

Roll No.

24379

**B. Tech. (Civil) 6th Semester
Examination – May, 2015**

IRRIGATION ENGINEERING - I

Paper : CE-304-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**. All questions carry equal marks. Assume missing data, if any, suitably.

1. Explain the following: 20
- (a) Straight Glacis fall
 - (b) Devices to control entry of silt
 - (c) Canal siphon and level crossing
 - (d) Importance of cross drainage works in canal project
 - (e) Classification of dams

24379-4450-(P-4)(Q-9)(15)

P. T. O.

- (f) Cutoffs and drainage galleries
- (g) Stiling basins
- (h) Radial gates

SECTION – A

2. (a) What do you mean by canal fall ? Describe in detail the necessity and location of canal fall. 10
- (b) Describe in detail the design of cistern element. 10
3. (a) What do you understand by canal escape ? Describe the different types of canal escapes with neat diagram. 10
- (b) What do you mean by head regulator? Explain the functions of head regulator and cross regulator in detail. 10

SECTION – B

4. Design a siphon aqueduct with the following data : 20
- Discharge of canal = 56 cumecs
- Bed width of canal = 32 m
- Canal depth = 1.98 m
- Bed level of canal = 267.00 m
- High flood discharge of the drainage = 425 cumecs
- Bed level of the drainage = 265.50 m
- HFL of the drainage = 268.20 m
- General ground level = 267.20 m

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5. (a) Draw a neat layout plan of diversion canal head works. Briefly describe the various components of the system and their functions. 10
- (b) Explain the salient features of Khosla's theory. How it is used in the design of permeable foundations ? Describe briefly. 10

SECTION - C

6. (a) Explain and elaborate the importance of seepage through earthen dam. What precautions should be taken to control the seepage ? 10
- (b) What are the different types of arch dams ? Describe briefly. Also explain the advantages and disadvantages of arch dams. 10
7. (a) What do you mean by elementary profile of a gravity dam ? Differentiate between low gravity dam and high gravity dam. 10
- (b) Design the practical profile of a gravity dam of stone masonry with the following data : 10

R.L. HFL = 1280 m

RL of base of dam = 1250 m

Specific gravity of masonry = 2.4

Safe compressive for masonry of dam = 120 t/m^2 10

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P. T. O.

SECTION – D

8. What do you mean by spillway capacity ? Describe the different types of spillways along with their suitability. 20
9. (a) What do you mean by stilling basin ? Explain I.S. stilling basin in detail. 10
- (b) Discuss various methods used for energy dissipation below spillways. 10
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