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R15

Code: 5G681

IV B.Tech. II Semester Supplementary Examinations July 2021

Design and Drawing of Irrigation Structures

(Civil Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any **ONE** question
All Questions carry equal marks

1. Design and draw of a canal regulator cum road bridge with the following data. The right bank is 5 m wide and left bank is 2 m wide on both sides. Good foundations are available at +19.00. Assume the ground level at the site as +22.00

Description	Up-stream	Down-stream
Full supply discharge	40 Cumec	35 cumec
Bed width	18 m	18 m
Bed level	+20.00	+20.00
Full supply depth	4 m	3.5 m
Full supply level	+24.00	+23.50
Top level of bank	+25.00	+24.50

OR

2. Design a Tank sluice with a tower head taking off from a tank irrigating 225 Hectares at 1050 Hectares/ Cumec duty. Conveyance losses are 15%. The tank bund through the sluice is taking off has a top width of 2.2m with 1.5H: 1.0V side slopes. The top bund level of bund is +80.00, G.L at site= +74.50, Hard soil for foundation is available at +73.50.

The sill of the sluice at take off is +74.00, Maximum water level in the tank=+78.00, Full tank level=+77.00, average low water level=+75.00.

The details of the channel below the sluice are:

Bed level=+74.00, FSL=+74.6, free board=0.6m, bed width=1.20m, side slopes = 1.5H:1.0V with top of bank at +75.00. Top width= 1.0m.

Draw to a suitable scale:

- (i) Section of embankment showing all the details
- (ii) Half plan at top & Half plan at foundation
- (iii) U/S end view Half in section & Half in elevation
