

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) - EXAMINATION – SUMMER 2016****Subject Code:2152204****Date:06/05/2016****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) Explain the role of stress and strain in rocks. **07**
 (b) Explain the stress strain conditions in isotropic and anisotropic rocks. **07**
- Q.2** (a) What is hardness? Explain Moh's scale of hardness and role of hardness in rock mass. **07**
 (b) What is Slake durability index? Explain the working of Slake durability apparatus with figure. **07**
- OR**
- (b) Define the term Rock Mechanics Describe in detail the field of application of rock mechanics. **07**
- Q.3** (a) Explain the Griffith's theory in rock mass. **07**
 (b) Explain Flat Jack test to determine the strength of In-situ rocks. **07**
- OR**
- Q.3** (a) Write a note on the hydro-fracturing in rocks in pre-mining state of stress. **07**
 (b) Explain In-situ Determination of Elastic properties of rocks by dynamic method. **07**
- Q.4** (a) Explain "Creep in rock mass" under combined loading condition. **07**
 (b) Which are the responsible factors for mechanical properties of rock masses? **07**
 Write a note on elasticity and plasticity of rocks.
- OR**
- Q.4** (a) What is creep? Give the measurement of creep in rocks. **07**
 (b) Explain swelling. And describe the Swell Index. **07**
- Q.5** (a) Write a note on Dilatometer test for the determination of the strength of In-situ rocks. **07**
 (b) Explain Porosity and Specific Gravity properties of rocks. **07**
- OR**
- Q.5** (a) What is rock? Explain different properties of rock. **07**
 (b) What parameters affect the physical properties of rocks? **07**
