

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION – SUMMER 2025

Subject Code:3172216

Date:08-05-2025

Subject Name:Rock Excavation 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.

		MARKS
Q.1	(a) Discuss the scope and importance of rock excavation engineering in mining and construction industries.	03
	(b) Describe the procedure for selection of excavation method.	04
	(c) Explain physico-mechanical and geotechnical properties of rocks.	07
Q.2	(a) Discuss equipment's selection criteria and procedures of surface excavation.	03
	(b) Describe the classification of surface excavating equipment systems.	04
	(c) Explain planning and site -investigation for tunneling.	07
	OR	
	(c) Explain methods of tunneling.	07
Q.3	(a) Discuss the procedure for evaluation of blast performance.	03
	(b) Explain the parameters influencing location of a tunnel and its design.	04
	(c) Enlist different types of machineries used in underground excavation. Explain continuous miner with neat sketch.	07
	OR	
Q.3	(a) Discuss the selection criteria for cutting tools used for underground excavation.	03
	(b) Explain different types of underground excavations.	04
	(c) Explain different kinds of excavation method.	07
Q.4	(a) Discuss the instrumentation for performance monitoring.	03
	(b) Explain advances in blast design for underground excavations.	04
	(c) Explain application and selection guidelines for continuous surface miners used in surface excavation.	07
	OR	
Q.4	(a) Discuss the selection criteria of explosive for rock excavation.	03
	(b) Explain blast design for surface excavations and optimization.	04
	(c) Explain application and selection guidelines for BWE used in surface excavation.	07
Q.5	(a) Discuss the techno-economic and safety aspects of surface blasting.	03
	(b) Explain under water drilling and blasting.	04
	(c) Explain non-destructive instruments used for excavations.	07
	OR	
Q.5	(a) Discuss the techno-economic and safety aspects of underground blasting.	03
	(b) Explain rock-breaking processes.	04
	(c) Explain electronic and manual data generation borehole logging system.	07
