



**FACULTY OF ENGINEERING AND THE ENVIRONMENT
DEPARTMENT OF MINING ENGINEERING
SAFETY, HEALTH AND ENVIRONMENT IN MINING**

EMI 3203

Final Examination Paper

August 2021

Time Allowed: 3 hours

Total Marks: 100

Examiner's Name: Miss N.R Gwati

INSTRUCTIONS

1. This paper contains **ONE** section with **FIVE** questions
2. Answer **QUESTION 1** and **any other THREE** questions
3. Each question carries **25 marks**
4. Where a question contains subdivision, the mark value of each subdivision is shown in brackets
5. Start each question on a new page

Additional Requirements

None

MARK ALLOCATION

| | |
|-------------------------|---------------------------------------|
| Question 1 to 6 | Total 25 marks each |
| Part Questions | As shown in each part question |
| Total Attainable | 100 marks |

Question 1

- a) Discuss why mining is a hazardous industry with reference to case studies. [5]
- b) Which one between Underground Mining and Surface Mining causes severe negative Environmental impacts? Justify your answer. [10]
- c) "Most accidents do not just occur they are caused" discuss this statement. [10]

Question 2

- a) What ergonomic hazards are of concern in the mining industry? How can you manage them?[10]
- b) Give a detailed account of five safety precautions that you take when using a **named** mining machinery at a mine. [10]
- c) Discuss the elements of the OHSAS 18001: 2007. [5]

Question 3

- a) What is the role of legislation in occupational health and safety.[5]
- b) Give five examples of hazard identification methods. [5]
- c) State the responsibilities of employers in occupational health and safety management systems. [5]
- d) Describe the four main methods of controlling the production, concentration and hazards of airborne dust.[10]

Question 4

- a) Cumulative impacts have caused more damage in the environment with the relevant authorities allowing them to go unattended. Briefly discuss two examples of cumulative impacts related to any mining project. [10]
- b) Briefly discuss three reasons why an Environmental Impact Assessment (EIA) is an important tool in any mining project.[10]
- c) What are the two main routes of impacts of mining projects.[2]
- d) What is the importance of studying the source, route and receiving environment of impacts in mining projects? [3]

Questions 5

- a) Off-site impacts from mining projects can be a source of serious conflict. With a specific example from Zimbabwe, illustrate the statement is true. [4]
- b) What are the main ways of avoiding ghost mining towns in Zimbabwe? [4]

- c) Briefly explain any five factors you would consider when selecting an area for disposing waste from a processing plant that is processing **sulphidic ore**. [10]
- d) How does site selection minimize impacts? [4]
- e) What is the importance of an EMP in a mining project? [3]