higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

INTRODUCTION TO COMPUTERS
NQF LEVEL 2

(10040052)

8 December 2020 (X-paper)
09:00–12:00

This question paper consists of 6 pages.

427Q1N2008

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TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Start each section on a new page.
5. Use only a black or blue pen
6. Use fully labelled IEC symbols.
7. Write neatly and legibly.

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QUESTION 1

1.1 Computers based on digital logic for office automation as well as factory automation using mechatronic systems.

Explain the following related terms.

1.1.1 What is meant by the term *logic*? (1 × 2) (2)

1.1.2 What is meant by the term *logical thinking*? (1 × 2) (2)

1.2 Name the logical gates for the two IEC symbols (A and B) shown in figure1.

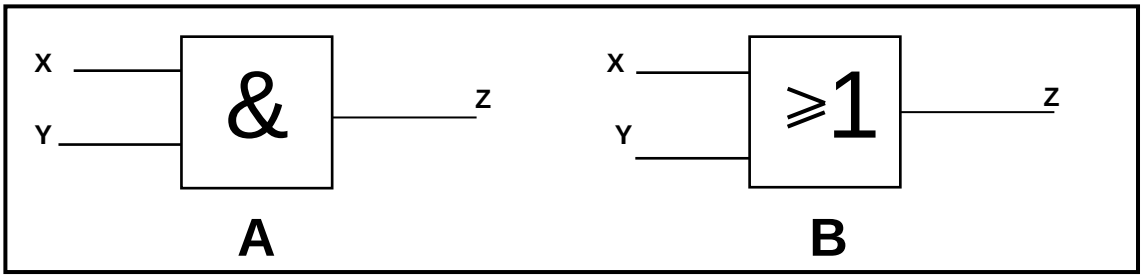

FIGURE 1 (2 × 1) (2)

1.3 Draw up the truth table for the logic gates represented by A and B in QUESTION 1.2. (3 × 2) (6)

1.4 Write the Boolean expression for the logic gates represented by A and B in QUESTION 1.2 (2 × 2) (4)

1.5 Draw the switching logic electrical diagram that would be used to in the safety circuit of two-handed control in a mechatronic pressing system. (4 × 1) (4)

1.6 Draw the logic switching circuit for a Set/Reset latching circuit using fully labelled IEC electrical symbols. (6 × 1) (6)

1.7 Draw the fully labelled IEC gating symbol for Set/Reset function. (4 × 1) (4)

[30]

QUESTION 2

2.1 List THREE input hardware that can be used with a personal computer. (3 × 1) (3)

2.2 List THREE output hardware that can be connected to a computer. (3 × 1) (3)

2.3 List THREE mechatronic applications that makes use of a CPU. (3 × 1) (3)

2.4 Draw the block diagram that representing the basic computer system showing the bus systems. (8 × 1) (8)

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2.5 Explain the difference between 'processing' and 'control' when used in a PC mechatronic application. (2 × 2) (4)

2.6 Draw a basic block diagram that represents a communication model. (4 × 1) (4)

[25]

QUESTION 3

3.1 Explain how the following monitor related problems can possibly be solved?

3.1.1 Blank monitor screen. (3 × 1) (3)

3.1.2 Monitor goes blank after an activity. (1 × 1) (1)

3.2 Explain the procedural steps when copying the contents of a removable disk drive to that of the computer hard drive. (4 × 1) (4)

3.3 Identify FOUR tasks that can be performed by using a disk cleanup. (4 × 1) (4)

3.4 Mechatronic computer-controlled applications gather data for processing. One way of the operator attaining this information is by printing a hard copy from the computer by means of a printer.

Answer the following related questions.

3.4.1 Name FOUR possible printer faults (4 × 1) (4)

3.4.2 Explain how to rectify the FOUR printer faults you mentioned in QUESTION 3.4.1. (4 × 1) (4)

3.5 Maintenance and care of a PC used as a controller is very important where a control computer must be well-ventilated, away from heat, dust, magnets, power surges and electro-static for good performance and a long-life span.

Explain the influence that heat, dust, magnets, power surges and electro-static have on the control PC. (5 × 1) (5)

[25]

QUESTION 4

4.1 You are requested to prepare a presentation about the use of the PLC in a mechatronics application, you decided to type a draft copy and save it in 'WORD'.

You would like to open the file of the draft copy of the presentation.

Give THREE steps you will follow to open that file. (3 × 1) (3)

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4.2 Microsoft PowerPoint is used by people all over the world.

Name ONE use of this program. (1 ×1) (1)

4.3 List THREE application software programs used in mechatronic control applications. (3 × 1) (3)

4.4 Microsoft Word *'Help'* provides detailed, step-by-step instructions for the functions it provides.

Write THREE steps to be followed when using the '*Help'* function. (3 × 1) (3)
[10]

QUESTION 5

5.1 Explain the importance of using E-mail when working with automated mechatronic applications. (1 × 2) (2)

5.2 Indicate the meaning of the following abbreviations.

5.2.1 ISP (1)

5.2.2 www (1)

5.2.3 http (1)

5.3 An E-mail address consist of three parts.

List the THREE different parts in in the following email address

bbyte@telkomsa.net (3 × 1) (3)

5.4 Name TWO search engines that is commonly used in RSA (2 × 1) (2)
[10]

TOTAL: 100

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