Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V- EXAMINATION – SUMMER 2016

Subject Code: 152203 **Date: 09/05/2016**

Subject Name: Rock Mechanics

Time: 02:30 PM to 05:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Define Rock Mechanics. Write various applications of Rock Mechanics.	**07**
	(b)	Define Hardness. Explain Moh's scale of hardness and role of hardness in rock mass.	**07**
Q.2	**(a)**	What is Stress and Strain? Explain the stress strain conditions in isotropic and anisotropic rocks.	**07**
	(b)	Define the following terms: (1) Rock (2) Density (3) Mineral (4) Strength (5) Ore (6) Specific Gravity (7) Porosity	**07**
		OR	
	(b)	Define the following terms: (1) Permeability (2) Viscosity (3) Elasticity (4) Durability (5) Unit Weight (6) Swelling (7) Moisture Content	**07**
Q.3	**(a)**	Describe the working of Slake durability apparatus with figure.	**07**
	(b)	Explain the Griffith`s theory in rock mass.	**07**
		OR	
Q.3	**(a)**	Describe Flat Jack test to determine the strength of In-situ rocks.	**07**
	(b)	Define creep? Give the measurement of creep in rocks.	**07**
Q.4	**(a)**	Write a note on Dilatometer test for the determination of the strength of In-situ rocks.	**07**
	(b)	Which are the responsible factors for mechanical properties of rock masses? Explain in brief.	**07**
		OR	
Q.4	**(a)**	What parameters affect the physical properties of rocks? Explain in brief.	**07**
	(b)	Describe Swell Index in brief with sketch.	**07**
Q.5	**(a)**	Explain "Creep in rock mass" under combined loading condition.	**07**
	(b)	Explain In-situ Determination of Elastic properties of rocks by dynamic method.	**07**
		OR	
Q.5	**(a)**	Explain Coulomb theory of failure criteria for Rock and Rock mass.	**07**
	(b)	Write a short note on Ground Water flow in Rock mass.	**07**

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