

Code No: **R41012****R10****Set No. 1**

**IV B.Tech I Semester Supplementary Examinations, March/April - 2016**  
**DESIGN AND DRAWING OF IRRIGATION STRUCTURES**  
**(Civil Engineering)**

**Time: 3 hours****Max. Marks: 75****Answer any ONE Question****Assume any other data****Khosla's curves are allowed**

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- 1 Design and draw plan and elevation to a suitable of a regulator cum road bridge with the following data.

- a) Hydraulic particulars of the canal on the upstream

Full supply discharge: 20 cumecs

Bed width: 15m

Bed level: +100m

Full supply depth: 2m

F.S.L. : +102 m

Top level of Bank: +103m

The right bank is 5m wide and left bank is 2.5 m wide.

- b) Hydraulic particulars of canal on the downstream.

Full supply discharge: 18 cumecs

Bed Level : +100 m

Bed width: 15 m

Full supply depth: 1.75m

FSL: 101.75m

Top of the bank: 102.75 m

Upstream top widths of the bank are maintained as it is, for downstream also.

The regulator should also provide single lane road bridge connecting both sides of the canal and is to be designed as per IRC class A loading.

The free board shall be one meter above FSL for road bridge.

**(OR)**

- 2 Design draw plan and elevation to a suitable scale the surplus work for a tank which is part of network of tanks. The combined catchment is 40sq.km and the intercepted is 25 sq.km.

Water shall be stored upto +100m and foreshore submergence shall not exceed +102.50, Ground level at the proposed site is +99m and it slopes down to +97.5 in a distance of 8m. The top width of the tank bund is 3.5m at an elevation of 104.00. The bund shall have 2.5:1 slope on either side and permissible saturation gradient is 4:1 with a cover of 1m. The foundations are gravelly type @ +97.5m. You can assume any other data aptly. (Assume Ryve's coefficient C as 9 and modified coefficient c as 1.50).