

Roll No.

OLE-24514

B. Tech. 7th Semester (Civil) Examination – April, 2021

IRRIGATION ENGG.-II

Paper : CE-407-F

Time : Three hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Section. Question No. 1 is *compulsory*.

1. (i) Guide bank
- (ii) Flood routing
- (iii) Aqueducts
- (iv) Ogee spillway
- (v) Stilling basin

5 × 4 = 20

SECTION – A

2. A weir with a vertical drop has the following particulars :

Nature of bed : coarse sand with the value of blingh's
C = 12

Flood discharge	= 400 cumecs
Length of weir	= 40 m
Height of weir above low water	= 2 m
Height of falling shutter	= 0.6 m
Top width of weir	= 3.0 m
Bottom width of weir	= 4.5 m

Design the length and thickness of aprons and draw the cross-section of the weir. 20

- 3.** The following hydraulic data pertains to a bridge site of a river :

Maximum discharge	= 6,000 cumecs
Highest flood level	= 104.00 m
River bed level	= 100.00 m
Avg. diameter of a river bed material	= 0.10 m

Design and sketch Guide banks including the launching apron to train the river. Assume plentiful availability of boulders near the site. 20

SECTION – B

- 4.** What is the meaning of flood routing and explain different methods of flood routing in details? 20
- 5.** Explain design steps of syphon aqueduct. 20

SECTION – C

6. Design a 1.5 m Sarda type fall for a canal having a discharge of 12 cumecs with the following data :

Bed level u/s	=	100.0 m	
Side slopes of channel	=	1:1 m	
Bed level d/s	=	101.5 m	
Full supply level u/s	=	105.0 m	
Bed width u/s and d/s	=	10 m	
Soil	=	Good loam	
Assume Blingh's Coefficient	=	6	20

7. What are the methods of plotting seepage line in a homogeneous earth dam on impermeable foundation with horizontal drainage, explain in details ? 20

SECTION – D

8. Explain design steps of an Ogee spillway. 20
9. Write short notes on : 20
- (i) Earthen dams
 - (ii) Aqueducts
 - (iii) Spillways
 - (iv) Inlets and Outlets
-