Tishk International University
Interior Design Eng. Department
Concrete & Structure INDS 220
2nd Grade
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Question Bank
Lecture -7-
Structural Elements - Vertical Systems

1. Define a foundation and explain its main function in a building.

2. What is meant by safe bearing capacity (SBC) of soil?

3. Define shallow foundations and mention two examples.

4. What is a deep foundation? Why is it used?

5. Define raft (mat) foundation and state one situation where it is preferred.

6. Compare shallow foundations and deep foundations in terms of soil condition, depth, and usage.

7. Compare isolated footing and combined footing.

8. Differentiate between strip footing and raft foundation.

9. Compare pile foundations and caisson foundations.

10. Compare foundations used for load-bearing walls and column foundations.

11. Why do buildings need foundations?

12. Why are deep foundations used when surface soil is weak?

13. Why is a combined footing used when a column is near the property line?

14. Why is curing of concrete important in foundation construction?

15. Why are raft foundations commonly used on weak soils?

16. A square footing has dimensions 1.2 m × 1.2 m × 0.5 m. Calculate the volume of concrete required.

17. A column carries a load of 180 kN and rests on a footing area of 2.0 m^2. Calculate the soil pressure.

18. If the safe bearing capacity of soil is 120 kN/m^2 and the calculated soil pressure is 95 kN/m^2, check whether the footing is safe or unsafe.

19. A rectangular footing measures 2.0 m × 1.5 m. Calculate the area of the footing.

20. A column in a building carries a load of 300 kN. The footing provided is a square footing of size 1.5 m × 1.5 m. The soil at the site can safely support 110 kN/m^2. Calculate the footing area, soil pressure, and check safety.