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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CE) (Sem.-7,8)

IRRIGATION ENGG.-II

Subject Code : CE-410

Paper ID : [A0628]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. SECTION-C contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A**1) Write briefly :**

- a) What is meant by 'piping' on foundation of a weir?
- b) What do you understand by exit gradient?
- c) What are spillways?
- d) Differentiate between Bligh's theory and Lane weighted creep theory.
- e) Differentiate between aqueduct and super passage.
- f) What is a transition and what is its purpose?
- g) What are the essential requirements of a good canal outlet?
- h) Define streamlines and equipotential lines.
- i) What are modules?
- j) What is meant by falls?

SECTION-B

- 2) Write short note on 'Bligh's creep theory for seepage flow'.
- 3) Discuss briefly the components of various types of falls with neat sketches.
- 4) A river discharges $1000 \text{ m}^3/\text{s}$ of water at high flood level of RL 103.00m. A weir is constructed for flow diversion with a crest length of 255 m and total length of concrete floor as 40 m. The weir has to sustain the under seepage at a maximum static head of 2.4 m. Determine the depth of d/s cut off. Take silt factor = 1.1, Safe exit gradient = $1/6$, RL of d/s floor = 100.00 m.
- 5) What is a silt excluder? Explain with the help of a neat sketch.
- 6) In Khosla's method of independent variables, how would you apply corrections for thickness and slope of floor?

SECTION-C

- 7)
 - a) What is a rigid module? Explain the working of Gibb's rigid module.
 - b) Define the flexibility and sensitivity of an outlet. Derive a relationship between them.
- 8) Explain how will you determine the following in design of a siphon aqueduct :
 - a) Waterway of the drain and cross sectional area of the barrel.
 - b) Head loss through siphon barrel.
 - c) Uplift pressure due to seepage flow.
- 9) Design a 1.5 meters sharda type fall for a canal carrying a discharge of 40 cumecs with the following data :

Bed level U/S	= 105.0 m
Bed level d/s	= 103.5
Side slopes of channel	= 1:1
F.S.L. upstream	= 106.8
F.S.L. downstream	= 105.3
Berm level u/s	= 107.4
Bed width u/s and d/s	= 30 m
Safe exit gradient for Khosla's theory	= $1/5$