higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

PRINCIPLES OF COMPUTER PROGRAMMING

(First paper)

NQF LEVEL 3

11 November 2022

This marking guideline consists of 5 pages.

Copyright reserved

SECTION A

QUESTION 1

1.1 B
1.2 B
1.3 A
1.4 C
1.5 A
1.6 D
1.7 C
1.8 A
1.9 C
1.10 D

(10 × 1) **[10]**

QUESTION 2

2.1 False
2.2 True
2.3 False
2.4 True
2.5 False
2.6 True
2.7 True
2.8 False
2.9 False
2.10 True

(10 × 1) **[10]**

QUESTION 3

3.1 Runtime
3.2 JOIN
3.3 algorithm
3.4 Design
3.5 Frm

(5 × 1) **[5]**

TOTAL SECTION A: 25

Copyright reserved

SECTION B

QUESTION 4

4.1 4.1.1 Q=AB + BC (B + C)
4.1.2 B = (A + C)
(2 × 2) (4)

4.2 4.2.1 $1110\ 1111_2$.
4.2.2 $1111\ 0101_2$.
4.2.3 $1000\ 0101_2$.
(3 × 2) (6)
[10]

QUESTION 5

5.1 5.1.1

```
1  Dim COUNT as Integer = 0 ✓
2  Dim SUM as Integer = 0   ✓
3
4      for COUNT = 0 to 5    ✓✓
5          SUM = SUM + COUNT ✓✓
6      next
```

(6)

5.1.2 A For loop is used to iterate a specified number of times whereas a Do Loop is used when we do not know how many iterations will be performed.

A For loop uses a counter and will always loop from a start value to some end value, whereas a Do loop tests the loop condition each time through the loop and it keeps executing while the test expression is being met.

A For loop always increments by one by default, whereas with a Do loop the increment number has to be specified. (3 × 2) (6)

5.1.3 Infinite loops consume system resources like memory and processing cycles.

Infinite loops is bad programming practice, since they can cause programs to terminate abruptly (crash). (Any 1 × 2) (2)

5.2 5.2.1 The GotFocus event can be used to display information or instructions to the user, perhaps in a Status Bar control.

5.2.2 A Select Case statement allows a variable to be tested for equality against a list of values. Each value is called a case, and the variable being switched on is checked for each select case.

5.2.3 The IPO diagram is an effective way to model the important processing in the algorithm.

5.2.4 To make code easier to read and understand.

5.2.5 MaskedTextBox control provides a mechanism to validate user input on a Form.

(5 × 1) (5)

5.3 A pre-test loop tests its condition before each iteration, whereas a post-test loop tests its condition after each iteration.

A post-test loop will always execute at least once, because it is only executed when a condition is true, whereas a pre-test loop will execute more than once.

(2 × 2) (4)

[23]

QUESTION 6

6.1 6.1.1 The EOF function returns False until the end of the file has been reached.

6.1.2 A comma-separated values file is a delimited text file that uses a comma to separate values.

6.1.3 A path, the general form of the name of a file or directory, specifies a unique location in a computer file system.

6.1.4 This function returns a Boolean value which determines whether a specific file exists or not.

6.1.5 The BinaryWriter class is used to write binary data to a stream.

(5 × 2) (10)

6.2 6.2.1 An array stores a fixed-sized sequential collection of elements of the same type. (1)

6.2.2 Dynamic Array. (1)

6.2.3 A one-dimensional array represents multiple data items as a list whereas a two-dimensional array represents multiple data items as a table consisting of rows and columns. (2)

6.2.4 Redim.
Preserve. (2)

6.2.5 2. (1)

6.2.6 5. (1)

6.2.7 5.
5. (2)

6.2.8 The curly brackets are used to initialise an array using a single expression. (2)
[22]

QUESTION 7

7.1 7.1.1 (a) A *primary key* is used to uniquely identify✓ every record✓ in a database table. (2)

(b) TourID (1)

(c) A foreign key is a column or set of columns that allows one to establish a referential link between the data in two tables. (2)

(d) SurnameClient1. (1)

(e) Composite key, or composite primary key, refers to cases where more than one column is used to specify the primary key of a table. (2)

(f) tbl. (1)

7.1.2 (a) The field size is limited to 25 characters. (2)

(b) Validation rules restrict what a user can enter as input into a table.
Validation rules prevent bad data from being saved in a table. (2)

(c) No. (1)

(d) A surname may be shorter than 10 characters; therefore the validation rule is not suitable.

It is not good practice to validate text data such as surnames, names and addresses. (2)

(e) The required property indicates that the field must contain data.
The field may not be left empty/contain a NULL value. (2 × 1) (2)

(f) An input mask can be used to capitalise the first letter of a Surname. (2)
[20]

TOTAL SECTION B: 75

Copyright reserved

GRAND TOTAL: 100

Copyright reserved