

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:3162211

Date:05-12-2024

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.

- Q.1** (a) Explain mechanics of drilling. **03**
(b) Differentiate between percussive & rotary drilling method. **04**
(c) Write a brief note on Top hammer drilling and Down the hole hammer drilling in detail. **07**
- Q.2** (a) Explain the components/parts of drill machine. **03**
(b) Define permitted explosive with its type. **04**
(c) Write a note on Water-jet drilling and Jet piercing. **07**
- OR**
- (c) Explain rock breakage mechanism under percussive drilling method. **07**
- Q.3** (a) Identify the factors/parameters that influence the selection of drills. **03**
(b) Compare low explosive with high explosive with one example. **04**
(c) Write a brief note on slurry and emulsion explosive. **07**
- OR**
- Q.3** (a) Explain the basic mechanism of blasting. **03**
(b) How burden and spacing is estimated? Explain with one example. **04**
(c) Define exploration drilling? Explain Various types of exploratory drills and their applicability. **07**
- Q.4** (a) Write a short note on ring hole blasting. **03**
(b) Explain the Initiation patterns using in blasting. **04**
(c) Discuss the types of detonators and its uses with neat sketch. **07**
- OR**
- Q.4** (a) Name the blast design parameters. **03**
(b) Explain vertical crater retreat method. **04**
(c) Discuss the problems associated with blasting, Ground vibration and air over pressure. **07**
- Q.5** (a) Explain mechanics of rock fragmentation. **03**
(b) How specific charge is calculated? Explain with one example. **04**
(c) What do you mean by secondary blasting? Explain the types of secondary blasting. **07**
- OR**
- Q.5** (a) What do you understand by detonator factor? **03**
(b) How drilling cost is determined in surface mine? **04**
(c) Discuss the blast design pattern for horizontal drivages in underground mines. **07**
