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Total Number of Pages : 02

B.Tech.
PCCI4305

6th Semester Back Examination 2017-18

IRRIGATION ENGINEERING

BRANCH : CIVIL

Time : 3 Hours

Max Marks : 70

Q.CODE : C331

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) What do you mean by delta of a crop?
 - b) What is consumptive use of water?
 - c) What do you mean by watershed canal?
 - d) List various types of canal falls.
 - e) What is field capacity?
 - f) Write the advantages of canal lining.
 - g) Name the forces acting on a gravity dam.
 - h) What are the function of fish ladder in a diversion head works?
 - i) What are the disadvantages of water logging?
 - j) What are the causes of failure of earthen dam?
- Q2. a) What are the various methods available for irrigation? Discuss them with the help of neat sketches. (4)**
- b) The GCA for an irrigation channel is 5500 hectares and 70% of this area is culturable irrigable. The intensity of irrigation for Rabi crops is 45% and that for Kharif crops is 30%. Compute the required discharge if the duty at the head of the channel be 1800 he cares/cumecs and 800 hectares/cumecs for Rabi and Kharif crops respectively. (6)**
- Q3. a) Design an irrigation channel to carry a discharge of 20 m³/s . Take silt factor as 1.2. Use Lacey's theory. (7)**
- b) Draw neat cross sections of a canal in (i) Cutting (ii) Filling (iii) Partial cutting. (3)**
- Q4. a) There are three different types of aqueducts which can be constructed depending upon the size of the drainage to be passed below the canal. Discuss them with sketches. What are the factors which govern the choice of any of these three types of aqueducts? (6)**
- b) Discuss various methods of reclamation of saline and alkaline lands. (4)**
- Q5. a) Give classification of weirs. What are the various types of weirs? Draw their neat sketches. (6)**
- b) Differentiate between Bligh's creep theory and Khoslas method for the analysis of seepage below hydraulic structure. (4)**

- Q6.** a) What is meant by falls? What are criterion for their location? (4)
b) What are the different ways by which a concrete gravity dam may fail? How will you ensure its safety against each type of failure? (6)
- Q7.** a) Describe with the help of neat sketch, the components of a zoned embankment dam, along with their functions. (5)
b) Draw a neat sketch of a Ogee spillway and discuss its design criteria. (5)
- Q8.** Write short notes on any TWO of the following : (5 x 2)
a) Irrigation efficiencies
b) Sub surface drainage
c) Design of high dam
d) Garret's diagram