

**GUJARAT TECHNOLOGICAL UNIVERSITY**
**BE - SEMESTER-VI(NEW) – EXAMINATION – SUMMER 2019**
**Subject Code:2162204**
**Date:14/05/2019**
**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.

|     |   | MARKS |
|-----|---|-------|
| Q.1 | (a) Write the causes of fire damp explosion.  | 03    |
|     | (b) Describe the precaution to be taken against coal dust explosion.  | 04    |
|     | (c) Write the essential conditions to start fire. Describe the classification of fires.   | 07    |
| Q.2 | (a) Describe the limits of inflammability of firedamp.  | 03    |
|     | (b) Write the difficulties and dangers faced during reopening of U/G mine.  | 04    |
|     | (c) What do you mean by explosion? Explain the mechanism of explosion.  | 07    |
|     | <b>OR</b>   |       |
|     | (c) Describe the main functions of coward's diagram   | 07    |
| Q.3 | (a) Explain the principle of stone dust barriers.   | 03    |
|     | (b) What do you mean by spontaneous combustion? Write the main causes of spontaneous combustion.                                    | 04    |
|     | (c) Write the construction and applications of dust sampling apparatus.   | 07    |
|     | <b>OR</b>   |       |
| Q.3 | (a) Name the types of stone dust barriers. Explain any one.   | 03    |
|     | (b) Write a short note on detection and preventive measures of spontaneous heating.   | 04    |
|     | (c) Write a note on formation, prevention and suppression of dust in mines.   | 07    |
| Q.4 | (a) Which factors are considered during the selection of method for reopening of area?  | 03    |
|     | (b) Write a short note on methane layering.   | 04    |
|     | (c) Describe the effects, causes and prevention of surface fires.   | 07    |
|     | <b>OR</b>   |       |
| Q.4 | (a) Describe the layers of gases in mine atmosphere with their specific gravity.  | 03    |
|     | (b) Explain the main functions of firefighting organization.  | 04    |
|     | (c) Describe the effects, causes and prevention of underground fires.   | 07    |
| Q.5 | (a) Explain the firedamp with its chemical composition.   | 03    |
|     | (b) Write a short note on detection of U/G fires.   | 04    |
|     | (c) Write the different methods of reopening of U/G mines.  | 07    |
|     | <b>OR</b>   |       |
| Q.5 | (a) Write the sources of formation of CO <sub>2</sub> .   | 03    |
|     | (b) What do you mean by inflammability of coal dust? Write the factors affecting inflammability of coal dust.                       | 04    |
|     | (c) Write a note on symptoms of spontaneous combustion and also describe the classification of fires due to spontaneous combustion. | 07    |

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