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Total No. of Pages : 02

Total No. of Questions : 08

B. Architecture (Sem.-2)

STRUCTURE DESIGN – II

Subject Code : AR-138

Paper ID : [A0913]

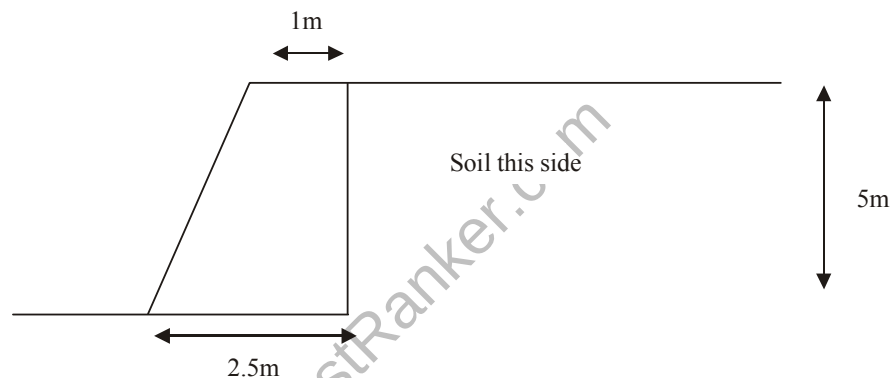
Time : 3 Hrs.

Max. Marks : 50

INSTRUCTIONS TO CANDIDATES :

1. Attempt FIVE out of EIGHT Questions. All carry equal marks.
2. Use of scientific calculator is allowed.

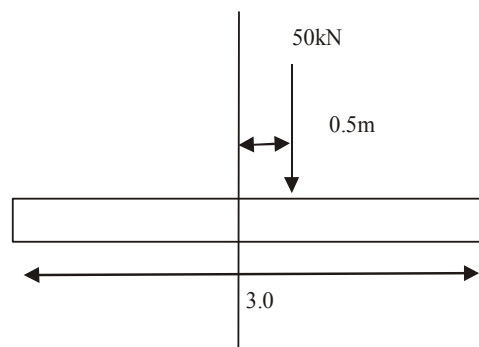
1. Calculate the base pressure diagram developed in brick retaining wall of following case?

Density of Soil $\gamma = 18 \text{ kn/m}^3$ Density of brick work $= 20 \text{ Kn/m}^3$ Angle of repose $\phi = 30 \text{ degree}$.

(10)

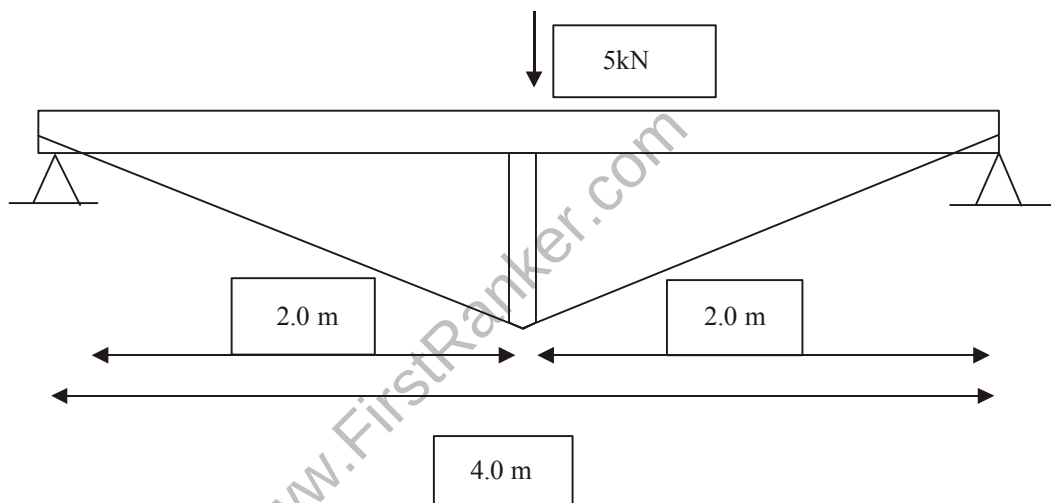
2. Explain middle thidd rule? Find base pressure for following diagram.

(10)



Base resting on elastic pad length is 3m and width is 1.0m (eccentricity of load is 0.5m)

3. Describe various types of footings and draw its sections. (10)
4. Design a brick foundation for uniformly distributed load of 55 Kn /m assume safe bearing capacity of soil to be 100 Kn/m² (10)
5. Write short notes on following
 - a. Stability of structure. (2)
 - b. compressive strength of bricks (2)
 - c. eccentric footng (2)
 - d. Retaining wall (explain with sketches) (4)
6. Design a timber member of following truss. Assume fir wood used or horizontal and vertical member. (Taper member is steel rod) (10)



7. Explain rankine formula for minimum depth of foundation. What will be the minimum depth of foundation for maximum stress on soil below foundation 90 kN/square meter, assume angle of repose of soil - 30 degree? (10)
8. Design a brick column for compressive load of 200kN and bending moment 10kN-m Assume safe compressive stress of bricks 80kG per square cm. (10)