

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:3172213

Date:30-11-2024

Subject Name: Rock Fragmentation

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) Define drilling. Discuss why it is necessary.	03
	(b) Explain different types of bit wear and effects of bit wear.	04
	(c) Explain the emerging trends in initiating systems.	07
Q.2	(a) Discuss the present status of drilling and blasting practices in India.	03
	(b) Explain image analysis techniques for measurement of rock fragmentation by blasting.	04
	(c) Explain different properties of explosives.	07
	OR	
	(c) Explain the selection of explosives.	07
Q.3	(a) Describe the mechanism of drilling.	03
	(b) Explain permitted explosive and its type.	04
	(c) List out different types of drill machines. Explain any one with neat sketch.	07
	OR	
Q.3	(a) Explain the mechanism of rock blasting.	03
	(b) Explain detonators and its type.	04
	(c) Explain different types of drill bits used in drilling with neat sketch.	07
Q.4	(a) Discuss the factors influencing selection of drill.	03
	(b) Discuss the factors affecting optimization of drilling parameters.	04
	(c) Define ground vibration. Explain its causes and damages.	07
	OR	
Q.4	(a) Discuss the factors affecting drillability of rocks.	03
	(b) Explain the electric and non-electric methods of blasting.	04
	(c) Explain the tools and techniques for pre-blast, in-blast and post-blast monitoring.	07
Q.5	(a) Discuss the role of powder factor in evaluation of blasting.	03
	(b) Describe the impact of ground vibration and air blast on the neighboring structures and communities.	04
	(c) Explain blast design parameters and its calculation.	07
	OR	
Q.5	(a) Discuss the mitigative measures for blasting nuisances.	03
	(b) Describe the different methods to assess blast damage.	04
	(c) Explain different kinds of control blasting techniques.	07
