Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – WINTER 2023

Subject Code:3162211 Date:13-12-2023

Subject Name:Drilling Blasting 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)**	Define drilling and its purposes.	**03**
	(b)	Explain the fundamentals of percussive & rotary percussive drilling method.	**04**
	(c)	What is mechanics of drilling? Compare Top hammer drilling with Down the hole hammer drilling in detail.	**07**
Q.2	**(a)**	Identify the factors/parameters that influence the selection of drills.	**03**
	(b)	Describe various type of permitted explosive with specific features of each type.	**04**
	(c)	Explain rock breakage mechanism under percussive drilling method.	**07**
		OR	
	(c)	Explain the importance and construction of magazine, discuss about storage of explosive.	**07**
Q.3	**(a)**	How do you select an explosive for blasting in mines?	**03**
	(b)	Write a short note on Water-jet drilling.	**04**
	(c)	Explain the types of detonators and its uses with neat sketch.	**07**
		OR	
Q.3	**(a)**	Compare low explosive with high explosive.	**03**
	(b)	Explain general test procedure of explosive.	**04**
	(c)	What is secondary blasting? Explain the types of secondary blasting.	**07**
Q.4	**(a)**	What are the causes of air over pressure in open cast mines?	**03**
	(b)	Explain the basic mechanism of blasting.	**04**
	(c)	Describe physical properties, chemical composition and application of emulsion explosive.	**07**
		OR	
Q.4	**(a)**	How Interpretation of borehole data is done?	**03**
	(b)	Explain the causes and remedies of ground vibration.	**04**
	(c)	What do you understand by exploration drilling? Explain Various types of exploratory drills and their applicability.	**07**
Q.5	**(a)**	Explain Livingstone theory of crater formation.	**03**
	(b)	How burden and spacing is estimated? Explain with one example.	**04**
	(c)	What do you mean by detonator factor? Also explain the blast design for horizontal drivages in metal mines.	**07**
		OR	
Q.5	**(a)**	Explain the Initiation patterns using in blasting.	**03**
	(b)	What do you mean by blasting-off-solid?	**04**
	(c)	Write a brief note on ‘long hole blasting’ and ‘vertical crater retreat blasting’ method.	**07**

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