Seat No.: _____   www.FirstRanker.com   Enrolment No. www.FirstRanker.com

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– V (New) EXAMINATION – WINTER 2019

Subject Code: 2152204   **Date: 04/12/2019**
Subject Name: Rock Mechanics
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.

			MARKS
Q.1	**(a)**	Differentiating between soil and rock.	**03**
	(b)	What is rock mechanics? How it would helps in mining?	**04**
	(c)	Explain in detail: Types of waves.	**07**
Q.2	**(a)**	Explain: Hooke's law	**03**
	(b)	Draw stress-strain curve and do brief analysis of it.	**04**
	(c)	Explain: Uniaxial compressive strength	**07**
		OR	
	(c)	Explain: Brazilian test with its ISRM standards.	**07**
Q.3	**(a)**	Explain: Thermal properties rock	**03**
	(b)	Explain: Density	**04**
	(c)	Explain any one method for determination of permeability of rock.	**07**
		OR	
Q.3	**(a)**	Explain: Anisotropy of rock	**03**
	(b)	Explain: Porosity	**04**
	(c)	Explain: Tri-axial compressive strength	**07**
Q.4	**(a)**	Types of failure.	**03**
	(b)	Explain: Hardness with Mohr's scale of hardness of minerals.	**04**
	(c)	Explain the grifith's theory of fracture.	**07**
		OR	
Q.4	**(a)**	What is creep? Explain with sketch.	**03**
	(b)	Explain: Modulus of elasticity and modulus of rigidity.	**04**
	(c)	Explain: Mohr's and coulomb theories of rock failure.	**07**
Q.5	**(a)**	Explain: Classification of engineering soil.	**03**
	(b)	Explain with sketch flat jack technique.	**04**
	(c)	What are the physical properties soils? Explain each in brief.	**07**
		OR	
Q.5	**(a)**	How is groundwater influence on rock and soil?	**03**
	(b)	Explain the technique to measure the ground water flow in a rock mass.	**04**
	(c)	What is rheology? Explain any one model of it.	**07**

****