Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐

Total No. of Questions: 09   Total No. of Pages: 02

B. Tech. (CE) (Sem. 7, 8)
IRRIGATION ENGINEERING-II
Subject Code: BTCE-803
Paper ID: A2958

Time: 3 Hrs.   Max. Marks: 60

INSTRUCTIONS 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 have to attempt any FOUR questions.**

3.   **Section C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION A

1.

a)   If the average bed level of river is RL 257.0 m and velocity head is 7.2 m, what will be RL of total energy line?

b)   What is the function of divide wall in a diversion weir?

c)   If the specific gravity of sand is 2.65 and porosity is 0.4, calculate the value of critical exit gradient.

d)   What are the functions of canal head regulator?

e)   Differentiate between weir and barrage.

f)   Write the expression to determine the length of cistern in Sarada type fall?

g)   Write the examples of flexible module.

h)   What is the function of cross regulator?

i)   Differentiate between aqueduct and siphon aqueduct.

j)   What is the function of deflector wall in canal fall?

SECTION B

2.   How does Lane's theory differ from Bligh's creep theory?

3.   What are the functions of inverted filter provided downstream to weir? What is the design criteria adopted for the designing of inverted filter?

4.   Define flexibility and sensitivity of a module. Derive the relationship between them.

5. Differentiate between weir type and regulator type of canal escape with neat sketch.

6. What is Montague's curve? How the Montague's curve is used for designing of weir?

SECTION C

7. How Mitra's method is used for design of channel transition in design of cross drainage works. Derive the expression to determine the channel with the at any section using Mitra's method.

8. Calculate uplift pressure and thickness of floor for a 1.5 meter Sarada type fall. The canal carrying a discharge of 60 cusecs with the following data:

Bed level upstream	= 112.0 m
Bed level downstream	= 109.5 m
Side slopes of channel	= 1:1
Full supply level upstream	= 114.0 m
Full supply level downstream	= 111.5 m
Berm level upstream	= 114.3 m
Bed width upstream and downstream	= 35 m
Safe exit gradient for Khosla's theory	= 1/5

9. Where the silt extractor is provided in construction of a barrage? Write its principle of functioning with neat sketch.