

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:3172211

Date:11-12-2024

Subject Name: Advanced Mining Methods

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) Discuss the suitable conditions for selection of hydraulic mining.	03
	(b) Explain general consideration for adopting horizon mining.	04
	(c) Describe principles of operation and design of power support with neat sketch.	07
Q.2	(a) Describe basic concepts of underwater mining.	03
	(b) Define hydraulic mining. Explain suitable conditions for selection of hydraulic mining.	04
	(c) Explain the principle and operation of horizon mining with neat sketch.	07
	OR	
	(c) Explain different application, merits and demerits of horizon mining.	07
Q.3	(a) Explain the ore mining by leaching.	03
	(b) Define underground coal gasification. Explain factors affecting underground coal gasification.	04
	(c) Explain semi-horizon mining with neat sketch.	07
	OR	
Q.3	(a) Discuss the future scopes in underground coal gasification.	03
	(b) Elaborate the advantages and disadvantages of underground coal gasification.	04
	(c) Explain deep-sea mining for manganese nodules.	07
Q.4	(a) Discuss the components of powered support.	03
	(b) Discuss about latest development in powered support system.	04
	(c) Explain the principle and operation of hydraulic mining with neat sketch.	07
	OR	
Q.4	(a) Discuss the application of powered support for wide excavation.	03
	(b) Elaborate the advantages and disadvantages of hydraulic mining.	04
	(c) Explain slice mining method of thick seam with neat sketch.	07
Q.5	(a) Discuss the factors affecting choice of thick seam mining method.	03
	(b) Explain problems of thick seam mining.	04
	(c) List out various methods used in thick seam extraction. Explain sublevel caving method with neat sketch.	07
	OR	
Q.5	(a) List out various equipment used in thin seam extraction.	03
	(b) Explain problems of thin seam mining.	04
	(c) List out various methods used in thin seam extraction. Explain any one method with neat sketch.	07
