higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

INTRODUCTION TO SYSTEM DEVELOPMENT

(First Paper)

NQF LEVEL 2

(10041022)

30 November 2018 (X-Paper)
09:00–12:00

This question paper consists of 8 pages.

NCNQ

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TIME: 3 HOURS
MARKS: 150

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. Write neatly and legibly.

NCV(N)

QUESTION 1

Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (1.1–1.10) in the ANSWER BOOK.

1.1 … is a low-level programming language.

A C
B Machine language
C Java
D Visual Basic

1.2 Variables of which data type can be used in mathematical calculations:

A String
B Double
C Character
D Boolean

1.3 An example of a text-based operating system is …

A MS DOS
B Windows 98
C Windows Vista
D MAC-OS

1.4 A variable of which data type can be used to contain the code: AD7#66:

A Decimal
B Number
C Character
D String

1.5 UNIX, Windows Server 2003 and Solaris are examples of … operating systems.

A stand-alone
B network
C embedded
D structured

1.6 Classes, objects and methods are concepts of … programming languages.

A low-level
B procedural
C object-oriented
D traditional

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1.7 The price of an item, for example R5.99, is an example of a/an … data type.

A Boolean
B Integer
C Decimal
D Character

1.8 The following code is needed for the click event of the Exit button on the interface:

A Close.Me()
B Exit
C Me.Close()
D Exit()

1.9 … involves checking for errors and testing the program to ensure that you have created a program of acceptable standard.

A Selection
B Quality assurance
C Prototyping
D Modeling

1.10 The coding system that is used to represent English characters as numbers, is called …

A BCD.
B ASCII.
C DICCBE.
D Binary.

(10 × 1) **[10]**

QUESTION 2

Choose the correct word(s) from those given in brackets. Write only the word(s) next to the question number (2.1–2.10) in the ANSWER BOOK.

2.1 (Backward/Forward) compatibility is the ability of a software package to interact with previous versions of the same product.

2.2 Utility programs are (application/system) software.

2.3 (Apple/Microsoft) was the first company to use a graphical user interface (GUI) with their operating system.

2.4 When a (major/minor) improvement has been made to a program called Inno Setup Compiler 5.0.0, it becomes Inno Setup Compiler 5.1.0.

2.5 A button on a form in Visual Basic.NET is an example of a/an (object/class).

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2.6 (Low/High) level language is more user-friendly.

2.7 A (bit/byte) is the smallest unit for information storage and refers to a digit in the binary system.

2.8 Windows 7 Ultimate and Windows 7 Home Premium are examples of software (suites/editions).

2.9 (Real/Whole) numbers have a decimal point.

2.10 File management is a function of (application software/operating systems).

(10 × 1) **[10]**

QUESTION 3

3.1 Name and describe TWO categories of software. (2 × 2) (4)

3.2 Explain the difference between the following applications.

- Word processing
- Presentation
- Spreadsheet (6)

3.3 Name FOUR different types of operating systems. (4)

3.4 Name and describe three different types of system software. (3 x 2) (6)

[20]

QUESTION 4

4.1 Code recycling saves the programmer a lot of time. The following questions relate to recycling:

4.1.1 Describe the concept of code recycling. (3)

4.1.2 List FIVE advantages of code recycling. (5)

4.2 Explain each of the following:

4.2.1 Visual programming language (VPL)

4.2.2 Event-Driven programming (EDP)

4.2.3 Rapid application development (RAD)

(3 × 2) (6)

4.3 Describe, in detail, what an object is in object-oriented programming. (6)

[20]

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QUESTION 5

5.1 Give ONE word/term for each of the following descriptions by choosing a word/term from the list below. Write only the word/term next to the question number (5.1.1–5.1.5) in the ANSWER BOOK.

ASCII; binary; EBCDIC; Boolean; character; bit; decimal; Unicode; byte

5.1.1 Numbering system with a base of 2.

5.1.2 False.

5.1.3 8 bits.

5.1.4 The numerical representation of a character or action of some sort that is used mostly in personal computers.

5.1.5 The coding system that is used to represent languages such as Greek, Russian, Japanese and Chinese

(5 × 1) (5)

5.2 Coding systems encode the characters from a device, such as a keyboard, into binary for the computer to understand.

List THREE categories of coding systems. (3 × 1) (3)

[8]

QUESTION 6

6.1 A variable need not contain an initial value, but a value may be assigned to a variable in the beginning of the algorithm according to the type.

Redraw and complete the following table by entering the correct information for the variable type and possible value:

	VARIABLE NAME	VARIABLE TYPE	POSSIBLE VALUE
6.1.1	stName		
6.1.2	noOfBooks		
6.1.3	Price		

(6)

6.2 Define the following terms:

6.2.1 A solution in Visual Basic

6.2.2 A project in Visual Basic

(2 × 2) (4)

6.3 Examine the VB.NET code snippet below and write down the value that the message box will display in each instance where:

6.3.1 A = 13

6.3.2 A = 7

(2 × 2) (4)

```
Dim blnResult As Boolean
Dim A as integer
If (A > 6 and A < 11) then
   blnResult = True
Else
  blnResult = False
Endif
MessageBox.Show(blnResult.ToString)
```

6.4 The following range of numbers is given: 7, 2, 5, 8, 2, 7, 7, 8, 2, 7, 5, 7

Use the given range of numbers to answer the questions:

6.4.1 Draw a frequency table for the given range of numbers using the following table headings:

Number	Tally	Frequency

(4)

6.4.2 What is the mode of the given range of numbers?

HINT: Make use of your frequency table (1)

6.4.3 Calculate the median of the given range of numbers. (4)

[23]

QUESTION 7

7.1 Choose a term from the list below that best describe the given example. Write only the term next to the question number (7.1.1–7.1.3) in the ANSWER BOOK.

input validation; syntax error; runtime error

7.1.1 A spelling mistake in program code

7.1.2 This type of error produces a message while the program is running and stops the execution of the program

7.1.3 To stop the user from entering invalid data

(3 × 1) (3)

7.2 Differentiate between *online* and *direct* processing. (2)

7.3 Validation and verification is an important aspect of program quality assurance.

Explain the difference between *validation* and *verification.* (4)
[9]

TOTAL: 100

NCV(V)

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