Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – SUMMER 2013

Subject Code: 152203 **Date: 21-05-2013**

Subject Name: Rock Mechanics

Time: 10:30 pm 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.**

Q.1	**(a)**	Define rock mechanics. Give the applications and limitations of rock mechanics.	**07**
	(b)	Give classification of strength. Describe uniaxial unconfined compressive strength with neat sketch.	**07**
Q.2	**(a)**	List out physical and mechanical properties of rocks. What information we get out of them? Explain Density property of rocks.	**07**
	(b)	Write a note on cable jacking test to determine the strength of In-situ rocks.	**07**
		OR	
	(b)	Write a note on radial and longitudinal test for the measurement of permeability in rock masses.	**07**
Q.3	**(a)**	Explain ground water flow in rock mass.	**07**
	(b)	Discuss Mohr's and Coulomb theories of Failure. Give the conclusion on Strength and Failure criteria of rocks.	**07**
		OR	
Q.3	**(a)**	Explain any two methods in brief of the Measurement of water pressure with neat sketch.	**07**
	(b)	Determine the hydro-fracturing in rocks in pre-mining state of stress.	**07**
Q.4	**(a)**	Explain In-situ Determination of Elastic properties of rocks by dynamic method.	**07**
	(b)	Explain "Creep in rock mass" under combined loading condition.	**07**
		OR	
Q.4	**(a)**	Write a note on types of waves by dynamic properties of rock	**07**
	(b)	What is rheology? Explain Kelvin model.	**07**
Q.5	**(a)**	What is Consolidation of soil? Explain types of consolidation.	**07**
	(b)	Explain Griffith criteria of fracture initiation in rock masses.	**07**
		OR	
Q.5	**(a)**	Explain Factors affecting on permeability of soils.	**07**
	(b)	Describe the consolidometer test for soil.	**07**

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