Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2022

Subject Code:3172213 Date:10-01-2023

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)	Discuss the factors affecting optimization of drilling parameters.	**04**
	(c)	Explain blast design parameters and its calculation.	**07**
Q.2	**(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 different properties of explosives.	**07**
		OR	
	(c)	Explain the emerging trends in initiating systems.	**07**
Q.3	**(a)**	Discus the factors influencing selection of drill.	**03**
	(b)	Describe the different methods to assess blast damage.	**04**
	(c)	Explain the blast design parameters and its calculation.	**07**
		OR	
Q.3	**(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)	List out different types of drill machines. Explain any one with neat sketch.	**07**
Q.4	**(a)**	Describe the mechanism of drilling.	**03**
	(b)	Explain permitted explosive and its type.	**04**
	(c)	Explain different types of drill bits used in drilling with neat sketch.	**07**
		OR	
Q.4	**(a)**	Explain the mechanism of rock blasting.	**03**
	(b)	Explain different types of bit wear and effects of bit wear.	**04**
	(c)	Explain different kinds of control blasting techniques.	**07**
Q.5	**(a)**	Discuss the mitigative measures for blasting nuisances.	**03**
	(b)	Explain the electric and non-electric methods of blasting.	**04**
	(c)	Define ground vibration. Explain its causes and damages.	**07**
		OR	
Q.5	**(a)**	Discuss the factors affecting drillability of rocks.	**03**
	(b)	Explain detonators and its type.	**04**
	(c)	Explain the tools and techniques for pre-blast, in-blast and post-blast monitoring.	**07**

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