



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

MECHANICAL ENGINEERING

MODULE: Computer Applications In Mechanical Engineering **PAPER NO: 340/22/M08A
340/24/M09A
359/21/S05A**

DURATION: 3 Hours

NOVEMBER / DECEMBER 2025 EXAMINATION

REQUIREMENTS

Answer booklet

INSTRUCTIONS TO CANDIDATE

- 1. Answer any five (5) questions.**
- 2. Each question carries 20 marks.**
- 3. Do not write your name inside or outside the answer booklet.**
- 4. Do not write anything in the question paper.**

This paper consists of 4 printed pages.

PAPER NO: 340/22/M08A

340/24/M09A

359/21/S05A – COMPUTER APPLICATIONS IN MECHANICAL
ENGINEERING

QUESTION 1

- a) List down five (5) good practices in the computer laboratory. (5 marks)
- b) Identify and explain five (5) ideal computer room requirements. (15 marks)

QUESTION 2

- a) Identify and explain any four (4) cyber crimes. (12 marks)
- b) Some abbreviations of computer network types are given below:
- i) PAN
 - ii) LAN
 - iii) MAN
 - iv) WAN

Give the meaning of each abbreviation and an explanation of each network type. (8 marks)

QUESTION 3

- a) Explain each of the following components of a communication system.
- i) message (2 marks)
 - ii) sender (2 marks)
 - iii) receiver (2 marks)
 - iv) transmission medium (2 marks)
 - v) protocol (2 marks)
- b) Give the meaning of the following data security terms:
- i) Data backup (2 marks)
 - ii) Data masking (2 marks)
 - iii) Encryption (2 marks)
 - iv) Access control (2 marks)
 - v) Fire walls (2 marks)

QUESTION 4

a) Explain the following terms:

- | | | |
|------|---------------------|-----------|
| i) | Primary memory | (2 marks) |
| ii) | Secondary memory | (2 marks) |
| iii) | Volatile memory | (2 marks) |
| iv) | Non-volatile memory | (2 marks) |

b) Identify two (2) major characteristics and one use of each of the following computer categories:

- | | | |
|------|----------------------|-----------|
| i) | Super computers | (3 marks) |
| ii) | Main frame computers | (3 marks) |
| iii) | Mini computers | (3 marks) |
| iv) | Microcomputers | (3 marks) |

QUESTION 5

a) Identify five (5) general purpose softwares and explain the use of each of them. (10 marks)

b) List four (4) computer storage devices. (4 marks)

c) Define the following terms:

- | | | |
|------|--------------------|-----------|
| i) | Computer hardware | (2 marks) |
| ii) | Computer software | (2 marks) |
| iii) | Peripheral devices | (2 marks) |

QUESTION 6

a) Explain the following modes of transmission in computer communication and give one example of each mode:

- | | | |
|------|-------------|-----------|
| i) | Simplex | (3 marks) |
| ii) | Half-duplex | (3 marks) |
| iii) | Full-duplex | (3 marks) |

b) Explain the functions of the following system softwares:

- | | | |
|------|-----------------------|-----------|
| i) | Operating system | (2 marks) |
| ii) | Device drivers | (2 marks) |
| iii) | Programming languages | (2 marks) |
| iv) | Utilities | (2 marks) |
| v) | Middle ware | (3 marks) |

QUESTION 7

- a) By means of a diagram, illustrate each of the following types of network topologies:
- | | | |
|------|----------------|-----------|
| i) | Point to point | (2 marks) |
| ii) | Ring | (3 marks) |
| iii) | Star | (3 marks) |
| iv) | Bus | (3 marks) |
| v) | Mesh | (3 marks) |
| vi) | Tree | (3 marks) |
- b) Describe data sharing in a computer network of an organisation.
(3 marks)

QUESTION 8

- a) Identify three (3) coordinate input methods used in AutoCAD.
(3 marks)
- b) A polygon is to be drawn using the AutoCAD software by following ten stages. The method of coordinate input at each stage is shown in the stages given below. Sketch the polygon clearly showing the $x - y$ axis and the coordinates of each corner of the polygon.

Stage 1:	Command: line
Stage 2:	30, 140
Stage 3:	300 < 0° (or 300 tab 0°)
Stage 4:	@ 0, - 100
Stage 5:	@ 300, 150
Stage 6:	@ -300, 150
Stage 7:	100 < 270° (or 100 tab 270°)
Stage 8:	@ - 300, 0
Stage 9:	100 < 270° (or 100 tab 270°)
Stage 10:	ESC

(17 marks)

...../pm