

Code No: **R41012**

**R10**

**Set No. 1**

**IV B.Tech I Semester Regular/Supplementary Examinations, Nov/Dec - 2015**

**DESIGN AND DRAWING OF IRRIGATION STRUCTURES**

**(Civil Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Note: Answer any ONE of the following two questions**

**Assume any other data if required**

**Khosla curves are allowed**

**\*\*\*\*\***

1. Design a surplus weir for an irrigation tank with the following particulars. Draw suitable and appropriate views on drawing sheet.

Flood to be discharged from tank :  $80 \text{ m}^3$   
Full water level in the tank : +12.00 m  
Maximum water level in the tank : +12.75 m  
The general ground level : +11.00 m  
Top width of the tank bund : 1.8 m  
Top level of the tank bund : + 14.50  
Slopes of the bund on either sides : 2:1  
Assume any additional data if required, suitably.

**(OR)**

2. Design and draw a trapezoidal notch fall for a canal system with the following details. Any missing data may suitably assumed.

Full supply discharge :  $62.5 \text{ m}^3/\text{sec}$  (US/DS)  
Full supply level : 240m US / 238m DS  
Full supply depth : 2.0m(US/DS)  
Bed width : 18 m(US/DS)  
Bed level : 238m US/236m DS  
Drop : 2m

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**Set No. 2**

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**DESIGN AND DRAWING OF IRRIGATION STRUCTURES**  
**(Civil Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Note: Answer any ONE of the following two questions**

**Assume any other data if required**

**Khosla curves are allowed**

**\*\*\*\*\***

1. The details of a canal regulator are given below. Design the regulator and draw important views on a separate drawing sheet

Flow in Main canal	: 90 cumecs
Flow in distributor	: 20 cumecs
FSL of Main canal	: 218m US / 217.80 DS
Bed width of main canal	: 40m US /38m DS
Depth of water in main canal	: 2.5m US/2.5m DS
Depth of water in distributor	: 1.5m
Bed width of distributor	: 15m
FSL of distributor	: 217m

**(OR)**

2. Define a syphon aqueduct. Design a syphon aqueduct type III for the data given below. Draw important views on a separate drawing sheet.

***Canal***

Discharge of the canal	: 42 cumecs
Bed width of canal	: 20 m
Depth of water in canal	: 1.5m
Bed level of canal	: 160m

***Drainage***

Flood discharge	: 200 cumecs
High flood level	: 160.5 m
Bed level of drainage	: 158m
General ground level	: 160m



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**Set No. 3**

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**DESIGN AND DRAWING OF IRRIGATION STRUCTURES**

**(Civil Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Note: Answer any ONE of the following two questions**

**Assume any other data if required**

**Khosla curves are allowed**

**\*\*\*\*\***

1. 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.

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

Design tank sluice with tower head and draw important views.

**(OR)**

2. Design a trapezoidal notch fall for the following data. Assume important missing data. Draw the important views on a drawing sheet

Full supply discharge	: 20 m <sup>3</sup> /sec (US/DS)
Full supply level	: 101m US/100m DS
Full supply depth	: 2 m US/ 2 m DS
Bed width	: 10m US/10m DS
Bed level	: 99 m US / 98 m D/S
Drop	: 1m



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**Set No.4**

**IV B.Tech I Semester Regular/Supplementary Examinations, Nov/Dec - 2015**

**DESIGN AND DRAWING OF IRRIGATION STRUCTURES**

**(Civil Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Note: Answer any ONE of the following two questions**

**Assume any other data if required**

**Khosla curves are allowed**

**\*\*\*\*\***

1. Design a canal regulator for the following data. Draw important views on a separate drawing sheet

Discharge of parent channel	: 120 m <sup>3</sup> /sec
Discharge in distributor	: 30 m <sup>3</sup> /sec
FSL of parent channel	: 218m US / 217.80 DS
Bed width of parent channel	: 52m US /49 m DS
Depth of water in parent channel	: 2.5m US/2.5m DS
Depth of water in distributor	: 1.5m
Bed width of distributor	: 15m
FSL of distributor	: 217m

**(OR)**

2. Design a Type III siphon aqueduct for the data given below. Draw important views on a separate drawing sheet.

Assume any missing data suitably

Discharge of the canal	: 60 cumecs
Bed width of canal	: 20 m
Depth of water in canal	: 2m
Bed level of canal	: 160m
Flood discharge	: 320 cumecs
High flood level	: 161.5 m
Bed level of drainage	: 158m
General ground level	: 160m

