

School: SOE	Level: BE	Invigilator's Sign:
Program: BCE	Year/Part: III/II	Superintendent's Sign:
Subject: Irrigation & Drainage Engineering		Code No.

- i. Answers should be given by filling the Multiple-Choice Questions' Answer Sheet.
ii. The main answer sheet can be used for rough work.

Code No.

GROUP A (Multiple-Choice Questions)	[10x1=10]	Time: 20 Minutes
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- Famous Sikta Irrigation Project (Banke) in which many higher officer of irrigation Department were suspended, was developed in
 - Intensive Development phase
 - Infrastructure Development phase
 - Integrated Development phase
 - Primary phase.
- Sugarcane is classified under
 - zaid crops
 - Rabi Crops
 - Kharif crops
 - (d) None of them.
- Critical Tractive force (to) for 18 mm diameter coarse gravel is given by Ew. Lane is
 - 3.18 kg/m²
 - 1.40 kg/m²
 - 1.22 kg/m²
 - 1.1 kg/m²
- The average diameter of particle size flowing in a river is 2.25mm, what will be the silt factor (f)?
 - 1.50
 - 2.50
 - 2.64
 - 2.74.
- Generally, No cross drainage works are required in one of the irrigation canal
 - side slope canal
 - watershed canal
 - contour canal
 - None of them.
- A weir founded on coarse sand has a height of 3 m. If Bligh's Coefficient for coarse sand is 12, then the minimum length of horizontal foundation to ensure safety against piping is
 - 4 m
 - 0.25 m
 - 36m
 - 15 m
- A canal drops are required when
 - The natural slope of the ground is almost horizontal
 - The natural slope of the ground is very steep.
 - The average velocity of water in canal exceeds the critical velocity.
 - The width of canal is 5 times the depth of the canal.
- Attracting spurs are built to protect the bank pointed towards
 - Upstream of the bank of River
 - Normal of the bank of River
 - Downstream of the Bank of River
 - Along the Bank of the River
- Cross Regulator are built in the main canal at
 - the perpendicular off taking canal
 - along the offtaking canal
 - U/s of offtaking Canal
 - D/s of Offtaking Canal
- Lacey's equation for the wetted perimeter (p) of the channel is equal to
 - $p=4.55\sqrt{Q}$
 - $p=4.65\sqrt{Q}$
 - $p=4.75\sqrt{Q}$
 - $p=4.95\sqrt{Q}$

Multiple Choice Questions' Answer Sheet

Marks Secured: _____

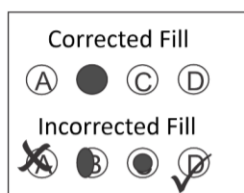
In Words: _____

Examiner's Sign: _____ Date: _____

Scrutinizer's Marks: _____

In Words: _____

Scrutinizer's Sign: _____ Date: _____



1. (A) (B) (C) (D)	6. (A) (B) (C) (D)
2. (A) (B) (C) (D)	7. (A) (B) (C) (D)
3. (A) (B) (C) (D)	8. (A) (B) (C) (D)
4. (A) (B) (C) (D)	9. (A) (B) (C) (D)
5. (A) (B) (C) (D)	10. (A) (B) (C) (D)

Manmohan Technical University
Office of the Controller of Examinations
Exam Year: 2082, Jestha (Model Question)

School: SOE	Level: BE	Time: 3 Hours
Program: BCE	Year/Part: III/II	Full Marks: 50
Subject: : Irrigation & Drainage Engineering		

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ The figures in the margin indicate **Full Marks**.
- ✓ Assume suitable data if necessary.

GROUP A (Multiple-Choice Questions in separate paper)

[10×1=10]

GROUP B (Short Answer Questions - Attempt Any Eight Questions)

[8×2=16]

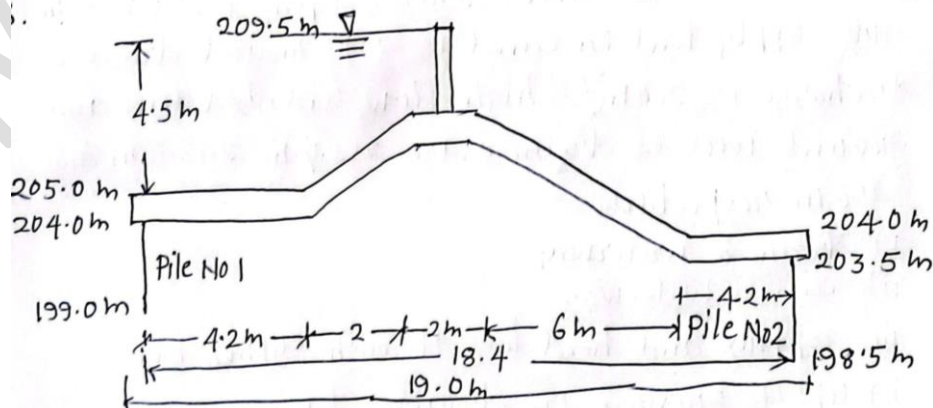
1. Define Field Capacity and permanent wilting Point.
2. Differentiate Between a Weir and Barrage.
3. If a farmer Has 500 Ha. of land, he cultivated rice in 400 ha, wheat in 300 ha, maize in 100 ha, Banana in 100 ha and vegetables in 50 ha, Calculate the cropping intensity.
4. Write down the different component parts of a head works.
5. What are the advantages of canal lining?
6. What are the causes of failure of weir on permeable Foundation.
7. Define a "Regime Channel."
8. What do you Mean by Participatory Irrigation Management?
9. What is crop Water Requirement?

6*4=24

GROUP C (Long Answer Questions - Attempt Any Six Questions)

10. Design a regime channel for a discharge of 40 cumecs and slit Factor =1.2 . Assume side slopes as 0.5(H) : 1 (V)
11. After how many days will you supply water to soil in order to ensure sufficient irrigation of the given crop, if
 - i. Field Capacity of the soil = 30%
 - ii. Permanent wilting point= 12%
 - iii. Dry density of soil= 1.5gm/cc
 - iv. Effective depth of root zone = 85cm
 - v. Daily Consumptive use of water for the given crop = 25mm
 Assume any other suitable data, which is not given.

12.



Calculate the uplift pressure at the keypoints of the pile of the structure shown in figure above. Check if the given Structure is safe against piping action or not. The permissible exit gradient is $G_e = \frac{1}{6}$

13. Design a Canal drop (Sarda Fall) structure for given data
Design Discharge = $5 \text{ m}^3/\text{s}$
U/s full supply level = 110.5 m
D/s full supply level = 109.5 m
Normal Water depth at U/S and D/S = 1.5m
Bed Width = 3m
14. Design the length & Thickness of bunching apron for the straight portion of a guide bund in a river
Design flood = $7000 \text{ m}^3/\text{s}$
Average diameter of river bed material = 1mm
River Bed level = 111.0 m
HFL = 114.0 m
Provide a neat Sketch of designed apron.
15. Design the following components of syphon Aqueduct for discharge of canal $20 \text{ m}^3/\text{s}$, depth of water 1.5m, full supply level on canal is 251.5 m and drainage discharge is $200 \text{ m}^3/\text{s}$, high flow level, bed level & ground level of drainage are 250.7 m, 248.5 m, and 250m respectively.
- drainage waterway
 - Canal waterway
 - apflux and head loss through syphon barrel
 - uplift pressure on drainage slab
 - cutoff wall and protection work
16. A guide Bank with stone pitching is required for a bridge on a river having the following particulars. Design flood discharge 50000 cumecs, slit factor = 1.1
Bed level of river = 130 m
High flood level = 140 m
Thickness of Launching Apron = 2.5 Times thickness of stone Pitching

What length of launching apron is necessary to protect the U/S impregnable head of the guide bank?

THE END