FACULTY OF ENGINEERING AND THE ENVIRONMENT

DEPARTMENT OF MINING ENGINEERING

DEPARTMENT OF METALLURGICAL ENGINEERING

COMPUTING FOR ENGINEERS/INTRODUCTION TO COMPUTERS

EMN 1202/EMG1202

Final Examination Paper

APRIL 2025

Time allowed: 3 hours

Total Marks: 100 marks

Examiner: MS N Chauke

INSTRUCTIONS

1. This paper contains **TWO** Sections
2. Answer all questions in Section A and any three in Section B
3. Section A carriers 40 marks and Section B carriers 60 marks
4. Where a question contains subdivisions, the mark value of each subdivision is shown in brackets.
5. Illustrate your answer, where appropriate, with clearly labeled diagrams.
6. Start each question on a new page.
7. The Question paper consists of 3 (three) printed pages.

SECTION A

A1. Define a computer. [2]

A2. Explain what is meant by the data processing cycle. [10]

A3. Distinguish between data and information. [4]

A4. Define a microprocessor. [2]

A5. Explain the 3 (three) categories of computer architecture. [10]

A6. Explain what happens during the instruction cycle. [6]

A7. Define a computer file. [2]

A8. Explain how the QR codes technology works. [4]

SECTION B

B1.

a) Distinguish the following terms:
   i. Mainframe and Supercomputer. [4]
   ii. Systems software and Application software. [4]
   iii. Read Only Memory (ROM) and Random Access Memory (RAM). [2]

b) Describe any six functions of an operating system. [10]

B2.

Draw any 4 (four) network topologies of your choice, stating their advantages and disadvantages.[20]

B3.

a) Define the term ***database management system.*** [2]
b) Explain in detail any 4 types of databases you are familiar with. [16]
c) Define the term ***network topology***. [2]

B4.

a) Convert the ***binary number*** below to its decimal equivalent. [4]

1011011011.111

b) Convert the ***binary coded decimal number*** below to its decimal equivalent. [4]

10010110011110000001

c) Convert the ***hexadecimal number*** below to its decimal equivalent. [4]

16DF

d) Convert the following ***decimal numbers*** to their binary equivalent
(i) 725 [2]
(ii) 925.125 [4]
(iii) 600 [2]

THE END