

Government Engineering College, Ajmer
Department of Civil Engineering

Mid-term Test-1

Subject- Advanced Foundation Engineering (AFE)

Session-2017-18

Time-1 Hour

Maximum Marks-10

4th year (VIII Sem.)

Q.1 Write **Short Notes** on following (**Any 4**):

(Marks – 4)

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|--|---------------------------------|
| a. Consolidation Settlement. | c. Punching Shear Failure. |
| b. Effect of water table on bearing capacity | d. Net Safe Bearing Capacity. |
| e. Allowable Soil Pressure. | f. Types of Shallow Foundations |

Q2. Explain **Plate Load Test** and discuss its uses and limitations?

(Marks – 3)

Q3. Determine the **Net allowable load** for a square footing of 2m side and with a depth of foundation of 1.0m. Use Terzaghi's theory and assume local shear failure. (Assume Factor of safety = 2.5), Soil at site has: $\gamma = 18\text{kN/m}^3$, $c' = 15\text{kN/m}^3$ and $\phi' = 25$ degrees. (For $\phi' = 25$ degrees, $N_c' = 14.8$, $N_q' = 5.6$ and $N_\gamma' = 3.2$).

(Marks – 3)

Sol. 3, Factor for the first term of Terzaghi's equation will be 1.2

Sol. 3 Determine Net allowable load.

square footing - side 2m

depth of foundation - 1.0m

F.O.S - 2.5

$$\gamma = 18 \text{ kN/m}^3, c' = 15 \text{ kN/m}^2, \phi' = 25^\circ$$

$$\text{For, } \phi' = 25^\circ \Rightarrow N_c' = 14.8, N_q' = 5.6, N_\gamma' = 3.2$$

Using Terzaghi's theory,
equation for ultimate bearing capacity for
square footing is given by

$$q_u = 1.2 c' N_c + \gamma \cdot D_f \cdot N_q + 0.4 \gamma \cdot B \cdot N_\gamma$$

$$\text{Taking } c_m = \frac{2}{3} c' = 10 \text{ kN/m}^2$$

$$\Rightarrow q_u = 1.2 \times 10 \cdot 0 \times 14.8 + 18 \times 1.0 \times 5.6 + 0.4 \times 18 \times 2 \times 3.2$$

$$q_u = 325 \text{ kN/m}^2$$

$$\Rightarrow q_{nu} = q_u - \gamma \cdot D_f$$
$$= 325 - 18 \times 1.0 = 307 \text{ kN/m}^2$$

$$\Rightarrow q_{ns} = \frac{q_{nu}}{\text{F.O.S}} = \frac{307}{2.5} = 122.8 \text{ kN/m}^2$$

$$\therefore \text{Net allowable load} = 122.8 \times (2 \times 2)$$
$$= 491.2 \text{ kN} \quad \text{Ans}$$

Sol. 1 Refer to Book (Soil Mechanics & Foundation Engg.)

Sol. 2

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Govt. Engineering College, Ajmer
Department of Civil Engineering

Mid-term – 1
Subject- Design of Steel Structures(II)
Session- 2017-18

Time – 1hr
MM- 10
4th Yr.(VIIIth Sem.)

- Q1. State the advantages and disadvantages of plate girder over trusses. (2)
- Q2. Explain any two of followings. (2+2)
- (a) Difference between a beam and plate girder.
 - (b) Patch loading and Web Crippling.
 - (c) Name the different elements of a plate girder.
- Q3. Discuss the steps involved in the design of plate girders. (4)
- (for answers refer **N.Subramanian's** Design of Steel Structures)

Govt. Engineering College, Ajmer
Department of Civil Engineering
Ist Mid Term test 2017-18

Time- 1 hr Subject: Project Planning & Construction Management MM-10

- Q.1. (a). Explain categories of construction projects and project development process. (2.5)**
(b). What is Project Management ? (2.5)
- Q.2. (a). Explain concept and framework of Project Management Information System (PMIS). (2.5)**
(b). What are the benefits of computerised information system ? (2.5)

Government Engineering College, Ajmer

Mid-term test-1

Time-1 Hour

Subject- Water Resources Engineering-II

Maximum Marks-10

Session-2017-18

4th year (VIII Sem.)

Q.1 What do you understand by fall in a canal? Why it is necessary?

Q.2 Describe any two cross drainage structures in detail.

Q.3 Write short notes on following terms:

i) Silt Excluder C) Cross head regulator

Q.4 Differentiate between weir and barrage.

Government Engineering College, Ajmer

Mid-term test-1

Time-1 Hour

Subject- Water Resources Engineering-II

Maximum Marks-10

Session-2017-18

4th year (VIII Sem.)

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