Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CE) (2011 Onwards) (Sem.–7,8)

IRRIGATION ENGINEERING-II

Subject Code : BTCE-803

Paper ID : [A2958]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

SECTION-A

1. Write briefly :

a) What is the function of fish ladder?

b) Distinguish between scouring sluices and head sluices.

c) What do you understand by critical exit gradient?

d) List the various types of energy dissipaters that are used for energy dissipation below over flow spillways.

e) Write the necessity of a Distributary head regulator.

f) What are canal falls?

g) Under what circumstances you will recommended the use of aqueduct?

h) Name the different types of cross drainage works.

i) Name the component part of the barrage.

j) Distinguish between montague fall and inglis fall.

SECTION-B

2 Briefly explain the salient features of Khosla's theory and Lane's weighted creep theory.

3 Draw a neat layout of diversion head works and indicate the various components of the system briefly indicate function of each.

4 What is meant by "canal escape"? How do they help in protecting the adjoining areas against flooding due to some breach in the canal embankment?

5 Discuss briefly the components of various types of falls.

6 Write short note on syphon, superpassage, and siphon aqueduct.

SECTION-C

7 An impervious floor of a weir on permeable soil is 16 m long and sheet piles at both ends. The upstream pile is 4m deep and the downstream pile is 5 m deep. The weir creates a net head of 2.5 m. Neglecting the thickness of the weir floor, calculate the uplift pressures at the junction of the inner faces of the pile with the weir floor, by using khosla's theory.

8 Design a straight flumed meter glacis fall with the following data :

a) Full supply discharge of the canal = 120 cumecs

b) Bed level of the canal upstream = 107.5 m

c) Bed level of the canal downstream= 106 m

d) Drop (H_L) = 1.5 m

e) FSL of the canal upstream = 109.7 m

f) FSL of the canal downstream = 108.2

g) Bed width of the canal u/s and d/s = 60 m

h) Safe exit gradient for canal material = 1/5.5.

9 Design a siphon aqueduct if the following data at the crossing of a canal and a drainage are given :

a) Discharge of canal = 40 cumecs

b) Bed width of canal = 30 m

c) Full supply depth of canal = 1.6 m

d) Bed level of canal = 206.4 m

e) Side slope of canal = $1_{1/2}$H : 1V.

f) High flood discharge of drainage = 450 cumecs

g) High flood level of drainage = 207 m

h) Bed level of drainage = 204.5 m

i) General ground level = 206.5 m