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Total Number of Pages: 2

B.TECH
PCCI4305

6th Semester Regular / Back Examination 2016-17
IRRIGATION ENGINEERING

BRANCH: CIVIL

Time: 3 Hours

Max Marks: 70

Q.CODE: Z181

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

- Q1 Answer the following questions: (2 x 10)**
- a) Name the factors affecting water requirements of crop.
 - b) What is the difference between contour canal and contour farming?
 - c) Draw a cross-section of a canal partly in filling and partly in cutting.
 - d) Define water application efficiency.
 - e) Define the term “soil moisture deficiency”.
 - f) The focus of base parabola for a dam having a horizontal drainage filter is at a distance of?
 - g) List various types of canal falls.
 - h) What are the main objects of diversion head works?
 - i) The maximum possible height of a safe dam having an elementary profile is?
 - j) What are the causes of failure of earth dam?
- Q2 a) What is meant by the duty of canal water? Obtain an expression for duty in terms of water depth. (5)**
- b) The maximum discharge available at an outlet of an irrigation channel is 1.33 m³/s. The culturable command area for the outlet is 8000 ha. What percentage of this area can be irrigated for wheat if the kor period is 3 weeks and kor water depth is 13.5 cm? (5)**
- Q3 a) Design a suitable channel for carrying a discharge of 30 m³/s using Lacey’s method assuming silt factor equal to 1. (6)**
- b) What are the general considerations necessary for canal alignment? How are channels classified according to alignment? (4)**
- Q4 a) What is super-passage? Draw a neat sketch and explain in brief the design procedure. (5)**
- b) What is meant by water logging? What are its ill effects? Describe some anti logging measures with neat sketches. (5)**

- Q5** a) Differentiate between Bligh's creep theory and Khoslas method for the analysis of seepage below hydraulic structure. (5)
- b) Draw a neat layout of diversion weir and explain the function of each one of its components. (5)
- Q6** a) Sketch a zone embankment type earthen dam and indicate how phreatic line is determined for such a section. (5)
- b) Explain the main causes of failure of a gravity dam. (5)
- Q7** a) Describe step by step method of designing a high gravity dam. (5)
- b) What is a siphon spillway? Sketch a saddle siphon spillway and explain the functions of its various component parts. (5)
- Q8** Write short notes on any two of the following: (5 x 2)
- a) Quality of irrigation water
- b) Reclamation of saline and alkaline land
- c) Estimation of consumptive use of water by climatic approaches
- d) Seepage control in earth dam