

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2023

Subject Code:3162204

Date:12-07-2023

Subject Name:Mine Hazards

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.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

- |   |    |  |   |
|---|----|--|---|
| 1 | a) | List out the causes of mine fires.   | 3 |
|   | b) | Discuss the symptoms of spontaneous combustion.  | 4 |
|   | c) | List out different types of fire extinguisher. Explain any two types of fire extinguishers with neat sketch. | 7 |
| 2 | a) | Name the locations or places of portable fire extinguishers provided in underground mines.                   | 3 |
|   | b) | What do you understand by Graham's Ratio? Explain with example.  | 4 |
|   | c) | Discuss the methods of sealing off the fire in underground coal mines.                                       | 7 |
|   |    | <b>OR</b>  |   |
|   | c) | Discuss the procedure of re-opening a sealed off working.  | 7 |
| 3 | a) | List out the factors affecting the limit of explosibility in firedamp.                                       | 3 |
|   | b) | Describe the salient features of Coward's diagram with neat sketch.  | 4 |
|   | c) | What do you mean by stone dust barrier? Explain the types of stone dust barriers with neat sketch.           | 7 |
|   |    | <b>OR</b>  |   |
| 3 | a) | What steps should be taken in a mine to prevent explosion of firedamp?                                       | 3 |
|   | b) | Explain the method of dewatering a waterlogged working.  | 4 |
|   | c) | Discuss the main causes of accidents resulting in inundation in a mine.                                      | 7 |
| 4 | a) | Write a note on safety dams.   | 3 |
|   | b) | State the precautions to be taken when approaching old working containing water.                             | 4 |
|   | c) | What is a self contained breathing apparatus? Discuss about 'Proto Mark IV' apparatus used in Indian mines.  | 7 |
|   |    | <b>OR</b>  |   |
| 4 | a) | List out the devices used for dust measurement.  | 3 |
|   | b) | Write a note on gas mask with neat sketch.   | 4 |
|   | c) | Explain the reason behind formation of dust in underground mines and their effect on workers.                | 7 |
| 5 | a) | Describe the function of rescue station.   | 3 |
|   | b) | Explain the process of investigations after an explosion.  | 4 |
|   | c) | State the standard of lighting at various places in a mine as required by the circular of D.G.M.S.           | 7 |
|   |    | <b>OR</b>  |   |
| 5 | a) | Write a short note on rescue room.   | 3 |
|   | b) | How lamp room is designed and organized?   | 4 |
|   | c) | Discuss the construction and advantages of electric cap lamp with neat sketch.                               | 7 |

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