



ZIMBABWE

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

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

MECHANICAL ENGINEERING (COMMON)

**SUBJECT: Computer Applications in
Mechanical Engineering Theory**

PAPER NO: 359/21/S05A

DURATION: 3 hours

MARCH/ APRIL 2024 EXAMINATION

REQUIREMENTS

Answer booklet

INSTRUCTIONS TO CANDIDATE

- 1. Answer any five (5) questions**
- 2. Each question carry 20 marks**
- 3. Answer each question on a fresh page**

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ENGINEERING THEORY

QUESTION 1

- a) Differentiate the following terms as used in computers by giving and fully explaining two distinct reasons.
- i) Primary storage and secondary storage. (4 marks)
 - ii) Impact and Non Impact printers. (4 marks)
 - iii) Data and Information. (4 marks)
 - iv) Micro computer and main frame computer. (4 marks)
 - v) Floppy disk and hard disk. (4 marks)

QUESTION 2

- a) Explain the following concepts.
- i) Simplex transmission mode. (1 mark)
 - ii) Half duplex mode. (2 marks)
 - iii) Full duplex transmission mode. (2 marks)
- b) Describe the structure of the following topologies and give one (1) advantage and one (1) disadvantage.
- i) Bus topology. (5 marks)
 - ii) Mesh topology. (5 marks)
 - iii) Star topology. (5 marks)

QUESTION 3

- a) Explain the following terms as used in word processing.
- i) Header (2 marks)
 - ii) Footer (2 marks)
 - iii) Window (2 marks)
 - iv) Orphan (2 marks)
 - v) Print Preview (2 marks)
- b)
- i) Give two (2) reasons why it is important to back up information. (2 marks)
 - ii) Outline any four (4) ways in which computer viruses can spread. (4 marks)
- c) List four (4) application packages (4 marks)

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QUESTION 4

- a) i) Define CAD. (1 mark)
ii) List four (4) Auto CAD tool bars found under modify panel. (4 marks)
- b) Write text strings for inserting the following:
- i) Degree symbol. (1 mark)
ii) Circle diameter. (1 mark)
iii) Plus/minus symbol. (1 mark)
iv) Under score. (1 mark)
- c) Distinguish between the following commands.
- i) Stretch and scale. (2 marks)
ii) Trim and break. (2 marks)
iii) Block and W block. (2 marks)
iv) Move and copy. (2 marks)
- d) Give any three (3) disadvantages of Auto CAD. (3 marks)

QUESTION 5

- a) Explain the usefulness of view parts in Auto CAD. (1 mark)
- b) Polar coordinates are used mostly for drawing which lines in Auto CAD. (1 mark)
- c) How many points do you need to define for the rectangle command. (1 mark)
- d) Give three (3) advantages of Auto CAD. (3 marks)
- e) Give three (3) examples of people who use computer aided design software. (3 marks)
- f) Which key allows us to use the dynamic input command. (1 mark)
- g) State the effect of the offset command on the circle. (2 marks)
- h) List three (3) things you can do using layers. (3 marks)
- i) State one (1) advantage of using array command. (1 mark)
- j) Distinguish between polar and relative coordinates. (2 marks)
- k) Write the basic activities of a CAD system. (2 marks)

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QUESTION 6

- a) Explain five (5) factors to be considered when buying hardware and software. (10 marks)
- b) Identify and explain three (3) classes of software. (6 marks)
- c) Explain four (4) uses of internet. (4 marks)

QUESTION 7

- a) Green Park College has been using the manual way of storing information. It has now decided to use the Data base approach.
 - i) Explain two (2) problems of the traditional file oriented approach. (4 marks)
 - ii) Suggest two (2) benefits of using the Data base approach. (4 marks)
 - iii) Define a Data base. (4 marks)
 - iv) Explain the purpose the primary key field. (2 marks)
- b) Describe four (4) advantages of speech input. (8 marks)

QUESTION 8

- a) Give any five (5) health conditions that arise from excessive use of computers and suggest any possible remedy of each condition. (10 marks)
- b) Outline three (3) advantages and three (3) disadvantages of using a key board. (6 marks)
- c) State advantages of using solid state computer storage. (4 marks)

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