravity dam of stone masonry given.
   R-L of base of dam =1450 m; R-L of HFL = 1480.5 m
   Sp. Gravity of Masonry=2.4; Safe compressive stress = 1200 kN/m^3, Height of waves = 1 m. 10

7. a. Discuss the causes of failure of earth dams with sketches. 12

   b. Discuss about downstream drainage system with sketches. 8

8. a. List the important types of spillways and explain any one of them with a neat sketch. 10

   b. With a neat sketch, explain the necessity and functioning of 15 stilling basins. 10

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