Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – SUMMER • 2015

Subject Code: 152203 **Date: 11/05/2015**

Subject Name: Rock Mechanics.

Time: 02.30pm-05.00pm **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)**	Draw and explain a generalized stress Vs strain curve for rock.	**07**
	(b)	Write a short note on application of rock mechanics in mining.	**07**
Q.2	**(a)**	What are physical and mechanical properties of rock?	**07**
	(b)	How slake durability of rock is determined?	**07**
		OR	
	(b)	How permeability of rock can be determined in laboratory?	**07**
Q.3	**(a)**	Briefly explain Anisotropic, Non-Elastic and Inhomogeneous property of Rock.	**07**
	(b)	Mention commonly used rock mass classification systems and briefly explains any one.	**07**
		OR	
Q.3	**(a)**	Explain how to determine uniaxial compressive strength of rock in laboratory.	**07**
	(b)	What are the static and dynamic methods for determining elastic constants of rock?	**07**
Q.4	**(a)**	Explain how to determine shear strength of rock in laboratory?	**07**
	(b)	Briefly describe creep behaviour of rock and estimation of creep deformation in mine working.	**07**
		OR	
Q.4	**(a)**	Explain how to determine tensile strength of rock by indirect method.	**07**
	(b)	Explain briefly Mohr-Coulomb rock failure criteria.	**07**
Q.5	**(a)**	What are the methods for determining in-situ stress state? Briefly explain any one such method.	**07**
	(b)	Explain briefly consistency and gradation of soil.	**07**
		OR	
Q.5	**(a)**	Discuss the influence of water on engineered structures on or in the rocks.	**07**
	(b)	What do you understand by Rheology and rheological models explain any one model.	**07**

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