

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2024

Subject Code:3172216

Date:19-11-2024

Subject Name: Rock Excavation 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.

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