Tishk International University
Interior Design Eng. Department
Concrete & Structure INDS 220
2nd Grade
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Question Bank
Lecture -5-
Structural Elements - Foundations

1. What is a foundation?
2. List three reasons why buildings need foundations.
3. Define shallow foundation.
4. Define deep foundation.
5. What is isolated footing?
6. What is a strip footing?
7. What is a combined footing?
8. What is a raft (mat) foundation?
9. Define pile foundation.
10. Define caisson (well) foundation.
11. Compare shallow foundations and deep foundations in terms of soil conditions and building type.
12. Compare isolated footing and strip footing.
13. Compare raft foundation and combined footing.
14. Compare pile foundation and caisson foundation.
15. Compare the construction steps of foundation from excavation to curing.
16. True/False: Deep foundations are used when the soil on top is strong and the building is small.
17. True/False: Raft foundation is suitable for weak soil and covers the whole building area.
18. True/False: Strip footing supports only one column.
19. True/False: Pile foundations are long concrete, or steel columns used to reach deeper, stronger soil layers.
20. True/False: Curing concrete helps it gain strength after placement.
21. A footing has dimensions 1.0 m × 1.2 m × 0.35 m. Calculate the volume of concrete required.
22. A rectangular footing is 2.0 m × 1.5 m × 0.4 m. Find the volume of concrete.
23. A square footing is 1.8 m × 1.8 m × 0.5 m. Calculate the volume.
24. A column load is 180 kN, footing size 1.5 m × 1.5 m, and soil capacity is 90 kN/m^2. Calculate the soil pressure and check if it is safe.
25. A column carries 240 kN, footing area 2.0 m^2, soil capacity 120 kN/m^2. Compute soil pressure and safety.
26. A column load is 300 kN with footing dimensions 2 m × 2 m and soil capacity of 80 kN/m^2. Find soil pressure and determine safe/unsafe.
27. A footing area is 1.44 m^2 carrying a load of 160 kN. Calculate soil pressure. Is it below 110 kN/m^2?
28. A column load is 90 kN, footing size 1.2 m × 1.2 m, soil capacity 70 kN/m^2. Check safety.