4379

B. Tech. 6th Semester (Civil Engineering)

Examination, May–2013

IRRIGATION ENGG–I

Paper–CE-304-F

Time allowed : 3 hours] *[Maximum marks : 100*

Note: *Attempt five questions in all. Question No. 1 is compulsory and hence attempt one question from each Section. All questions carry equal marks. Assume any missing data wherever necessary.*

1. (a) What is the purpose of providing launching apron and how is it designed ?

(b) Differentiate between a weir and a barrage.

(c) Why a barrage is preferred to a weir in modern times ?

(d) What are canal falls and what are their design considerations ?

(e) What is a transition and what is its purpose ?

(f) Differentiate between aqueduct and super passage.

(g) Differentiate between Bligh's theory and Lane weighted creep theory.

(h) Why spillways are necessary ? 8×2½=20

P.T.O.

Section–A

2. (a) What is a canal fall ? Why is it necessary ?

(b) Name the different types of falls and state the suitability of their applications.

(c) Describe an Ogee fall with neat sketch.

6+6+8=20

3. (a) Distinguish between cross regulator and head regulator.

(b) What is meant by cross drainage works ? Explain its necessity.

(c) Explain the 'level crossing' system with neat sketch.

6+7+7=20

Section–B

4. (a) Distinguish between following : 5+5=10

(i) Aqueduct and syphon aqueduct

(ii) Super passage and syphon super passage.

(b) Explain Bligh's creep theory for design of weirs on permeable foundations. How is Khosla's theory an improvement on it? 10

5. (a) What are the causes of failures of weirs ? Suggest the remedies. 8

(b) Short notes be written on :

(i) Silt ejector

(ii) Silt excluder

(iii) Canahal escapes. 12

Section–C

6. What are the causes of failure of earth dams ? Explain with sketches. What precautions would you take in the design and construction to guard against each failure ? 20

7. Name the forces acting on a gravity dam. Enumerate any four with sketches. Distinguish between elementary profile and practical profile and also explain how dam is classified as low dam and high dam. 20

Section–D

8. (a) Why spillway is provided in a dam ? Distinguish between drop spillway and ogee spillway.

(b) Describe volume syphon spillway with a neat sketch. 10+10=20

9. (a) For a reservoir project what are the factors upon which the requirement of spillway project depends.

(b) How will you classify spillways ? Name all and explain any two types. 12+8=12