Registration No :

Total Number of Pages : 02

B.Tech
PCCI4305

6th Semester Back Examination 2018-19
IRRIGATION ENGINEERING
BRANCH : CIVIL
Time : 3 Hours
Max Marks : 70
Q.CODE : F389
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)   Define Delta and Duty. Write the relation between Delta and Duty.
- b)   What do you understand by 'Paleo-Irrigation' and 'Kor watering'?
- c)   What is the use of Garret's Diagram?
- d)   Determine silt factor if the mean diameter of silt particle is 3.3 cm.
- e)   What are the functions of envelope filter placed surrounding tile drains?
- f)   State the types of cross drainage works.
- g)   How do you differentiate Bligh creep length and Lane creep length?
- h)   What are the modes of failure probably happen in case of gravity dam?
- i)   How does the seepage failure occur?
- j)   Draw a neat sketch of Ooge spillway and Drop spillway.

Q2   a)   Explain the factors affecting duty.   (5)
   b)   The gross command are of an irrigation project is 2 lakh hectars, where 7,500 hectares are unculturable. The area of Kharif crop is 60,000 hectares and Rabi crop is 40,000 hectares. The duty of Kharif is 3000 hectares/cumec and the duty of Rabi crop is 4000 hectares/cumec. Calculate: (i) The design discharge of channel assuming 10% transmission loss, (ii) Intensity of irrigation for Kharif and Rabi.   (5)

Q3   a)   Find the section and maximum discharge of a channel using following data: Bed slope = 1 in 5000, Lacy's silt factor = 1.1 and side slope is 1:1.5.   (5)
   b)   Design a lined canal to carry a discharge of 70 cumec. Bed slope is 1 in 5000, manning's coefficient = 0.0225, side slope = 1:1.   (5)

Q4   a)   What are the causes of water logging? Describe the methods of controlling water logging.   (5)
   b)   Draw a neat sketch of layout of a typical diversion structure and show its features. Also explain briefly their functions.   (5)

Q5   a)   Illustrate the concept of Bligh's Creep Theory. Explain the improvement in Lane's theory.   (5)
   b)   Explain Khosla's theory and concept of flownet.   (5)

Q6 Examine the stability of a gravity dam with the dimensions shown in the figure for over turning considering only the following loads. (1) Weight of the dam, (2) Static water pressure, (3) Silt pressure and (4) Uplift pressure. Assume any other data required. **(10)**

Data of the dam:
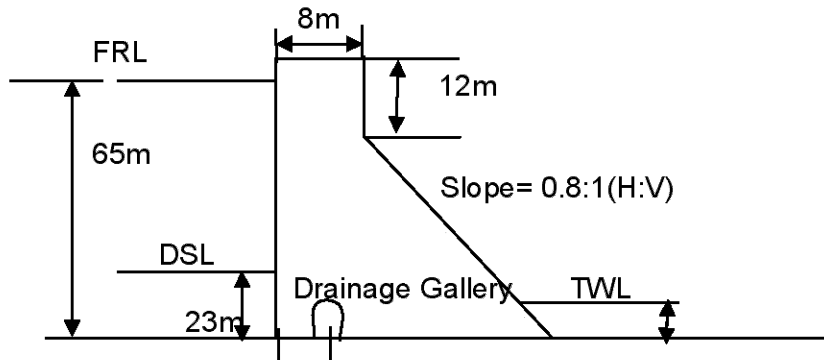
Q7 What is a spillway? Describe various types spillways provided in the dams. **(10)**

Q8 Write short notes on any TWO : **(5 x 2)**
a) Advantages of sprinkler irrigation
b) Advantages and Disadvantages of lining the irrigation canal
c) Causes of failure of earth dams