

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2023****Subject Code:3152206****Date:20-12-2023****Subject Name: Underground Coal 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) Discuss the origin of stratified deposits.	03
	(b) Describe various factors influencing choice of mining methods.	04
	(c) Explain board and pillar method of mining with neat sketch.	07
Q.2	(a) Discuss shape and size of panel system used in mining.	03
	(b) Explain drift theory and in-situ theory of origin of coal.	04
	(c) Explain longwall advancing method with neat sketch.	07
	OR	
	(c) Explain longwall retreating method with neat sketch.	07
Q.3	(a) Discuss the cycle of operation in mining.	03
	(b) Explain spontaneous heating and incubation period.	04
	(c) Explain the methods of extraction of pillars for board and pillar method of mining.	07
	OR	
Q.3	(a) Discuss the application of panel system.	03
	(b) Explain the classification of mining methods.	04
	(c) Explain barrier and preparatory stoppings with neat sketch.	07
Q.4	(a) Discuss the principle of designing pillar extraction techniques.	03
	(b) Describe the precautions against fire during and after depillaring operation.	04
	(c) Explain hydraulic stowing method with neat sketch.	07
	OR	
Q.4	(a) Discuss the arrangements for hydraulic stowing method.	03
	(b) Explain the working of load haul dumper and side discharge loader.	04
	(c) Explain the layout of working for the required output, length and direction of faces in longwall mining methods.	07
Q.5	(a) Define stowing and write their principle of working.	03
	(b) Differentiate between pneumatic and mechanical stowing.	04
	(c) Explain room and pillar method of mining with neat sketch.	07
	OR	
Q.5	(a) Discuss the hand packing method of stowing.	03
	(b) Describe the arrangements for transportation of material on surface and underground in stowing method.	04
	(c) Differentiate between board & pillar method and long wall method.	07
