

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2022****Subject Code:3142201****Date:23-06-2022****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) Write the uses of wire ropes	03
	(b) Write a short note on low profile dumper.	04
	(c) Explain the application of over head trolley wire locomotive.	07
Q.2	(a) Write the functions of the following:	03
	i. Back catch	
	ii. Stopblock	
	iii. Backstay.	
	(b) Explain the application of rope capels and process of rope capping	04
	(c) Write a note on exhaust conditioner and flame trap used in diesel locomotive.	07
	OR	
	(c) Name different rope haulage systems. Explain the main and tail with neat sketch.	07
Q.3	(a) Write the applications of shuttle car	03
	(b) Write the essential conditions of good haulage track.	04
	(c) Name different rope capels used in underground mines. Explain any one.	07
	OR	
Q.3	(a) What do you mean by rope splicing?	03
	(b) Classify the principle types of mechanical brakes used for mining machineries. Explain any one.	04
	(c) Write a note on construction and installation operation of aerial ropeways.	07
Q.4	(a) What do you mean by non-stranded rope?	03
	(b) State the limitations for the working of endless rope haulage system. Also state its advantages and disadvantage.	04
	(c) What are the different types of locomotives used in Underground coal mines? Explain diesel locomotive in detail.	07
	OR	
Q.4	(a) What are the limitations on the use of different types of locomotives in underground mines?	03
	(b) Describe the advantages of compressed air over other power sources.	04
	(c) Why rope clips are used in rope haulage system? Explain different types of rope clips with neat sketch.	07
Q.5	(a) Write short note on Clifton pulley.	03
	(b) Explain various types of aerial ropeway system.	04
	(c) Explain pipe line and distributions of compressed air used mines	07
	OR	

- Q.5** (a) What is space factor of wire rope? How mass and strength of wire ropes is determined? **03**
- (b) Explain lang's lay and ordinary lay in wire rope. **04**
- (c) Explain the process of rope splicing step by step. **07**
