

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2023****Subject Code:3142201****Date:11-01-2024****Subject Name: Mining Machinery - I****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 various applications of aerial ropeway.	03
	(b) Describe the advantages of compressed air over other power sources.	04
	(c) Explain pipeline and distributions of compressed air used mines.	07
Q.2	(a) List out different methods of transport system used in underground mine.	03
	(b) Describe the process of capping and rope caps in brief.	04
	(c) Explain the construction of mine tubs and car with neat sketch.	07
	OR	
	(c) Explain the construction and operation of mine locomotives.	07
Q.3	(a) Define the following term: Backstay, Back catch and Drop warwick.	03
	(b) Describe the criteria for selection of wire ropes.	04
	(c) Explain endless rope haulage with neat sketch.	07
	OR	
Q.3	(a) Explain the working of scraper chain conveyor.	03
	(b) Explain various types of aerial ropeway system.	04
	(c) Explain main & tail rope haulage with neat sketches.	07
Q.4	(a) Discuss the important feature of a good haulage track.	03
	(b) List out types of mine locomotives. Explain anyone.	04
	(c) Explain lang's lay and ordinary lay in wire rope.	07
	OR	
Q.4	(a) Discuss the advantages of gravity rope haulage.	03
	(b) Describe rope tensioning arrangement in aerial ropeway.	04
	(c) Explain the various types and construction of wire ropes.	07
Q.5	(a) Describe rope splicing in detail.	03
	(b) Describe the construction and operation of shuttle car.	04
	(c) Describe haulage track, its laying and maintenance in brief.	07
	OR	
Q.5	(a) Explain any one loop take up arrangement for belt conveyor system.	03
	(b) Describe the construction and operation of low-profile dumper.	04
	(c) Explain the construction and installation of aerial ropeway.	07
