

GUJARAT TECHNOLOGICAL UNIVERSITY

BE-3 SEMESTER –OLD PAPER– W22 TO S25- QUESTION BANK

Subject Name & Code:

Building Construction and Technology- 3130607

Unit 1: Foundations

Repeated Questions:

1. **What is foundation? Explain/Discuss/State the functions/purpose of a foundation.**
 - (Summer 2024, Q1a, 03 Marks)
 - (Winter 2022, Q1a, 03 Marks)
 - (Winter 2023, Q1a)
 - (Summer 2023, Q3c OR, 07 Marks - "Enlist and Explain various functions")
 - (Summer 2025, Q1a - "need of Subsurface Investigation" is related)
2. **Differentiate between Shallow and Deep Foundation.**
 - (Summer 2025, Q1b, 04 Marks)
3. **Write a short note on failure of foundation and its remedial measures.**
 - (Summer 2025, Q1c, 07 Marks) - *This directly matches the syllabus content.*
4. **Enumerate different types of piles. Also explain each with their usage and selection criteria. / Under which circumstances is pile foundation required? Enlist various types of piles.**
 - (Summer 2025, Q2c, 07 Marks)
 - (Winter 2023, Q4a OR)
 - (Winter 2024, Q4a, 03 Marks - "Make a chart")
5. **What is meant by tilting of caissons? What are its reasons? How are they corrected? / Explain caisson sicknesses.**
 - (Summer 2024, Q4c, 07 Marks)
 - (Winter 2023, Q4b)
 - (Winter 2024, Q4b, 04 Marks)
6. **Describe in brief, various methods of boring for sub-soil exploration.**
 - (Winter 2022, Q1c, 07 Marks)
 - (Summer 2024, Q4a, 03 Marks - "For what reasons site exploration is done...")
 - (Summer 2023, Q1a, 03 Marks - "State the purpose of site Exploration")
 - (Winter 2024, Q1a, 03 Marks - "factors affecting the choice of a particular method")

Other Important Questions:

7. Define: (1) Ultimate bearing capacity. (2) Net pressure intensity. (3) Safe bearing capacity (4) Allowable bearing pressure. (Winter 2022, Q1b, 04 Marks) (Summer 2023, Q1b, 04 Marks)
8. Which are the precautions taken for foundations in black cotton soils? / What are the problems of foundations in black cotton soil? (Summer 2024, Q4b, 04 Marks) (Winter 2024, Q4c OR, 07 Marks)
9. Explain with neat sketch under reamed pile. (Summer 2023, Q2c, 07 Marks)
10. Write a short note on Pneumatic caisson. (Summer 2023, Q5b OR, 04 Marks)
11. Explain in brief box-caisson. In which situation box-caisson are adopted? (Winter 2022, Q4c, 07 Marks)
12. Describe with the sketch, the method of setting out foundation trenches. (Winter 2023, Q4c OR)

Unit 2: Masonry Construction

Repeated Questions:

1. **Define: Composite masonry, hollow block masonry, partition wall, and cavity wall.**
 - (Summer 2024, Q1b, 04 Marks) - *Direct from syllabus.*
 - (Winter 2022, Q3c OR - "Define cavity wall...")
2. **Differentiate between English bond and Flemish bond. / Write difference between... / ...with neat sketch.**
 - (Summer 2024, Q3e, 07 Marks)
 - (Summer 2023, Q3b, 04 Marks)
 - (Winter 2024, Q3c OR, 07 Marks)
 - (Summer 2025, Q2c OR - "List out the various bonds... describe double Flemish bond")
3. **Define with the sketch: Header, King closer, Queen closer, Quoin, Beveled bat/closer, etc.**
 - (Winter 2023, Q1b)
 - (Winter 2024, Q1b, 04 Marks)
 - (Summer 2025, Q2a, 03 Marks - "Lap, Frog, Perpend")
4. **Give the classification of stone masonry. / Describe with neat sketch different types of Rubble masonry.**
 - (Summer 2025, Q2b, 04 Marks)
 - (Summer 2023, Q2c OR, 07 Marks)
 - (Winter 2024, Q3b OR, 04 Marks - "Write a short note on dry rubble masonry")
5. **Explain various defects in brick masonry.**
 - (Winter 2023, Q3c)

Other Important Questions:

6. Define: (1) Corbel (2) king closer (3) Jamb (4) Stretcher (Winter 2022, Q3b, 04 Marks)
7. Write a short note on "Rapid hardening cement." (Winter 2022, Q4b OR, 07 Marks)
8. Enlist and explain different types of mortar used for plastering. (Winter 2022, Q4c OR)
9. How different types of rocks are formed in nature? (Winter 2023, Q3b)

Unit 3: Plain and Reinforced Concrete Construction

Repeated Questions:

1. **What do you understand by formwork? / Explain with neat sketches, the formwork for the RCC column/beam/wall.**
 - (Summer 2024, Q1c, 07 Marks - part of question)
 - (Summer 2024, Q5c, 07 Marks)
 - (Summer 2023, Q4c, 07 Marks)
 - (Winter 2024, Q5c OR, 07 Marks)
 - (Summer 2025, Q4c, 07 Marks - "form work for a beam slab floor")
2. **Differentiate between pre-cast and cast-in-situ concrete construction.**
 - (Summer 2024, Q1c, 07 Marks - part of question)
 - (Winter 2023, Q1c)
 - (Summer 2025, Q4b, 04 Marks - related "Distinguish between plain and reinforced cement concrete")
3. **Enumerate advantages of 3D printing technology in building construction. / What are the applications/benefits of 3D printing...**
 - (Winter 2022, Q5b, 07 Marks)
 - (Summer 2023, Q5a OR, 03 Marks)
 - (Summer 2025, Q4a, 03 Marks)
 - (Winter 2024, Q5a OR, 03 Marks)

Other Important Questions:

4. Explain the water-cement ratio. (Summer 2024, Q5a, 03 Marks)
5. Write a short note on the ingredients of reinforced cement concrete with their functions. (Winter 2024, Q1c, 07 Marks)
6. Distinguish between plain and reinforced cement concrete. What is the need of reinforcement? (Summer 2025, Q4b, 04 Marks)

Unit 4: Building Components (Doors, Windows, Stairs, Floors, Roofs)

Repeated Questions:

1. **Prepare a list of all building components with their functions. / Draw a diagram of typical door and define its each component.**
 - (Summer 2024, Q2c, 07 Marks)
 - (Summer 2023, Q2b, 04 Marks)
2. **How to plan a staircase? / State the requirements of a good stair. / Draw a detailed sketch of a stair showing all its components.**
 - (Summer 2024, Q3a, 03 Marks)
 - (Summer 2023, Q3a, 03 Marks)
 - (Winter 2023, Q2c OR)
 - (Winter 2024, Q2c OR, 07 Marks)
3. **Enumerate different types of staircases and explain dog-legged stair case with neat sketch.**
 - (Summer 2023, Q1c, 07 Marks)
 - (Winter 2024, Q4c OR - "Draw neat sketches of... stairs")
4. **Which are the essential requirements of a good floor and good roof? / Describe the factors to be considered while selecting type of flooring.**
 - (Summer 2024, Q4c OR, 07 Marks)
 - (Summer 2023, Q4a, 03 Marks)
 - (Summer 2025, Q4c OR, 07 Marks)
 - (Winter 2022, Q4b, 07 Marks - "factors affecting selection of flooring material")
 - (Winter 2024, Q5b OR, 04 Marks - "sketch showing all the components of a floor")
5. **Differentiate between plastering and pointing. / Describe various types of pointing.**
 - (Summer 2024, Q3c, 04 Marks - part of question)
 - (Summer 2023, Q5c OR, 07 Marks)
 - (Summer 2025, Q3c OR, 07 Marks)
 - (Winter 2024, Q5c OR, 07 Marks - "neat sketches of all types of pointing")
6. **Differentiate between lintel and arch. / Classify the arches. / Explain various components of Arch.**
 - (Winter 2024, Q3a, 03 Marks)
 - (Winter 2023, Q3a - "Draw a chart showing the classification of arches")
 - (Summer 2025, Q3c, 07 Marks)

Other Important Questions:

7. Differentiate between paneled door and glazed door. (Summer 2024, Q4b OR, 04 Marks)
8. Define ventilator and fanlight with the figure. (Summer 2024, Q4a OR, 03 Marks)
9. Write a short note on Pivoted windows and Bay windows / sash windows and casement windows. (Winter 2023, Q2c) (Winter 2024, Q2c, 07 Marks)
10. Give merits and demerits of flat and pitched roof. (Summer 2023, Q2a, 03 Marks)
11. Describe the following terms in relation to roof: 1. Ridge 2. Purlins 3. Common rafter. (Summer 2023, Q5a OR, 03 Marks)
12. Define and enlist the forms of pitched roof. (Summer 2025, Q5a, 03 Marks)
13. Mention the different types of roof coverings with their characteristics. (Summer 2025, Q5b, 04 Marks)
14. Explain method of construction of Cement concrete flooring. (Summer 2023, Q5b OR, 04 Marks)
15. Write a short note on "Terrazzo flooring". (Winter 2022, Q5c, 07 Marks)
16. What are the merits and demerits of a Flag-stone flooring? (Winter 2023, Q5c OR)
17. Define: Horn, Panel, Rebate, Mullion, Holdfast, Jamb. (Winter 2023, Q4a OR) (Winter 2024, Q4a OR, 03 Marks)
18. Give various sizes of doors for residential and public buildings. (Winter 2024, Q4b OR, 04 Marks)

Unit 5: Special Works & Treatments

Repeated Questions:

1. **Enlist the works which are considered as special works and enlist the treatments which are considered as special treatments.**
 - (Summer 2024, Q2b, 04 Marks) - *Direct from syllabus.*
2. **Explain the purposes of timbering in trenches, scaffolding, shoring, and underpinning. / Explain the specific circumstances under which they are provided.**
 - (Summer 2024, Q3c OR, 04 Marks)
 - (Winter 2023, Q3a OR)
 - (Winter 2024, Q3a OR, 03 Marks)
3. **What are the uses of a cofferdam? / Differentiate between Caisson and Cofferdam.**
 - (Summer 2024, Q3d OR, 07 Marks)
 - (Summer 2023, Q4a OR, 03 Marks)
 - (Winter 2022, Q3a OR - "Enlist common types of cofferdam")
4. **What is diaphragm wall? Give its uses. / Why are diaphragm walls constructed?**
 - (Summer 2023, Q4b, 04 Marks)
 - (Summer 2024, Q3d OR, 07 Marks - part of question)
5. **Explain Anti-termite treatment with details. / Describe various types of termites.**
 - (Summer 2023, Q3c, 07 Marks)
 - (Winter 2023, Q2b)
6. **Describe the fire-resisting properties of various materials.**
 - (Winter 2022, Q2c OR, 07 Marks)

Other Important Questions:

7. Describe the procedure of pumping from well points for dewatering. What are its advantages? (Winter 2022, Q2c, 07 Marks)
8. Give the names of methods used for foundation dewatering. Explain well point system in detail with sketch. (Summer 2025, Q5c OR, 07 Marks)
9. Under which conditions underpinning is done? (Summer 2025, Q5b OR, 04 Marks)
10. Differentiate between shoring and scaffolding. (Summer 2025, Q5c OR, 07 Marks)
11. Draw a neat sketch showing components of double scaffolding. (Winter 2022, Q2b, 04 Marks)
12. Describe with neat sketch "Flying shore". (Winter 2022, Q3a OR, 03 Marks)
13. What is meant by thermal insulation? What are the advantages of it? (Winter 2024, Q2b, 04 Marks)
14. Describe various materials used for damp proofing. (Summer 2023, Q5a, 03 Marks)

Unit 6: Green Building Concepts & Sustainable Construction

Repeated Questions:

1. **What is meant by a green building? / Explain the concept and requirements of a green building.**
 - (Summer 2024, Q2a, 03 Marks)
 - (Winter 2023, Q2a)
 - (Summer 2023, Q5c, 07 Marks - part of "Define")
2. **What are the benefits/characteristics of a green building concept?**
 - (Winter 2024, Q2a, 03 Marks)
 - (Summer 2024, Q5a OR, 03 Marks)
3. **Explain/Specify the Green building rating system. / Summarize rating systems for green building.**
 - (Winter 2022, Q3b OR, 07 Marks) - "Explain in brief 'Green Building rating system'"
 - (Summer 2025, Q5a OR, 03 Marks) - "Summarize rating systems for green building"
4. **Describe Green building concept and Architectural planning. / ...and describe case studies of various Green buildings.**
 - (Summer 2024, Q5c, 07 Marks)
 - (Winter 2022, Q5c OR, 07 Marks)
 - (Summer 2023, Q5c, 07 Marks)

Other Important Questions:

What is the need for green buildings as a solution for a sustainable future?
