

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
B.E SEM-V Examination-Nov/Dec.-2011

Subject code: 152203

Date: 26/11/2011

Subject Name: Rock Mechanics

Time: 02.30 pm-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) Describe the term Rock Mechanics. Explain in detail the field of application of rock mechanics. **07**
- (b) What are the Mechanical properties of rocks? Describe Tri-axial compressive strength with neat sketch. **07**

- Q.2** (a) Define Permeability. Discuss the coefficient of permeability function. **07**
- (b) Write a note on Dilatometer test for the determination of the strength of In-situ rocks. **07**

OR

- (b) Explain Porosity and Specific Gravity properties of rocks. **07**

- Q.3** (a) Explain Mohr's and Coulomb theories of Failure. State the conclusion on Strength and Failure criteria of rocks. **07**
- (b) Explain swelling. And describe the Swell Index. **07**

OR

- Q.3** (a) Discuss In-situ determination of Elastic properties by dynamic method. **07**
- (b) Explain failure in rocks. Discuss in brief the strength criteria of jointed rocks. **07**

- Q.4** (a) What is Rheology? Explain the "Maxwell Model". **07**
- (b) Discuss "Creep in rocks" under combined loading condition. **07**

OR

- Q.4** (a) Explain any two methods in brief of the Measurement of water pressure with neat sketch. **07**

- Q.4** (b) Explain Direct shear test for measure the shear strength of soil. **07**

- Q.5** (a) Explain "Darcy's law" of water flow in the ground water. **07**
- (b) What is Consolidation of soil? Explain types of consolidation. **07**

OR

- Q.5** (a) Discuss the influence of water on rocks and soil. **07**
- (b) Briefly explain the different factors to classify the soil. **07**
