

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

Subject code: 172206**Date: 29/11/2011****Subject Name: Rock Engineering****Time: 10.30 am-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) Give the design of single opening in stratified rock mass. **07**
(b) Write a short note on pillar stresses and their estimation. **07**

- Q.2** (a) What is mine subsidence? Explain the development of mine subsidence. **07**
(b) Describe the various geological and mining factors affecting the mine subsidence? **07**

OR

- (b) Give any one technique of the subsidence prediction. **07**

- Q.3** (a) What are the caving characteristics of the rocks? How the cavability is determined? **07**
(b) Explain the numerical boundary method for the analysis of stress. **07**

OR

- Q.3** (a) What is rock bursting? Write a note on gas outburst. **07**
(b) Explain finite element and finite difference method. **07**

- Q.4** (a) List out the different computational methods of stress analysis. Add a note on distinct element method. **07**
(b) What are the purposes and nature of monitoring rock mass performance? **07**

OR

- Q.4** (a) What are the natural conditions favoring bumps in coal mines? Add a note on stress conditions in a coal – mine pillar. **07**
(b) Explain the seismic and micro – seismic monitoring methods for the rock mass performance. **07**

- Q.5** (a) Explain water jet cutting. **07**
(b) Explain the function of pillars in a coal mine. **07**

OR

- Q.5** (a) Explain mechanics of blasting. Add a note on the assessment of rock cut ability. **07**
(b) Explain the design of multiple openings in massive rocks. **07**
