

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – SUMMER 2013****Subject Code: 162203****Date: 28-05-2013****Subject Name: Sub-Surface Environment****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) List out the noxious and poisonous gases met with a mine. Explain physiological character and Origin of firedamp. **07**
- (b) Explain detection method of carbon monoxide and any two detectors of carbon monoxide. **07**
- Q.2** (a) Describe “Kata thermometer for the assessment of comfort conditions in mines. **07**
- (b) Explain methane drainage with neat sketch. **07**
- OR**
- (b) What is natural ventilation? Explain geothermic gradient with suitable example. **07**
- Q.3** (a) What is relative humidity? Explain the Hygrometer to determine relative humidity of air. **07**
- (b) What is Fan ventilation? Compare – Air screw Fan and Centrifugal Fan. **07**
- OR**
- Q.3** (a) What are the characteristic curves? Explain “Fan characteristic curves”. **07**
- (b) Which are the necessities for the mine ventilations? Add a note on Sources of Leakage of air. **07**
- Q.4** (a) How is natural ventilating pressure produced? Explain by sketch “motive Column” as applied to natural ventilation pressure? **07**
- (b) Explain ventilation stopping, Air crossings, and Doors. **07**
- OR**
- Q.4** (a) Explain accessional and declensional ventilation with a neat sketch. Add a note On Air Locks. **07**
- Q.4** (b) Explain “splitting in underground workings”. **07**
- Q.5** (a) Write short note on Booster and auxiliary fans with sketch. **07**
- (b) Describe ventilation of deep mines and add a note on air-conditioning. **07**
- OR**
- Q.5** (a) What is the basic principle behind the pressure survey in a mine? Explain Inclined monometer for the pressure ventilation survey. **07**
- (b) Give the laws which govern the passage of air in a mine. Write the short notes On kilomurg and equivalent orifice of a mine. **07**
