SECTION – D

8. What are the essential requirements of a spillway ? Describe the different types of spillways in detail. 20

9. (a) Discuss various methods used for energy dissipation below spillways. 10

(b) Explain the design procedure for the standard stilling basin type I. 10

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B. Tech 6th Semester (Civil)

Examination – May, 2016

IRRIGATION ENGINEERING - I

Paper : CE-304-F

Time : Three Hours] *[Maximum Marks : 100*

Before answering the question, 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 : Question No. 1 is ***compulsory***. Attempt one question from each Section. All questions carry equal marks Assume missing data, if any, suitably

1. (a) Canal escape 20

(b) Cistern element in fall

(c) Differentiate between siphon and supepassage

(d) Classification of cross drainage works

(e) Modes of failure of gravity dam

(f) Constant angle arch dam

(g) Drum gates

(h) Functions of a spillway

SECTION – A

2. (a) What do you mean by canal fall ? Describe in detail the necessity and location of canal fall. 10

(b) Describe principal of design of Sarda type fall. What are its salient features ? 10

3. (a) Define silt ejector. Describe the different devices to control silt entry into the off-taking channel. 10

(b) What is roughening device ? Explain the design of different roughening devices. 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

5. (a) Explain Khosla's method of independent variables. Also describe the different corrections applied in this method. 10

(b) Explain Bligh's Creep theory for design of weirs on permeable foundations. 10

SECTION – C

6. (a) Explain the design principles for safe design of earth dam. 10

(b) What are the different types of dams ? What are the points to be considered for the selection of site for a dam ? 10

7. (a) Explain the method of plotting phreatic line for an earth dam with horizontal filter at the downstream. 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