

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023****Subject Code:3162204****Date:11-12-2023****Subject Name:Mine Hazards****Time:02:30 PM TO 05:00 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

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|------------|---|-----------|
| Q.1 | (a) Discuss the factor affecting the limit of explosibility in fire damp. | 03 |
| | (b) List out classes of fires and explain all in brief. | 04 |
| | (c) Explain the emergency preparedness and response system. | 07 |
| Q.2 | (a) Explain how fire can produce in mines and its effect in mines. | 03 |
| | (b) What do you mean by fire? Explain its causes and prevention in surface mines. | 04 |
| | (c) List out different types of rescue equipment used in mines. Explain any two with neat sketches. | 07 |
| OR | | |
| | (c) Explain rescue and recovery work in connection with mine fire. | 07 |
| Q.3 | (a) Discuss the uses of fire extinguisher. | 03 |
| | (b) Describe the procedure for investigations after an explosion. | 04 |
| | (c) List out different types of fire extinguisher. Explain any one with neat sketch. | 07 |
| OR | | |
| Q.3 | (a) Discuss the common types of safety lamps & their uses and limitations. | 03 |
| | (b) Explain the method of dewatering a waterlogged working. | 04 |
| | (c) Explain the reason behind underground fires and its preventive measures. | 07 |
| Q.4 | (a) Discuss the applications of dust sampling apparatus. | 03 |
| | (b) Explain the dust sampling methods. | 04 |
| | (c) Explain the design and construction of water dams. | 07 |
| OR | | |
| Q.4 | (a) Discuss the classification of rescue apparatus. | 03 |
| | (b) Describe the physical and chemical characteristics of coal liable to spontaneous heating. | 04 |
| | (c) Explain spontaneous heating, its causes and detection in underground mines. | 07 |
| Q.5 | (a) List out the different types of illumination devices. | 03 |
| | (b) Discuss the different methods for reopening sealed off area in mines. | 04 |
| | (c) Explain the mitigation measures taken to reduce dust generation in mines. | 07 |
| OR | | |
| Q.5 | (a) Discuss the illumination standards in mining area given by DGMS. | 03 |
| | (b) Discuss the precautions to be taken while approaching old workings. | 04 |
| | (c) Explain causes and precautionary measures in mine inundations. | 07 |
