

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2020****Subject Code:2152204****Date:03/02/2021****Subject Name:Rock Mechanics****Time:10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any **FOUR** questions out of **EIGHT** questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) Difference between rock and rock mass.	03
	(b) How rock mechanics is helpful in mining excavations?	04
	(c) Explain in details types of waves	07
Q.2	(a) What is RQD? Find the RQD in percentage with given data, in a borehole log of 1.5 m length, recovery of rock cores in cm is given here 12, 8, 10, 2, 6, 4, 10, 13.	03
	(b) What is porosity? A dry rock sample of diameter 54 mm and length 100 mm weight 300 g. After saturation its weight increased to 330 g. The specific gravity of the liquid is 1.05. Find the porosity of the rock sample with given data.	04
	(c) Explain with neat sketch: Tri-axial test	07
Q.3	(a) What is uniaxial compressive strength and how it is important in rock mechanics?-	03
	(b) List out the factors which affects the rock strength.	04
	(c) Explain in details : Hardness	07
Q.4	(a) Explain the property of rock : Degree of saturation	03
	(b) Discuss in brief how to measure the density of rock.	04
	(c) Explain in details : Shear box test	07
Q.5	(a) Explain : Anisotropy	03
	(b) List out the ISRM standards for a rock specimen.	04
	(c) What is Creep? Explain how to measure it?	07
Q.6	(a) Explain in brief : Elasticity and Plasticity	03
	(b) Explain: (a) Young's modulus and (b) Modulus of rigidity	04
	(c) Discuss the Griffith's theory of fracture in rock mass.	07
Q.7	(a) Which instrument is used to measure water pressure in soil? Discuss it briefly.	03
	(b) Write a note on engineering classification of soil.	04
	(c) Discuss in brief the physical properties of soil.	07
Q.8	(a) Difference between soil and rock.	03
	(b) Types of failure.	04
	(c) How ground water is influence on rock and soil? Discuss in detail.	07
