

Enrollment No./Seat No.:

## GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering - SEMESTER - VII EXAMINATION - WINTER 2025

**Subject Code: 3172214**

**Date: 01-12-2025**

**Subject Name: Dimensional Stone 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</b> (a) Identify four significant types of dimensional stones commonly occurring in India.	<b>03</b>
(b) List four important factors that must be considered while selecting a site for developing a dimensional stone quarry.	<b>04</b>
(c) Outline the preliminary formal procedures and statutory requirements involved before securing a lease for dimensional stone extraction.	<b>07</b>
<b>Q.2</b> (a) What is the main objective behind conducting exploration and prospecting activities for dimensional stone deposits?	<b>03</b>
(b) Name four major tools or machines utilized in the quarrying of dimensional stone for lifting or separating blocks.	<b>04</b>
(c) Discuss how geological features and material characterization influence the suitability and evaluation of a dimensional stone resource.	<b>07</b>

### OR

(c) Explain the methodology used for estimating reserves of a dimensional stone deposit and highlight distinctions compared to metallic mineral reserve estimation.	<b>07</b>
<b>Q.3</b> (a) List four key factors that influence the selection of an excavation method in a dimensional stone quarry.	<b>03</b>
(b) Describe the working mechanism and operational advantages of a chain-saw system used for stone cutting in quarries.	<b>04</b>
(c) Explain various quarrying operations adopted in dimensional stone extraction and compare any two techniques based on working principles.	<b>07</b>

### OR

(a) Identify four categories of mining equipment specifically applied in dimensional stone quarries.	<b>03</b>
(b) Justify the importance of evaluating power requirements before mechanizing a stone quarry.	<b>04</b>
(c) Examine the operational characteristics of different machines involved in dimensional stone extraction and subsequent processing.	<b>07</b>

**Q.4** (a) List the three main aspects of the dimensional stone industry mentioned in the content section that relate to the market. **03**

(b) Discuss why international marketing and export potential are crucial for the dimensional stone industry. **04**

(c) Describe the environmental consequences linked to quarrying and processing activities associated with dimensional stone. **07**

**OR**

(a) Mention two significant environmental effects commonly arising from dimensional stone quarrying operations. **03**

(b) Explain the concept and importance of repurposing quarry land following closure of mining operations. **04**

(c) Evaluate practical approaches for managing and utilizing waste materials generated from dimensional stone activities. **07**

**Q.5** (a) Specify three types of cutting equipment referred to in the laboratory exercises for dimensional stone processing. **03**

(b) Describe the working features of a diamond gang-saw and its role in large-scale stone processing. **04**

(c) Discuss various abrasives used during dimensional stone finishing and explain how each contributes to surface improvement. **07**

**OR**

(a) State the essential academic background required prior to enrolling in this course. **03**

(b) Explain why determining Rock Mass Rating (RMR) is important for evaluating dimensional stone deposits. **04**

(c) Compare belt-saw and chain-saw equipment based on usage conditions and limitations in dimensional stone quarrying. **07**

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