

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III EXAMINATION – SUMMER 2025

Subject Code:3132201

Date:31-05-2025

Subject Name: Introduction to Mining

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.
- 5.

		MARKS
Q.1*	(a) Differentiate between the term Ore and Mineral.	03
	(b) Define the following terms; a) Adit & Shaft (b) Stopping & Stope	04
	(c) Define drilling & their operational components. Discuss the types of drilling method based on their principle of working.	07
Q.2	(a) Write the purpose of drilling.	03
	(b) Differentiate the following terms: a) Level & Crosscut b) Development & Depillaring	04
	(c) Write a brief note on “stages of life of mine”.	07
	OR	
	(c) Explain the various methods of prospecting and Exploration of the minerals.	07
Q.3	(a) What is Raise and Winze?	03
	(b) Define explosive & its basic composition.	04
	(c) Briefly explain the properties of explosive.	07
	OR	
Q.3	(a) Name the factors influencing the selection of drill machine.	03
	(b) Explain the role of exploration and Prospecting in defining the life of mine.	04
	(c) Write short note on the following: a) ANFO explosive b) Slurry explosive	07
Q.4	(a) What do you mean by drillability of rock?	03
	(b) What is borehole logging?	04
	(c) Explain mine closure and its importance.	07
	OR	
Q.4	(a) What do you mean by blasting?	03
	(b) How mineral reserves improve the technological growth of nation? Explain briefly.	04
	(c) Write a brief note on Jack hammer drill & Wagon drill.	07
Q.5	(a) Name the mining method used for coal and non-coal deposit.	03
	(b) Explain permitted explosive and its type.	04
	(c) How development of surface mining is done? Explain briefly.	07
	OR	
Q.5	(a) What do you understand by unit operation of mining?	03
	(b) List out various difficulties faced during boring.	04
	(c) Explain core recovery in details.	07

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (NEW) EXAMINATION – SUMMER 2024****Subject Code:3132201****Date:29-06-2024****Subject Name: Introduction to Mining****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 Mining, Surface Mining and Underground Mining.	03
	(b) Give classification of surface and underground mining.	04
	(c) Explain various methods of drilling.	07
Q.2	(a) Explain the mineral resourced of Gujarat and India.	03
	(b) Describe various unit operations involved in surface and underground mining.	04
	(c) Explain core recovery in details.	07
	OR	
	(c) Explain directional drilling and deflection of boreholes.	07
Q.3	(a) Describe the drillability of rocks.	03
	(b) List out various difficulties faced during boring.	04
	(c) Explain different types of drill bits and its selection.	07
	OR	
Q.3	(a) List of various transportation equipment used in surface and underground mining.	03
	(b) Differentiate between surface and underground mining.	04
	(c) Explain various stages of mining.	07
Q.4	(a) Give classification of explosive.	03
	(b) Write short note on various properties of explosive.	04
	(c) Explain basic concept of blasting.	07
	OR	
Q.4	(a) Explain prospecting.	03
	(b) Explain the various equipment and accessories used in drilling.	04
	(c) Explain the development of surface mining.	07
Q.5	(a) Explain principle of boring.	03
	(b) Explain various drilling pattern used in surface mining.	04
	(c) Explain the development of underground mining.	07
	OR	
Q.5	(a) Explain interpretation of borehole data and borehole logging.	03
	(b) Explain various drilling pattern used in underground mining.	04
	(c) Explain mine closure and its importance.	07

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III(NEW) EXAMINATION – SUMMER 2023****Subject Code:3132201****Date:28-07-2023****Subject Name:Introduction to Mining****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) Discuss the mineral resources of Gujarat and India.	03
	(b) Explain the classification of surface and underground mining.	04
	(c) Explain the basic concept of blasting.	07
Q.2	(a) Discuss the various equipments and accessories used in drilling.	03
	(b) Explain the various instruments used for core recovery.	04
	(c) Discuss the factors affecting selection of explosive.	07
	OR	
	(c) Explain the properties of explosive.	07
Q.3	(a) Describe the principle and methods of prospecting and exploration.	03
	(b) Explain the different types of drill bits and its selection.	04
	(c) Explain the various transportation equipments & its application in surface and underground mining.	07
	OR	
Q.3	(a) Discuss the principle of boring.	03
	(b) Discuss the different drilling patterns used in surface and underground mining.	04
	(c) Explain the various loading equipments & its application in surface and underground mining.	07
Q.4	(a) Define directional drilling. Discuss the objectives of directional drilling.	03
	(b) Explain deflection of borehole and difficulties faced during boring.	04
	(c) Explain the development of underground mining.	07
	OR	
Q.4	(a) Explain the pitting & trenching in details.	03
	(b) Describe the interpretation of borehole data and borehole logging.	04
	(c) Explain the development of surface mining.	07
Q.5	(a) Describe the drillability of rocks.	03
	(b) Discuss the comparison between surface and underground mining.	04
	(c) Explain the various stages in the life of a mine.	07
	OR	
Q.5	(a) Explain the different methods of drilling.	03
	(b) Describe the various unit operations involved in surface and underground mining.	04
	(c) Discuss the basic concepts of mine closure & its importance in surface and underground mining.	07

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– III (NEW) EXAMINATION – SUMMER 2022****Subject Code:3132201****Date:15-07-2022****Subject Name:Introduction to Mining****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:	
	i. Mining	
	ii. Mineral	03
	iii. Ore	
	(b) Write a note on stages of mine.	04
	(c) Write a note on mineral resources of India.	07
Q.2	(a) Classify types of mines.	03
	(b) Write a short note on phases of a mine.	04
	(c) Compare opencast mining to underground mining.	07
	OR	
	(c) Explain the factors involved in choosing the type of mining method.	07
Q.3	(a) Write a note on:	
	i. Prospecting and exploration	03
	ii. Reconnaissance	
	(b) Explain types of drilling methods and its applicability in the field.	04
	(c) Explain the methods of prospecting and exploration.	07
	OR	
Q.3	(a) Differentiate between drilling and boring.	03
	(b) Explain the applicable conditions for directional drilling.	04
	(c) Explain the procedure and importance of:	
	i. Borehole logging	07
	ii. Interpretation of borehole data	
Q.4	(a) List types of drill bits.	03
	(b) Explain various criteria considered while selecting a drill bit.	04
	(c) Write a note on drillability of rocks.	07
	OR	
Q.4	(a) Write the purpose of the following blasting accessories:	
	i. Explosives	
	ii. Detonator	
	iii. Booster	03
	iv. Stemming	
	v. Detonating cord	
	vi. Exploder	
	(b) Write a note on loading equipments used in underground mines.	04
	(c) Explain the properties of explosives.	07

- Q.5**
- (a) Give six examples of explosives with its applicable conditions. **03**
 - (b) Write a note on:
 - i. Mine closure **04**
 - ii. Loading and transportation
 - (c) Write the steps involved in development of surface mine. **07**

OR

- Q.5**
- (a) Define:
 - i. Stripping ratio **03**
 - ii. VOD
 - iii. Boxcut
 - (b) Write a note on transportation equipments used in surface mines. **04**
 - (c) Write the steps involved in development of an underground mine. **07**
