Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI (OLD).EXAMINATION – WINTER 2016

Subject Code: 162203 **Date: 22/10/2016**

Subject Name: Sub-Surface Environment

Time: 10:30 AM to 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)**	How is natural ventilating pressure produced? Explain by sketch "motive column" as applied to Natural ventilation pressure?	**07**
	(b)	Which are the physiological effects of Carbon Monoxide? Explain detection method of it.	**07**
Q.2	**(a)**	Which are the noxious and poisonous gases met with a mine? Write a short note on Firedamp related to its origin, occurrence, physiological characters and testing methods.	**07**
	(b)	What is Fan ventilation? Compare – Air screw Fan and Centrifugal Fan.	**07**
		OR	
	(b)	What is firedamp? What are the occurrences of firedamp in different mines? Add a note on the causes of production of whitedamp.	**07**
Q.3	**(a)**	What is relative humidity? Add a note on instruments used for measuring relative humidity of mine air.	**07**
	(b)	Explain the sources of heat in mine air due to auto-compression.	**07**
		OR	
Q.3	**(a)**	What are air locks? Give the suitable airlock designs.	**07**
	(b)	What are characteristic curves? Explain mine characteristic curves.	**07**
Q.4	**(a)**	Explain surface Vs. underground installation of main mine fans.	**07**
	(b)	Explain air-conditioning in deep coal mines.	**07**
		OR	
Q.4	**(a)**	What are the scope and importance of ventilation surveys? Add a note on venture meter.	**07**
	(b)	Which steps should be taken due to gas accumulation in a large cavity? Add a note on compressed air-jets.	**07**
Q.5		Write note on any two : 1. Resistance of leaky airways. 2. Detectors of carbon monoxide. 3. Air crossings and Doors. 4. Booster and auxiliary fans.	**14**

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