

**SAMPLE PAPERS**  
**DIPLOMA THIRD SEMESTER EXAMINATION 2025 ( JUT )**  
**CONSTRUCTION TECHNIQUES**

**DIPLOMA WALLAH**

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Full Marks: 70 marks | Time: 3 Hours

**Instructions:**

- Question No. 1 is compulsory.
- Answer any **FOUR** questions from the remaining (Q.2 to Q. 7 marks ).

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**1. Choose the correct option for the following:  $[7 \times 2 = 14]$**

**(i)** The bearing capacity of soil can be significantly improved by:

- (a) Compacting the soil
- (b) Draining the soil
- (c) Grouting
- (d) All of the above

**(ii)** The vertical member of a door frame is technically known as:

- (a) Style
- (b) Reveal
- (c) Jamb
- (d) Post

**(iii)** The depression provided on the top face of a brick to form a key for mortar is called:

- (a) Pallet
- (b) Strike
- (c) Frog
- (d) Bullnose

**(iv)** The horizontal platform between two flights of a stair is called:

- (a) Landing
- (b) Pitch
- (c) Nosing

(d) Soffit

**(v)** The process of placing a new foundation below an existing foundation to strengthen it is called:

(a) Shoring

(b) Underpinning

(c) Scaffolding

(d) Grouting

**(vi)** Which type of flooring is also known as "Tremix" flooring?

(a) Terrazzo

(b) Mosaic

(c) Vacuum Dewatered Flooring

(d) Granolithic

**(vii)** Efflorescence in building walls is caused due to:

(a) Soluble salts in bricks

(b) High porosity of bricks

(c) Excessive burning of bricks

(d) Low silt content

2.

(a) Define Pile Foundation. Classify piles based on their function and material with suitable examples. [7 Marks ]

(b) Explain English Bond with neat sketches of Plan and Elevation (1 1/2 Brick thick wall). How does it differ from Flemish Bond? [7 Marks ]

3.

(a) Define Staircase. Draw a neat, labeled Plan and Sectional Elevation of a Dog-legged Staircase. [7 Marks ]

(b) Explain Site Exploration. Describe the Plate Load Test method to determine the bearing capacity of soil. [7 Marks ]

4.

(a) Define Scaffolding. Differentiate between Single Scaffolding (Bricklayer's) and Double Scaffolding (Mason's) with neat sketches. [7 Marks ]

(b) What is Formwork? State the requirements of good formwork. Discuss the stripping time for beams and slabs. [7 Marks ]

5.

(a) Define Dampness. What are the causes of dampness in a building? Explain the method of Damp Proofing (DPC) for a basement. [7 Marks ]

(b) Explain the different types of Stone Masonry. Draw a neat sketch of Random Rubble Masonry. [7 Marks ]

6.

(a) Explain the repair techniques for concrete structures: Grouting and Guniting (Shotcrete). [7 Marks ]

(b) Define Shallow Foundation. Explain the construction of Spread Footing and Raft Foundation with sketches. [7 Marks ]

7. Write Short Notes on (Any FOUR):  $[4 \times 3.5 = 14]$

(a) Black Cotton Soil & Under-reamed Piles

(b) Load Bearing vs. Framed Structure

(c) Lintels and their functions

(d) Pre-cast vs. Cast-in-situ Concrete

(e) Job Layout

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### SET 01 – Answer Key

- **1(i):** (d) All of the above
- **1(ii):** (c) Jamb
- **1(iii):** (c) Frog
- **1(iv):** (a) Landing
- **1(v):** (b) Underpinning
- **1(vi):** (c) Vacuum Dewatered Flooring
- **1(vii):** (a) Soluble salts in bricks