



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

NOVEMBER 2010

**COMPUTER HARDWARE & SOFTWARE
NQF LEVEL 3**

This marking guideline consists of 9 pages.

SECTION A**QUESTION 1**

- 1.1 G
- 1.2 J
- 1.3 I
- 1.4 K
- 1.5 L
- 1.6 A
- 1.7 C
- 1.8 D
- 1.9 B
- 1.10 F

(10 x 1) [10]

QUESTION 2

TWO marks must be given where the correct answer is TRUE. (No motivation needed)

- 2.1 False
Reason: An installation is the assembly of a computer system (hardware and software) in the location where it is to be used. (Or any other applicable answer)
- 2.2 True
Reason: acronym for digital audio tape drive.
- 2.3 False
Reason: Devices can be shared. (Or any other applicable answer)
- 2.4 True
Reason: Portable devices will always have an independent power source such as a battery.
- 2.5 True
Reason: These programs are specifically designed to damage or disrupt a computer system. (Or any other applicable answer)
- 2.6 True
Reason: OCR is an acronym for optical character recognition.
- 2.7 True
Reason: An instruction set is a description of everything a processor is capable of doing and process data using devices that make up micro-architecture.
- 2.8 False
Reason: Software patch can be supplied by the software publisher if there is a problem with the application software which does not mean that it is a permanent fix. (Or any other applicable answer)

- 2.9 False
Reason: It is recommended to wear an ESD wrist strap when performing maintenance or repairs on electronic devices such as personal computers.
(Or any other applicable answer)
- 2.10 False
Reason: Troubleshooting is a way of solving problems. (Or any other applicable answer) (10 x 2) [20]

QUESTION 3

- 3.1 B – Application software
3.2 C – Structured problems
3.3 A – Multitasking
3.4 B – Microsoft diagnostics
3.5 C – Broadband
3.6 B – Modem
3.7 A – Encrypting
3.8 C – No cafeteria onsite
3.9 C – Password
3.10 B – Troubleshooting (10 x 2) [20]

TOTAL SECTION A: 50**SECTION B****QUESTION 4**

- 4.1 **PROCESSOR REGISTERS**
- Registers are areas in the processor reserved for holding transient data.
 - Registers are the only part of the processor that is random-access memory.
- OR ANY OTHER SUITABLE ANSWER**
(ANY 1 x 2) (2)
- MEMORY ADDRESSES**
- Memory is a separate set of chips to the processor.
 - All programmes are stored in memory when they are loaded.
- OR ANY OTHER SUITABLE ANSWER**
(ANY 1 x 2) (2)
- 4.2 **OPERATING SYSTEM**
- Coordinate resources, provide an interface for users and computer hardware and run applications, e.g. Windows XP, Mac OS X.
 - Perform specific task to manage computer resources.
- OR ANY OTHER SUITABLE ANSWER**
(2 x 1) (2)

COMPILERS

- A computer programme written to translate programming instructions into instructions for a specific computer.
- The compiler is dependent on the instruction set of the CPU, so will differ from computer to computer.

OR ANY OTHER SUITABLE ANSWER

(2 x 1)

(2)

PIPELINING

- Designed to overcome design constraints.
- The process of breaking down instructions into steps and work on one step of several different instructions at the same time.
- Pipelining is the idea that the processor can start reading the next instruction as soon as it finishes reading the first instruction.

OR ANY OTHER SUITABLE ANSWER**(ANY 2 x 1)**

(2)

[10]**QUESTION 5**

5.1 5.1.1

LOCAL AREA NETWORK

- LANs span distances less than a mile and are owned and operated by individual organisations.
- LANs are widely used by colleges, universities and other types of organisations to link microcomputers and to share printers and other resources.

(2 x 1)

(2)

5.1.2

METROPOLITAN AREA NETWORK

- Also known as regional networks.
- MANs span distances up to 100 miles.
- Frequently used as links between office buildings in a city.
- MANs are typically not owned by a single organisation.

(ANY 2 x 1)

(2)

5.1.3

WIDE AREA NETWORKS

- Are countrywide and worldwide networks.
- These networks provide access to regional service (MAN) providers and typically span distances greater than 100 miles.
- They use microwave relays and satellites to reach users over long distances – for example from Los Angeles to Paris.
- The widest of all WANs is the Internet, which spans the entire globe.

(ANY 2 x 1)

(2)

- 5.2 5.2.1 **MODULATION**
- The name of the process of converting from digital to analogue.
 - A process of computer data being sent over a standard telephone line.
- (2 x 1) (2)
- 5.2.2 **DEMODULATION**
- Is the process of converting from analogue to digital.
 - The modem enables digital microcomputers to communicate across analogue telephone lines.
- (2 x 1) (2)
- 5.3
- Batch or interactive system will be applicable.
 - The student reacts to prompts from the computer system and the system responds to commands from the student.
 - The student can use educational applications such as Britannica, Encarta, etc. to access information about almost anything in the world such as encyclopaedics.
 - Other kinds of educational applications can teach students to speak a new language or to teach basic skills to children entertaining educational games.
 - Many companies produce special applications to teach students and adults many types of skills.
- OR ANY OTHER SUITABLE ANSWER**
(ANY 4 x 1) (4)
- 5.4 5.4.1 Power Supply cooling fan
- 5.4.2 Keyboard connector
- 5.4.3 USB port
- 5.4.4 Serial port
- 5.4.5 Monitor port
- 5.4.6 Parallel port (6)
- [20]**

QUESTION 6

- 6.1 Telephone and specifications
- 6.2 48 hours (Any applicable answer less than 4 days)
- 6.3 Tools and static-free work
- 6.4 2 hours (Any reasonable amount of hours)
- 6.5 Software package e.g. MS Office
- 6.6 Test software
- 6.7 1 hours (Any reasonable amount of hours)
- OR ANY OTHER SUITABLE ANSWER**
(ANY 5 x 1)
- Markers should be lenient to this type of question because it will depend on the student's estimation.** **[5]**

QUESTION 7

- 7.1
- Vika should consider the checklist to ensure that he meets the user's requirements and it will minimise the time he spends on the installation. He should consider the following important factors:
 - What software the client wants installed.
 - Is it easily available in the country or must it be brought in from overseas?
 - If the software is appropriate for the user's needs?
 - The user should have provided a specification of their software requirements. It is possible that a friend or relative told the user that this product is what they need.
 - To establish the feasibility of the specification, it is a good idea to ask the user about their requirements.
 - Whether the PC meet the minimum specifications of the software.
 - Check that the hardware meets the recommended specification. Software will run if the hardware meets the minimum specification, but it will not run well or quickly.
 - All software is supplied with minimum and recommended specifications. This is usually printed on the packaging and in the user manual.
 - Whether the software needs customisation or special settings to meet the user requirements.

OR any other suitable answer

(10 x 1)

(10)

- 7.2
- Before beginning the test, Vika should take the following steps into consideration:
- Switch off all peripherals and shut down the computer.
 - Then start the computer and switch on all the peripherals.
 - First test each peripheral individually.
 - If it is a printer, print a document on the printer.
 - If it is a modem, connect to another computer, such as connecting to the Internet.
 - If it is a back-up device, make a back-up and then restore the data.
 - If it is scanner, scan something.
 - Check that the scanned barcode or document is accessible on the PC.

OR ANY OTHER SUITABLE ANSWER

(ANY 5 x 2)

(10)

[20]

QUESTION 8

- 8.1
- Lack of personnel when testing is to begin.
 - Lack of required hardware, software, data or tools.
 - Late delivery of the software, hardware tools.
 - Delays in training testers on the application or on any tools to be used.
 - Changes to the original requirements or designs.
 - Complexities and difficulties involved in testing the applications.

(6)

OR ANY OTHER SUITABLE ANSWER

(6 x 1)

- 8.2 8.2.1 Load testing – how the system operates with large volumes of data users. (1 x 2) (2)
- 8.2.2 Sanity testing – accuracy of calculations and for normal or expected behaviour. (1 x 2) (2)
- [10]**

QUESTION 9

- 9.1 • All computers and there components or peripherals come very well packaged.
- The packaging and wrapping can cause severe pollution if not properly disposed of.
- Some of the components even come packed in polystyrene.
- The printing on the boxes and or the plastic could be toxic.
- The peripheral devices could breakdown and if not properly disposed can cause more environmental damage.

OR ANY OTHER SUITABLE ANSWER

(5 x 1)

(5)

- 9.2 CRT monitors can be cleaned by using:

- Standard glass cleaner and
- a lint free cloth.
- Use a dry cloth

LCD monitors can be cleaned by using:

- Isopropyl or other similar cleaning agents.
- Do not spray the cleaner directly on the monitor.
- Spray the cleaner on the cloth and then wipe the monitor clean.

OR any other suitable answer

Any Five.

(5)
[10]**QUESTION 10**

- 10.1 • Milestones are very important points against which you can measure your progress, e.g. getting all the necessary components within two days may be the first milestone.
- The installation of the components.
- Testing the system.
- Installing and testing software – if necessary.
- Impact on the user, if any.

OR ANY OTHER SUITABLE ANSWER

(5 x 1)

(5)

- 10.2
- Record what the original problem was.
 - Explain what the symptoms of the problem were.
 - Show when the user first told you about the problem.
 - Explain how you responded to the user's problem.
 - Explain all steps you took to troubleshoot the problem.
 - Say whether you could fix the problem or whether you forwarded it to technical support.
 - If you forwarded the problem to technical support, explain when and say what happened while the computer was there.
 - Record when you reported back to the user about how the solution implementation was progressing.
 - Say when you returned the computer to the user and explain what you did to fix it.
- (ANY 5 x 1)** (5)
- 10.3
- Were other people in the office at the time?
 - Was equipment bumped or knocked over?
 - Did something get spilt on equipment?
 - Was equipment moved recently?
 - Was other mechanical or electrical equipment in use close by?
 - Has there been recent thunder storm activity?
- OR ANY OTHER SUITABLE ANSWER**
What? Who? When ? and How? (5)
(ANY 5 x 1) [15]

QUESTION 11

- 11.1
- Technical manuals – troubleshooting guides, configuration details.
 - Knowledge bases – known problems and solutions.
 - Information logs – known problems and solutions.
 - Suppliers support staff – known problems and solutions, troubleshooting techniques.
 - Manufacturer technical staff – known problems and solutions, troubleshooting techniques.
 - Discussion forums
 - Online resources

OR ANY OTHER SUITABLE ANSWER

Any Five

(5 x 1)

(5)

- 11.2
- For reasons such as security do all repairs at your own premises.
 - The user's premises cannot be guaranteed to be static or dust free.
 - The user's premises will not provide you access tools and reference material.
 - Access to the user's premises may only be permitted during office hours. This might not suite you.
 - A clean and stable power supply cannot be guaranteed at the user's premises.

OR ANY OTHER SUITABLE ANSWER

(5 x 1)

(5)

[10]**TOTAL SECTION B: 100****GRAND TOTAL: 150**