

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER– VI (New) EXAMINATION – WINTER 2019**

**Subject Code: 2162204**

**Date: 06/12/2019**

**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.

|            |   | MARKS     |
|------------|---|-----------|
| <b>Q.1</b> | (a) Explain: How can fire be an incident?   | <b>03</b> |
|            | (b) How dust formation happens in mines? How to prevent it?   | <b>04</b> |
|            | (c) What are the factors that affect the inflammability in coal dust                                | <b>07</b> |
| <b>Q.2</b> | (a) Write a short note on Accidental fires.   | <b>03</b> |
|            | (b) How is recovery carried out in case of explosion?   | <b>04</b> |
|            | (c) List out types of fire extinguishers. Explain foam extinguisher with neat sketch.               | <b>07</b> |
| <b>OR</b>  |   |           |
|            | (c) Write the different types of classes of fires.  | <b>07</b> |
| <b>Q.3</b> | (a) Write short note on methane layering.   | <b>03</b> |
|            | (b) Explain the causes due to spontaneous heating in opencast mines and underground mines.          | <b>04</b> |
|            | (c) Describe: Detection and Prevention of Spontaneous Combustion.                                   | <b>07</b> |
| <b>OR</b>  |   |           |
| <b>Q.3</b> | (a) Define the following: (1) Stope (2) Winze (3) Raise.  | <b>03</b> |
|            | (b) Describe the water blast danger & its prevention.   | <b>04</b> |
|            | (c) What do you mean by spontaneous heating? Give the factor affecting Spontaneous heating of coal. | <b>07</b> |
| <b>Q.4</b> | (a) Write note on effect of Spontaneous Combustion.   | <b>03</b> |
|            | (b) Explain Chemical oxygen breathing apparatus.  | <b>04</b> |
|            | (c) Explain Proto-IV self contained breathing apparatus with diagram.                               | <b>07</b> |
| <b>OR</b>  |   |           |
| <b>Q.4</b> | (a) Describe the basic fundamental of cut & fill method.  | <b>03</b> |
|            | (b) How can problem of radiation in atomic mineral mines be reduced?                                | <b>04</b> |
|            | (c) Write note on physical and chemical characteristics of coal liable to spontaneous heating.      | <b>07</b> |
| <b>Q.5</b> | (a) What are the uses of Fire Extinguisher?   | <b>03</b> |
|            | (b) Write note on Firefighting Organization.  | <b>04</b> |
|            | (c) What are various methods of reopening mines?  | <b>07</b> |
| <b>OR</b>  |   |           |
| <b>Q.5</b> | (a) Define the following : (1) Cross – Cut (2) Lateral (3) Ore Drive                                | <b>03</b> |
|            | (b) Explain Coward's diagram.   | <b>04</b> |
|            | (c) List out carbon monoxide detectors and explain any two.   | <b>07</b> |

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