

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION – SUMMER 2025

Subject Code:3172211

Date:23-05-2025

Subject Name: Advanced Mining Methods

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) When do we need to support mines?	03
	(b) Write the features of horizon mining system.	04
	(c) Describe the main components of powered support with neat sketch. Also write its functions and its advantages.	07
Q.2	(a) Write the functions of roof bolt. Also name the types of roof bolt.	03
	(b) Explain the order of slicing in detail with neat sketch.	04
	(c) What do you understand by Horizon mining? Discuss the main elements of horizon mining system.	07
	OR	
	(c) What is horizontal slicing method? Discuss horizontal slicing in ascending order with stowing with neat sketch.	07
Q.3	(a) Make a tree diagram of thick seam mining methods.	03
	(b) Discuss the factors affecting the planning of distance between Horizons in details.	04
	(c) Explain chock-Shield support with neat sketch.	07
	OR	
Q.3	(a) Name the types of machineries are used in thin seam extraction.	03
	(b) How optimum distance between crosscuts can be determined? Explain briefly.	04
	(c) Describe the methods or ways to transport the broken coal in hydraulic mining.	07
Q.4	(a) Write the advantages of shield method of mining.	03
	(b) Explain the problems of mining thin coal seams.	04
	(c) What do you mean by inclined slicing method? Discuss inclined slicing in descending order with stowing with neat sketch.	07
	OR	
Q.4	(a) What do you understand by hydraulic mining of coal?	03
	(b) Explain principle of underground coal gasification with schematic diagram of UCG system.	04
	(c) Discuss deep -sea mining for manganese nodules.	07
Q.5	(a) Write a short note on ore mining by leaching.	03
	(b) Explain the suitable conditions for hydraulic mining.	04
	(c) Describe the methods of establishing linkage between bore holes in underground coal gasification.	07

OR

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| Q.5 | (a) | Differentiate between the term hydro-chemical and bio-chemical method. | 03 |
| | (b) | Discuss the constituent processes of underground coal gasification. | 04 |
| | (c) | Describe the methods of thin seam extraction in details. | 07 |
