

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM****IV B. Tech I Semester Advanced Supplementary Examinations March 2025****DESIGN AND DRAWING OF IRRIGATION STRUCTURES****(Civil Engineering)**

Time: 3 hours

Max. Marks: 70

Answer any **ONE** Question from **TWO** Questions

All Questions Carry Equal Marks

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1. **Design a canal drop of 2 meters with the following data** 70M

<b>Hydraulic Particulars of The Canal</b>	<b>Above Drop</b>	<b>Below Drop</b>	
Full supply discharge	4 m <sup>3</sup> /s	4 m <sup>3</sup> /s	
Bed width	6.00 m	6.00 m	[20M
Bed level	+10.00	+8.00	+
Full supply depth	1.5 m	1.5 m	
F.S.L	+11.50	+9.50	
Top of bank 2 m wide at level	+12.50	+10.50	
Half supply depth	1.00 m		
Good soil is available for foundations at +8.50.			

15 M+

**Draw to a suitable scale to the following**

20 M+

**a. Profile of drop wall**

15 M]

**b. Horizontal floor of the cushion****c. U/S and D/S wing wall****(OR)**

2. A sluice from an irrigation tank serves 350 hectares at 1200 duty. The tank details and sluice details are given below. Assume any missing data suitably. 70M

**Design tank sluice with tower head.**

[30M+

Top width of the tank bund	2.00 m
Full water level	+37.00
Maximum water level	+38.00
Top level of bund	+40.00
Ground level at site	+35.00
The sill level of sluice	+34.00
The channel bed level	+34.00
Full supply depth in channel	60 cm
Bed width of the channel	1.50 m
Top level of side banks	+36.00
Side slopes of banks	1.5:1

Assume any suitable value if missing

**Draw to a suitable scale to the following****a. Draw the plan view of the tank, sluice, and channel layout showing relative positions.** 20 M+**b. Draw the longitudinal section (elevation) of the sluice and channel.** 20 M]

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