

Enrollment No./Seat No.:

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**Bachelor of Engineering - SEMESTER - III EXAMINATION - WINTER 2025**

**Subject Code: 3130607**

**Date: 12-12-2025**

**Subject Name: Building Construction Technology**

**Time: 10:30 AM TO 01:00 PM**

**Total Marks: 70**

**Instructions**

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. Simple and non-programmable scientific calculators are allowed.**

|                                                                                              | <b>Marks</b> |
|----------------------------------------------------------------------------------------------|--------------|
| <b>Q.1 (a)</b> Enlist different types of shallow foundations with neat sketches              | <b>03</b>    |
| <b>(b)</b> Explain the failures of foundations and suggest remedial measures.                | <b>04</b>    |
| <b>(c)</b> Describe pile driving methods and discuss causes of failure of piles.             | <b>07</b>    |
| <b>Q.2 (a)</b> Discuss different types of stone masonry joints with sketches                 | <b>03</b>    |
| <b>(b)</b> Differentiate between brick masonry and stone masonry.                            | <b>04</b>    |
| <b>(c)</b> Describe composite masonry construction and its applications.                     | <b>07</b>    |
| <b>OR</b>                                                                                    |              |
| <b>(c)</b> Explain arches and lintels – types, construction, and suitability with sketches.  | <b>07</b>    |
| <b>Q.3 (a)</b> State the essential requirements of a good form work.                         | <b>03</b>    |
| <b>(b)</b> Write a short note on slip form work.                                             | <b>04</b>    |
| <b>(c)</b> Differentiate between pre-cast and cast-in-situ concrete construction.            | <b>07</b>    |
| <b>OR</b>                                                                                    |              |
| <b>(a)</b> Explain factors affecting selection of doors and windows in buildings.            | <b>03</b>    |
| <b>(b)</b> Explain the Glaze and sash door with a figure.                                    | <b>04</b>    |
| <b>(c)</b> Describe the design considerations of staircases with examples.                   | <b>07</b>    |
| <b>Q.4 (a)</b> List the requirements of a good flooring system.                              | <b>03</b>    |
| <b>(b)</b> Write a short note on terraced roofing systems with advantages and disadvantages. | <b>04</b>    |
| <b>(c)</b> Describe in detail classification of roofs and roof coverings with sketches.      | <b>07</b>    |
| <b>OR</b>                                                                                    |              |
| <b>(a)</b> Define scaffolding and its types with neat sketches.                              | <b>03</b>    |
| <b>(b)</b> Write notes on shoring and underpinning.                                          | <b>04</b>    |
| <b>(c)</b> Discuss the construction and applications of cofferdams.                          | <b>07</b>    |
| <b>Q.5 (a)</b> Describe various types of termites.                                           | <b>03</b>    |

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|------------|-------------------------------------------------------------------------------------------------------------|-----------|
| <b>(b)</b> | Write short note on Fire-resistant construction.                                                            | <b>04</b> |
| <b>(c)</b> | Explain the principles of green building design and discuss the rating system for green buildings in India. | <b>07</b> |

**OR**

- |            |                                                                                 |           |
|------------|---------------------------------------------------------------------------------|-----------|
| <b>(a)</b> | What are the advantages of 3D printing technology in building construction?     | <b>03</b> |
| <b>(b)</b> | Explain various defects in painting.                                            | <b>04</b> |
| <b>(c)</b> | Prepare a case study of a green building highlighting its sustainable features. | <b>07</b> |

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**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE- SEMESTER-III (NEW) EXAMINATION – WINTER 2024**

**Subject Code: 3130607**

**Date: 26-11-2024**

**Subject Name: Building Construction Technology**

**Time: 10:30 AM TO 01:00 PM**

**Total Marks: 70**

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) What are the factors affecting the choice of a particular method of site exploration? **03**
- (b) Define with the sketch: Queen closer, Mitred closer, Bevelled closer, and Half bat. **04**
- (c) Write a short note on the ingredients of reinforced cement concrete with their functions. **07**
- Q.2** (a) What are the benefits of a green building concept? **03**
- (b) What is meant by thermal insulation? What are the advantages of it? **04**
- (c) Write a short note on sash windows and casement windows with figures. **07**
- OR**
- (c) Draw a detailed sketch of a stair showing all its components and define scotia, nosing, and balustrade. **07**
- Q.3** (a) Differentiate between lintel and arch. **03**
- (b) Write a short note on dry rubble masonry with a neat sketch. **04**
- (c) Differentiate between English bond and Flemish bond with neat sketch. **07**
- OR**
- Q.3** (a) Explain the specific circumstances under which timbering, shoring, and underpinning are provided. **03**
- (b) How do you select the method of dewatering and control of ground water in excavation? **04**
- (c) Write a short note on the factors affecting the choice of a particular type of coffer dam. **07**
- Q.4** (a) Make a chart that shows classifications of various types of piles. **03**
- (b) What is meant by tilting of caissons? What are its reasons? **04**
- (c) What are the problems of foundations in black cotton soil? What precautions are taken during foundation construction in black cotton soil? **07**
- OR**
- Q.4** (a) Define Mullion, Holdfast, and Jamb. **03**
- (b) Give various sizes of doors for residential and public buildings. **04**
- (c) Draw only neat sketches of a round-ended step, circular stairs, spiral stairs, and helical stairs. **07**
- Q.5** (a) Draw only neat sketches of a compound fink truss, compound howe truss, and modified north light truss. **03**
- (b) Draw only a neat sketch showing all the components of a floor. **04**
- (c) Draw only neat sketches of all types of pointing. **07**

**OR**

- Q.5**
- |     |                                                                       |           |
|-----|-----------------------------------------------------------------------|-----------|
| (a) | What are the applications of 3D printing in building construction?    | <b>03</b> |
| (b) | Explain the characteristics of good paint.                            | <b>04</b> |
| (c) | Draw only neat sketches of the formwork for the RCC wall and columns. | <b>07</b> |

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**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-III (NEW) EXAMINATION – WINTER 2023****Subject Code:3130607****Date:16-01-2024****Subject Name:Building Construction Technology****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) What is foundation? When should we provide a shallow foundation? Under which circumstances the deep foundation is provided? **03**
- (b) Define with the sketch: Header, King closer, Quoin, and Bevelled bat. **04**
- (c) Differentiate between pre-cast and cast-in-situ concrete construction. **07**
- Q.2** (a) Explain the concept and requirements of a green building. **03**
- (b) Describe various types of termites. **04**
- (c) Write a short note on Pivoted windows and Bay windows with figures. **07**
- OR**
- (c) What are the requirements of a god stair? **07**
- Q.3** (a) Draw a chart showing the classification of arches. **03**
- (b) How different types of rocks are formed in nature? **04**
- (c) Explain a brick bond with the figure which is similar to an English bond. **07**
- OR**
- Q.3** (a) Explain the specific circumstances under which timbering, shoring, and underpinning are provided. **03**
- (b) Describe with figure the Electro-osmosis process for the elimination of groundwater flow. **04**
- (c) What are the uses of a coffer dam? How to prevent leakage from a coffer dam? **07**
- Q.4** (a) Under which circumstances the pile foundation is required? Enlist various types of piles. **03**
- (b) Explain caisson sicknesses. **04**
- (c) Describe with the sketch, the method of setting out foundation trenches. **07**
- OR**
- Q.4** (a) Define Horn, Panel, and Rebate. **03**
- (b) Explain the Glaze and sash door with a figure. **04**
- (c) Define with figure: Trade, Going, Nosing, Scotia, Rise, Riser, and Landing. **07**
- Q.5** (a) What are the essential requirements of a good roof? **03**
- (b) What are the merits and demerits of a Flag-stone flooring? **04**
- (c) Explain different types of pointing with the figure. **07**
- OR**
- Q.5** (a) What are the advantages of 3D printing technology in building construction? **03**
- (b) Explain various defects in painting. **04**
- (c) Explain with neat sketches, the formwork for the RCC beam. **07**

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**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER– III(NEW) EXAMINATION – WINTER 2022****Subject Code:3130607****Date:22-02-2023****Subject Name:Building Construction Technology****Time:02:30 PM TO 05:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

|            |                                                                                                       | <b>Marks</b> |
|------------|-------------------------------------------------------------------------------------------------------|--------------|
| <b>Q.1</b> | (a) What is foundation? Discuss the various functions of foundation.                                  | <b>03</b>    |
|            | (b) Define the following terms.(1) Ultimate bearing capacity. (2) Net pressure intensity.             | <b>04</b>    |
|            | (c) Describe in brief, various methods of boring for sub-soil exploration, explain any one in detail. | <b>07</b>    |
| <b>Q.2</b> | (a) Describe in brief, the non-load bearing piles.                                                    | <b>03</b>    |
|            | (b) Draw a neat sketch showing components of double scaffolding.                                      | <b>04</b>    |
|            | (c) Describe the procedure of pumping from well points for dewatering. What are its advantages.       | <b>07</b>    |
|            | <b>OR</b>                                                                                             |              |
|            | (c) Describe the fire-resisting properties of various materials.                                      | <b>07</b>    |
| <b>Q.3</b> | (a) Compare steel roof truss and timber roof truss.                                                   | <b>03</b>    |
|            | (b) Define : (1) Corbel (2) king closer (3) Jamb (4) Stretcher                                        | <b>04</b>    |
|            | (c) Describe with neat sketch “framed and Panelled door”                                              | <b>07</b>    |
|            | <b>OR</b>                                                                                             |              |
| <b>Q.3</b> | (a) Describe with neat sketch “Flying shore”.                                                         | <b>03</b>    |
|            | (b) Explain in brief “Green Building rating system”                                                   | <b>04</b>    |
|            | (c) Define cavity wall. Explain with neat sketch brick cavity wall.                                   | <b>07</b>    |
| <b>Q.4</b> | (a) Differentiate between “skylight window and Lantern window”                                        | <b>03</b>    |
|            | (b) Discuss the various factors affecting the selection of flooring materials.                        | <b>04</b>    |
|            | (c) Explain in brief box-cassion. In which situation box- caisson are adopted?                        | <b>07</b>    |
|            | <b>OR</b>                                                                                             |              |
| <b>Q.4</b> | (a) Write short note on “quarter turn stair”                                                          | <b>03</b>    |
|            | (b) Write short note on “Rapid hardening cement.”                                                     | <b>04</b>    |
|            | (c) Enlist and explain different types of mortar used for plastering.                                 | <b>07</b>    |
| <b>Q.5</b> | (a) Explain various factors affecting choice of method of site exploration.                           | <b>03</b>    |
|            | (b) Enumerate advantages of 3D printing technology in building construction.                          | <b>04</b>    |
|            | (c) Write short note on” Terrazzo flooring”.                                                          | <b>07</b>    |
|            | <b>OR</b>                                                                                             |              |
| <b>Q.5</b> | (a) Enlist essential requirements of a good roof.                                                     | <b>03</b>    |
|            | (b) What are the points to be kept in view, while locating doors and windows?                         | <b>04</b>    |
|            | (c) Describe Green building concept and Architectural planning.                                       | <b>07</b>    |