

School: SOE	Level: BE	Invigilator's Sign:
Program: BCE	Year/Part: III/I	Superintendent's Sign:
Subject: Foundation Engineering (EG604CE)		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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- The depth to width ratio of shallow foundation is:
 - Less than 1
 - More than 1.
 - More than 2.
 - None of above.
- The general exploration gives information about which of the following features?
 - Depth of rock.
 - Composition of soil strata.
 - Ground water level.
 - All of the mentioned
- The drilling method suitable in hard strata, rocks and boulders is:
 - Auger Boring.
 - Rotary Drilling.
 - Wash Boring.
 - Percussion Drilling.
- A soil mass is said to be in plastic equilibrium if
 - It is stressed to maximum.
 - It is on the verge of failure.
 - It is in plastic stage.
 - It starts flowing.
- If the coefficient of the active pressure K_a is $1/3$, the coefficient of passive pressure K_p is
 - $1/3$
 - $2/3$
 - 1
 - 3.
- According to the Coulomb's wedge theory, the active earth pressure slides the wedge
 - down and outwards on a slip surface
 - up and inwards on a slip surface
 - horizontal upward and parallel to base
 - horizontal inward and parallel to base.
- The maximum pressure which a soil can carry without shear failure, is called
 - Safe bearing capacity.
 - Net safe bearing capacity.
 - Net ultimate bearing capacity.
 - Ultimate bearing capacity.
- The foundation that is used when the soil mass is sufficiently erratic?
 - Mat Footing
 - Combined footing
 - Strap Footing
 - Rectangular combined footing.
- Negative skin friction on piles
 - Is caused due to relative settlement of the soil.
 - Is caused in soft clays.
 - Decreases the pile capacity.
 - All of above.
- For piers and abutment, the minimum depth of embedment below the scour level should be taken as m.
 - 2.0
 - 3
 - 1.2
 - 1.5

Multiple Choice Questions' Answer Sheet

Marks Secured: _____

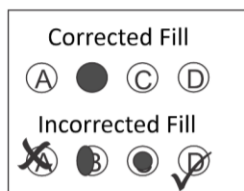
In Words: _____

Examiner's Sign: _____ Date: _____

Scrutinizer's Marks: _____

In Words: _____

Scrutinizer's Sign: _____ Date: _____



1. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D	6. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D
2. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D	7. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D
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4. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D	9. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D
5. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D	10. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D

Manmohan Technical University
Office of the Controller of Examinations
Exam Year: 2081, mangsir

School: SOE	Level: BE	Time: 3 Hours
Program: BCE	Year/Part: III/I	Full Marks: 50
Subject: Foundation Engineering (EG604CE)		

- ✓ 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)

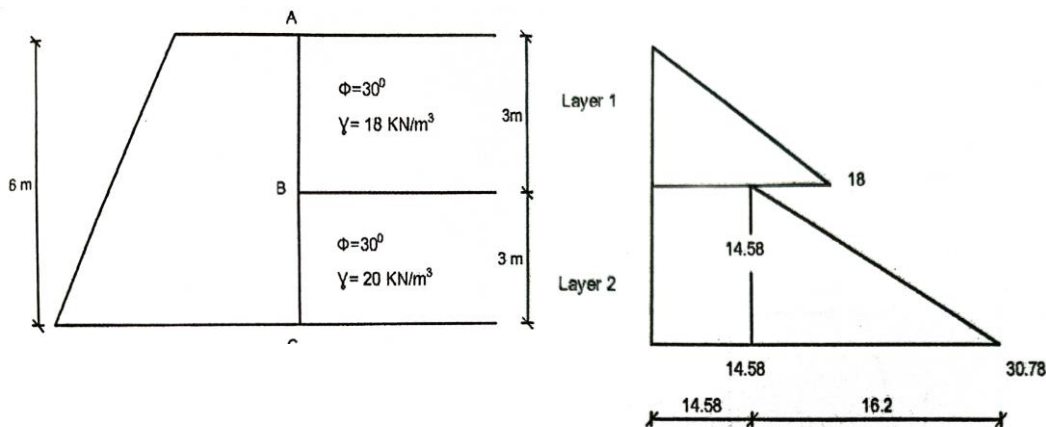
[8×2=16]

1. Classify shallow and deep foundation according to soil conditions.
2. Differentiate between disturbed and undisturbed soil samples.
3. Discuss briefly the limitation of plate load test.
4. List out the four basic differences made during the assumption of Rankine's theory and Coulomb's theory for finding lateral earth pressure force per unit length of a wall.
5. What is cofferdams? Describe the type of cofferdams with their uses.
6. Critically differentiate between general shear failure and local shear failure.
7. Write down the steps of proportioning footings for uniform settlement.
8. What are the factors to be considered for fixing the depth of well foundation? Name the different methods to analyze the lateral stability of well foundation.
9. Explain sand compaction piles and stone columns.

GROUP C (Long Answer Questions (Attempt All questions)

[6×4=24]

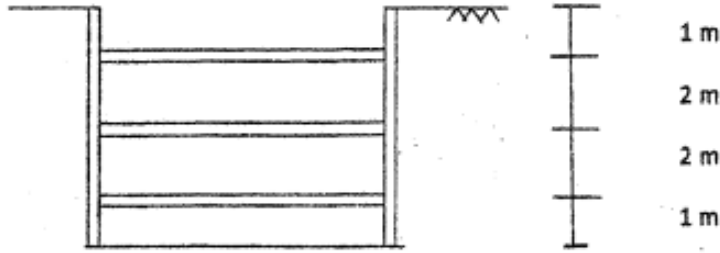
10. A SPT was performed at a depth of 20m in dense sand deposit with a unit weight of 17.5 kN/m^3 . If the observed N-value is 48, what is the N- value corrected for overburden and dilatancy? The inner diameter edge are 70mm and 68mm respectively, their outer diameter are 72mm and 74mm respectively. Determine inside clearance, outer clearance and area ratio of the sampler.
11. Calculate the total active thrust on the retaining wall supporting layered backfill as shown below.



[4]

12. What is arching in soil. Determine the loads on the 3 struts as shown in the following figure. The soil is clay having properties of $c = 40 \text{ kN/m}^2$ and $\gamma = 19 \text{ kN/m}^3$. The spacing of the struts along the length of the cut is 2.50 m.

[4]



13. A square footing is to be constructed on a deep deposit of sand at a depth of 0.9m to carry a design load of 300 kN with a factor of safety of 2.5. The ground water table may rise to the ground level during rainy season. Design the plan dimension of footing given $\gamma_{\text{sat}} = 20.8 \text{ kN/m}^3$, $N_c = 25$, $N_q = 34$ and $N_\gamma = 32$ and $c = 0$ (sand).
14. Write down the concept of compensated foundation. Describe with sketches the various types of mat foundations
15. A group of 9 piles, 15m long and 350mm in diameter is to be arranged in square pattern in clay with average unconfined compressive strength of 80 kN/m². Determine the Centre to Centre spacing of the piles for the efficiency of 1. Neglect the point bearing.

[4]

[4]

[4]

THE END