



FACULTY OF ENGINEERING AND THE ENVIRONMENT
DEPARTMENT OF MINING ENGINEERING
COMPUTER APPLICATIONS IN MINING

EMI 2202

Final Examination Paper

JULY 2022

This examination paper consists of 3 pages

Time Allowed: 3 hours

Total Marks: 100

Examiner's Name: Mr. P. Matshona

INSTRUCTIONS

1. This paper contains **ONE** section with **FIVE** questions.
2. Answer **QUESTION ONE** and **any other THREE questions**.
3. Each question **carries 25 marks**.
4. Where a question contains subdivisions, the mark value of each subdivision is shown in brackets.
5. Illustrate your answer, where appropriate, with large clearly labelled diagrams.
6. Start each question on a new page.

MARK ALLOCATION

Question 1 to 5	25Marks
Part Questions	As shown in each part question
Total Attainable	100

Question One

1.1 Information systems depend on good data. State at least 5 characteristics of good data and briefly explain their significance.

[15
marks]

1.2 Briefly discuss the key components of an information system and their roles.

[10
marks]

Question Two

Discuss the following five key categories of e-commerce and give examples of their application on a mine.

2.1 Companies (B2B) [5 marks]

2.2 Companies and consumers (B2C) [5 marks]

2.3 Consumers and other consumers (C2C) [5 marks]

2.4 Business and the public sector [5 marks]

2.5 Consumers and the public sector [5 marks]

Question Three

3.1 Why do we network devices in modern ICT systems [5 marks]

3.2 If you wanted to network a large loader and the five trucks that it works with, what network topology would you use and why? [10 marks]

3.3 What communication mode would you use in the loader/truck network and why? [5 marks]

3.4 What communication mode would you use for the walkie-talkies (two-way radios) used by the security guards on the operation and why? [5 marks]

Question Four Briefly discuss the following features of commercial/industrial ICT security:

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4.1 Audit trails [5 marks]

4.2 Risk analysis [5 marks]

4.3 Physical access control [5 marks]

4.4 Physical security [5 marks]

4.5 Backups [5 marks]

Question Five

Discuss the use of ICT in the following areas in mining engineering: -

5.1 Mining geology

5.2 Mine planning

5.3 Rock mechanics

5.4 Financial analysis

5.5 Mining support services

[25 marks]