**SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR**

**ROLL No:** | | | | | | | | | | | | |

**Total number of pages:[2]**
**Total number of questions:06**

# B.Tech. || CE ||4$^{th}$Sem
# Irrigation Engineering
## Subject Code:BTCE-403A

**Paper ID:**

**Time allowed: 3 Hrs** **Max Marks: 60**

**Important Instructions:**

- **All questions are compulsory**
- **Assume any missing data .**

**PART A (2×10)**

Q. 1. Short-Answer Questions: All COs

(a)Define Irrigation.
(b)What are the Objectives of Irrigation?
(c)Explain Silt Regulation works.
(d)Differentiate between Weir and Barrage.
(e)What are essential requirements for good canal outlet?
(f)Differentiate between Aqueduct and Super Passage.
(g)Explain the different Regime conditions.
(h)What are Canal Regulators and their functions?
(i)Explain the term 'Canal Escapes'.
(j)Give the relation between duty and delta.

**PART B (8×5)**

Q. 2. What are the various methods of Irrigation? What are the merits and demerits of each? CO1

OR

Explain Furrow method and the Sprinkler method of irrigation. What are their advantages as compared to the free flooding method.

Q. 3. What are different types of Canal linings? Also explain the procedure for designing a lined channel. CO2

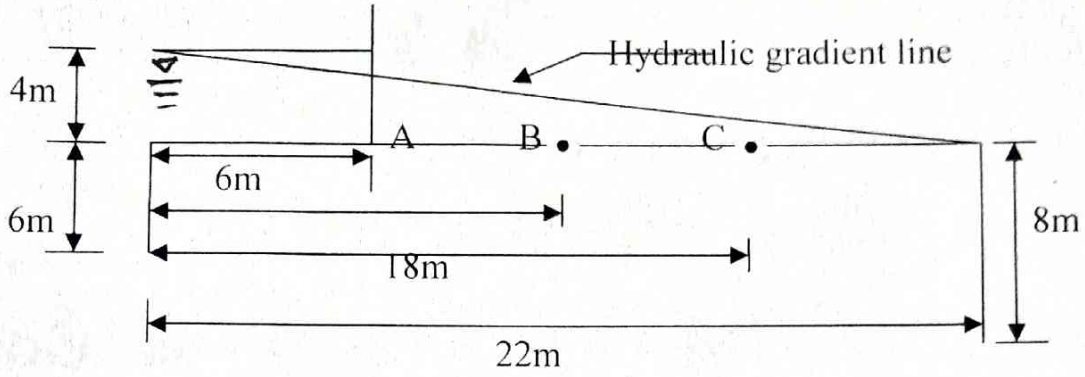
OR

Design a concrete lined trapezoidal channel to carry a discharge of 200 cumec at a slope of 1 in 5000. The side slopes of channel are 1:1 and Manning's coefficient of rugosity may be taken as 0.014. Assume the limiting velocity of channel as 2m/s.

Q. 4. Explain different Creep theories and also their drawbacks. CO3

OR

Figure shows the section of hydraulic structure formed on sand. Calculate the average hydraulic gradient. Also find the uplift pressures at points 6, 12 and 18m from the upstream end of the floor and find the thickness of floor at these points taking G=2.24




Q. 5. What is meant by River Training Works? What are its objectives? Also explain their different types in detail. CO4

OR

What are 'Modules' and What is their importance in irrigation system? Also describe the working of Gibb's module with diagram.

Q. 6. Describe with the help of sketches various types of cross drainage works. CO5

OR

Design a sarda type fall for the following data:
Full supply discharge U/S = 40 cumec
Full supply discharge D/S = 40 cumec
Full supply level U/S = 218.30m
Full supply level D/S = 216.80
Full supply depth U/S = 1.8m
Full supply depth D/S = 1.8m
Bed width U/S = 26m
Bed width D/S = 26m
Bed level U/S = 216.50m
Bed level D/S = 215.00m
Drop = 1.5m
Design the floor on Bligh's theory taking coefficient of creep = 8. Check the design by Khosla's theory and make changes if necessary. Safe exit gradient may be taken equal as 1/5.