

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2021

Subject Code:3142201

Date:31/12/2021

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) Differentiate between Lang's lay and Ordinary lay with neat sketch.	03
	(b) Discuss advantages & disadvantages of endless rope haulage.	04
	(c) What do you mean by capping of rope? Explain Coned- socket type capel with neat sketch.	07
Q.2	(a) Why rope clips are used in rope haulage system? Explain cam clip with neat sketch.	03
	(b) Discuss the process of Rope splicing.	04
	(c) Classify the wire ropes in detail on the basis of use and construction.	07
<b>OR</b>		
Q.3	(c) Explain main & tail rope haulage system with neat sketch.	07
	(a) Name the parameters affecting the selection of wire rope.	03
	(b) State the type of rope to be used for: (a) Coal Cutting Machine (b) Winding Rope (c) Haulage Ropes (d) Dragline Hoist Rope	04
(c) What are the different types of safety devices used on haulage roads? Explain with neat sketches.	07	
<b>OR</b>		
Q.3	(a) What is space factor of wire rope? How mass and strength of wire ropes is determined?	03
	(b) Explain various types of aerial ropeway system.	04
	(c) Explain pipe line and distributions of compressed air used in u/g mines.	07
Q.4	(a) What are the limitations on the use of different types of locomotives in underground mines?	03
	(b) Write the applicable conditions and application of aerial ropeway system.	04
	(c) Write a brief note on belt conveyor system.	07
<b>OR</b>		
Q.4	(a) Write the applications and construction of shuttle car.	03
	(b) Sketch the layout of battery charging room used for battery operated electric locomotives in underground mines.	04
	(c) Explain the construction and working of scraper chain conveyor in detail.	07
Q.5	(a) Write a short note on low profile dumper.	03
	(b) What are the advantages of compressed air over other power sources?	04
	(c) What are the types of locomotives used in mines? Explain any one in detail.	07
<b>OR</b>		
Q.5	(a) Sketch track layout of direct rope haulage.	03
	(b) What precautions should be taken for gage selection and lying down of tracks?	04
	(c) Explain the rope tensioning arrangement of aerial ropeway.	07

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