

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- VIth SEMESTER-EXAMINATION – MAY- 2012

Subject code: 162203

Date: 15/05/2012

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) What is firedamp? What are the occurrences of firedamp in different mines? Add a note on the causes of production of whitedamp. **07**

(b) What is relative humidity? Add a note on instruments used for measuring relative humidity of mine air. **07**

Q.2 (a) Explain air-conditioning in deep coal mines. **07**

(b) Give the measurement of air flow through mine openings. **07**

OR

(b) Explain the blackdamps and stinkdamps. **07**

Q.3 (a) Explain the sources of heat in mine air due to auto-compression. **07**

(b) Write a note on resistance of leaky airways. **07**

OR

Q.3 (a) What are the causes of natural ventilation? **07**

(b) What is refrigeration of mine air? Add a note on the refrigerant circulation system. **07**

Q.4 (a) Give the various devices used for distribution and control of air in a mine. **07**

(b) What are air locks? Give the suitable airlock designs. **07**

OR

Q.4 (a) What are characteristic curves? Explain mine characteristic curves. **07**

(b) Write a note on Booster and Auxiliary fans. **07**

Q.5 (a) Explain surface Vs. underground installation of main mine fans. **07**

(b) What are the scope and importance of ventilation surveys? Add a note on venture meter. **07**

OR

Q.5 (a) Explain the pressure ventilation survey. **07**

(b) Which steps should be taken due to gas accumulation in a large cavity? Add a note on compressed air-jets. **07**
