

GUJARAT TECHNOLOGICAL UNIVERSITY**BE SEM-IV Examination-Nov/Dec-2011****Subject code: 140604****Date: 05/12/2011****Subject Name: Engineering Geology****Time: 02.30 pm -5.00 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) Elaborate the role of geology in civil engineering practices. **07**
(b) Describe the chemical weathering of rocks through the processes of oxidation and reduction. **07**

- Q.2** (a) Describe how 'Lustre and Form' properties can be used to identify various minerals. **07**
(b) Narrate the merits and demerits of a tunnel alignment passing through the folded sequence of rocks. **07**

OR

- (b) State the objects of geological investigations for civil engineering projects. **07**

- Q.3** (a) Discuss the remedial measures for the prevention of landslides. **07**
(b) Describe the structures developed in igneous rocks due to mobility of magma / lava. **07**

OR

- Q.3** (a) What are sedimentary rocks? Describe the formation of clastic sedimentary rocks. **07**
(b) Describe the factors and kinds of metamorphism. **07**

- Q.4** (a) Drawing neat sketches, write brief notes on: (i) Horst - Garben and (ii) Stratification - Lamination. **07**
(b) Define: (i) Mineral (ii) Rock (iii) Earthquake (iv) Faults (v) Folds (vi) Permeability (vii) Weathering **07**

OR

- Q.4** (a) Give the classification of folds based on position of axial plane. **07**
(b) What are joints? Give their types and engineering geological significance. **07**

- Q.5** (a) Write brief notes: (i) Frost Action and (ii) Mohs' Scale of Hardness **07**
(b) Discuss the subsurface distribution of groundwater. **07**

OR

- Q.5** (a) Write brief notes on: (i) Effects of dip and strike of rocks on the foundation of dams and (ii) Crystallographic Axes **07**
(b) Write brief notes on: (i) Earthquake Prediction and (ii) Sandstones and Limestone as Building Stones **07**
