higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

BASIC PRINCIPLES OF COMPUTER PROGRAMMING AND COMPUTER LITERACY

(First paper)

NQF LEVEL 2

24 November 2023

This marking guideline consists of 6 pages.

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SECTION A

QUESTION 1

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

(10 × 1) **[10]**

QUESTION 2

2.1 True
2.2 False
2.3 False
2.4 True
2.5 True

(5 × 1) **[5]**

QUESTION 3

3.1 C
3.2 O
3.3 A
3.4 H
3.5 K
3.6 B
3.7 M
3.8 F
3.9 J
3.10 E

(10 × 1) **[10]**

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QUESTION 4

4.1 Text files
4.2 Variable scope
4.3 IDE
4.4 cd
4.5 Logical

(5 × 1) **[5]**

TOTAL SECTION A: 30

SECTION B

QUESTION 5

5.1 5.1.1 CPU
5.1.2 Hard drive/External drive
5.1.3 Motherboard
5.1.4 RAM
5.1.5 Single Board Computer/SBC

(5 × 1) (5)

5.2 5.2.1 rename✓ Marks.xlsx Marksheet.xlsx✓
or
ren✓ Marks.xlsx Marksheet.xlsx✓ (2)

5.2.2 del Prac_1.docx (1)

5.2.3 md Exams
or
mkdir Exams (1)

5.2.4 cls (1)
[10]

QUESTION 6

6.1
- Decomposition
- Abstraction
- Pattern recognition
- Algorithms (4)

6.2
- Understand the problem
- Devise a plan
- Carry out the plan
- Look back and check (4)

6.3 Version control, or revision control, refers to the management of changes made to a software application/document/file. (1)

6.4 Benefits of using a Version Control System (VCS):
- Speed – faster software development time.
- Collaboration – multiple developers can work on the same project.
- Concurrency – multiple users can make changes to the repository simultaneously, from different locations.
- Reduces errors – tracks changes made and can roll back to a working version of the software before errors.
- Backups – in the event of data loss, the repository can be used as a software backup. (Allocate 1 mark each for any FOUR benefits provided)(Any 4 × 1) (4)

6.5

CVCS	DVCS
A centralised VCS is simple to set up, use and understand.	A distributed VCS is slightly more complex to understand and use.
The disadvantage is that it is slower as the user has to be connected to the central repository to commit changes.	The advantage is that users can work offline on their own copies of the repository until they are ready to push the changes to the central repository.
As there is only one central repository it can pose a problem if the repository becomes corrupted or inaccessible due to networking problems.	Because each user has a duplicate of the full repository, any one of these can be used as a backup to restore in case the central repository becomes corrupted.
Slower software development as there is one central repository.	It is generally a faster and more efficient way of developing software because changes can be committed without having to be connected to a central repository (until pushing a set of changes).

(Allocate ONE mark each for any TWO differences provided)(2 × 2) (4)

[17]

QUESTION 7

7.1 decision symbol (1)

7.2
- The flowchart is asking the user to enter 5 marks.
- Calculates the sum of 5 marks.
- Determines and displays the average of the 5 marks. (3)

7.3 5 times (1)

7.4 No (1)

7.5 The average will be calculated incorrectly. You will be dividing the sum by 4 numbers and not 5 numbers. (2)

7.6
- It is the counter-control variable.
- It is used to control how many times the loop executes.

(Allocate 1 mark for any valid purpose) (1)

7.7 While loop (1)

7.8 Integer✓ – A positive or negative whole number.✓
Float✓ – A positive or negative number with decimal places.✓
String✓ – A single character or a collection of characters.✓
Boolean✓ – A value that is either True or False.✓
(Allocate 1 mark each for identifying any four data types and 1 mark each for describing a data type)

(Accept any FOUR Python data types)(4 × 2) (8)
[18]

QUESTION 8

8.1 8.1.1 answer

8.1.2 If the answer is greater than 49
or
if answer > 49
or
answer > 49

8.1.3 You have passed will be displayed.

(3 × 1) (3)

8.2 Converts entire source code to machine code all at once and produces a standalone executable file. (2)

8.3 Python is an interpreted programming language. (1)

8.4 11101111_2
$= (1 \times 2^7)+(1 \times 2^6)+(1 \times 2^5)+(0 \times 2^4)+(1 \times 2^3)+(1 \times 2^2)+(1 \times 2^1)+(1 \times 2^\circ)$ ✓
$= (1 \times 128) + (1 \times 64) + (1 \times 32) + (0 \times 16) + (1 \times 8) + (1 \times 4)+(1 \times 2) + (1 \times 1)$ ✓
$= 128 + 64 + 32 + 8 + 4 + 2 + 1$✓
$= 239$✓ (Allocate ONE mark for each step including the answer) (4)

8.5 Given A = 3 and B = 5, evaluate the following numeric expression and show all steps:

A**3 + 12% B – 13
= 3**3 + 12% 5 – 13✓
= 27 + 12% 5 – 13✓
= 27 + 2 – 13✓
= 16✓ (Allocate 1 mark for each step including the answer) (4)

8.6 8.6.1 A list is an ordered collection of values or items of different data types (1)
8.6.2 print(teamList [2]) (2)
8.6.3 teamList.append('Australia') (2)

8.7 8.7.1 0
8.7.2 1
8.7.3 8
8.7.4 nextnum
8.7.5 nextnum
8.7.6 1

(6 × 1) (6)
[25]

TOTAL SECTION B: 70
GRAND TOTAL: 100

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