Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2172207 **Date: 03/12/2018**

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.**

			MARKS
Q.1	**(a)**	Explain the basic fundamentals of explosive theory.	**03**
	(b)	Write short note on rotary drilling.	**04**
	(c)	Calculate the powder factor (kg/m^3) from below data :- (i) Bench Height – 12 m (ii) Hole Dia. – 165 mm (iii) Explosive – (a) ANFO – 70% - 0.850 gm/cc (b) Cap Sensitive – 30 % - 1.25 gm/cc.	**07**
Q.2	**(a)**	Explain the working principles of percussive drilling.	**03**
	(b)	Calculate the energy factor from below data:- (i) Hole Dia – 150 mm (ii) Bench Height – 10 m (iii) Type of Explosive – ANFO (iv) Quantity of explosive/hole – 35 kg (v) Energy of ANFO – 850 KJ/kg.	**04**
	(c)	Explain the importance of blast geometry for reducing blasting nuisances.	**07**
		OR	
	(c)	Explain the impacts of noise level on surrounding structure during blasting.	**07**
Q.3	**(a)**	Describe the basic function of Trunk Line Delay.	**03**
	(b)	Draw a square type firing pattern of 20 holes by alternately using the trunk line delay of 17 ms, 25 ms and 42 ms respectively. Also provide the table which describes the firing time of each hole.	**04**
	(c)	Write a note on controlled blasting with air decking.	**07**
		OR	
Q.3	**(a)**	Differentiate between the Peak Particle Velocity & Peak Vector Sum.	**03**
	(b)	Draw a serpentine firing pattern of 20 holes by alternately using the trunk line delay of 17 ms, 25 ms and 42 ms respectively. Also provide the table which describes the firing time of each hole.	**04**
	(c)	Write a note on controlled blasting with solid decking.	**07**
Q.4	**(a)**	Explain the Ground Vibration and its impact on surrounding structure.	**03**
	(b)	Write short note on Flyrock.	**04**
	(c)	List the different blasting devices. Explain any two.	**07**
		OR	
Q.4	**(a)**	Explain the various factors affecting choice of drilling.	**03**
	(b)	Describe various parameters for optimization of drilling.	**04**
	(c)	Write a note on the seismograph and its functions.	**07**
Q.5	**(a)**	Give the permissible limit of noise level.	**03**
	(b)	Write a note on Long Hole Drilling.	**04**
	(c)	Write a note on ANFO.	**07**
		OR	
Q.5	**(a)**	Draw a table which describes the permissible limit of ground vibration provided by DGMS.	**03**
	(b)	Write note on Hydraulic Drilling.	**04**
	(c)	What is explosive? Describe the properties of explosive in brief.	**07**

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