

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (OLD) - EXAMINATION – SUMMER 2017****Subject Code: 152203****Date: 01/05/2017****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) Write a short note on the application of rock mechanics in mining engineering. **07**  
(b) What do you mean by rock mass classification? Explain any one method in details. **07**
- Q.2** (a) Describe the method for measuring uniaxial compressive strength with proper figures. **07**  
(b) Write a short note on the following:- **07**  
(i) Density (ii) Porosity
- OR**
- (b) What do you mean by permeability? Explain in details. **07**
- Q.3** (a) Differentiate the elastic property and plastic property of rock mass. **07**  
(b) Explain the Mohr and Griffith's failure criteria. **07**
- OR**
- Q.3** (a) Describe the coulomb's failure criteria. **07**  
(b) Explain the mechanics of rock failure. **07**
- Q.4** (a) Write a short note on the applicability of the Schmidt hammer. **07**  
(b) Explain any one method of determination of pre-mining state of stress. **07**
- OR**
- Q.4** (a) Write a short note on the following:- **07**  
(i) Compressibility of soil  
(ii) Soil consolidation  
(b) Explain the Mohr's scale of hardness. **07**
- Q.5** (a) Enlist the various physical properties of soil. Explain any two. **07**  
(b) Describe the various methods for the measurement of water pressure. **07**
- OR**
- Q.5** (a) What is the effect of water on rock and soil? Explain in details. **07**  
(b) Write a short note on dynamic properties of rock. **07**

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