higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

COMPUTER HARDWARE AND SOFTWARE
NQF LEVEL 3

4 November 2022

This marking guideline consists of 7 pages.

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SECTION A

QUESTION 1

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

(10 × 1) **[10]**

QUESTION 2

2.1 False✓ – Thermal paste should be applied on top of the CPU between the CPU and the heat sink.✓

2.2 True✓ – A computer can only cause a fire if it can generate a spark through electricity which can only potentially happen if plugged into the wall socket.✓

2.3 False✓ – The main reason for providing software with peripherals is to ensure that necessary drivers are made available to clients/users.✓

2.4 True✓ – Both RAM modules and laptop batteries are considered customer replaceable units.✓

2.5 False✓ – Diagnostic software is available for both hardware and software problems.✓

(5 × 2) **[10]**

QUESTION 3

3.1 H
3.2 G
3.3 L
3.4 F
3.5 B
3.6 C
3.7 D
3.8 E
3.9 J
3.10 I

(10 × 1) **[10]**

TOTAL SECTION A: 30

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SECTION B

QUESTION 4

- Change boot options or order
- Create a password
- Remove a password
- Change date and time
- Load BIOS setup defaults
- Change hard drive settings
- Change floppy drive settings
- Change CD/DVD/BD drive settings
- Change the Boot Up NumLock Status
- Change CPU settings
- Change memory settings
- Change system voltages
- Change fan speed
- Change the power button function
- Change the power-on settings
- Change which display is initialized first on Multi-display setups.
- Flash (Update) BIOS

(Any 10 × 1) **[10]**

QUESTION 5

5.1
- Implement solutions
- Record actions
- Return system to user
- Monitor solution (Any 3 × 1) (3)

5.2
- Each computer can function as a server for another computer.
- A computer can act as both a server and client.
- Computers are equal in status.
- No dedicated server is needed. (Any 3 × 1) (3)

5.3
5.3.1 Printed-circuit board.
5.3.2 Arithmetic logic unit
5.3.3 Static random-access memory
5.3.4 Complementary metal-oxide-semiconductor

(4 × 1) (4)

5.4 5.4.1 This is the most common power supply on the market today. ✓ It includes a second motherboard connector to provide dedicated power to the CPU. ✓

5.4.2 This was originally designed for network servers✓ but is now commonly used in high-end desktop models. ✓

5.4.3 This is the updated version of the AT✓ but is still considered to be obsolete. ✓

(3 × 2) (6)

5.5 Solid state drive (2)

5.6 Solid state drives (SSD) store data as electrical charges in semiconductor flash memory.✓ This makes SSDs much faster than magnetic HDDs.✓ SSDs have no moving parts✓, make no noise, are more energy efficient, and produce less heat than HDDs.✓ Because SSDs have no moving parts to fail, they are considered more reliable than HDDs.✓
.
(Any 2 × 1) (2)
[20]

QUESTION 6

6.1
- Review the software specifications.
- Determine the feasibility of the specifications.
- Estimate the time and resources required.
- Specify milestones.
- Plan the schedule for installation to minimise disruption. (4)

6.2

TIME AND RESOURCE ESTIMATION FOR SOFTWARE INSTALLATION ✓		
Client details:✓		
Assigned technician:✓		**Due date: ✓**
Procedure/Task✓	**Duration✓**	**Resources required✓**
Total time needed: ✓		

Drawing ✓✓✓ (10)

6.3
- Dust, dirt and heat✓ – Build-up of dust and dirt inside computer creates insulation which causes generated heat to increase and components overheat.✓
- Moisture or humidity✓ – Too little moisture can result in an increase in static electricity.✓ And corrosion of components. ✓
- Software crashing✓ – A crash can lead to permanent loss of information and data.✓
- Dropping or shaking✓ – Components fall and drop will be scratched and damaged.✓ (10)

- Magnetism and electromagnetism✓ – Keep hardware components far away from heavily magnetic metals.✓
- Electricity and water✓ - mixing electricity and water is a bad idea, components may not work .
- Static electricity, lightning and power surges✓ - heat generated by a spike or surge can damage electrical components. ✓ (Any 5 × 2)

6.4
- On storage media distributed with the device on purchase.
- Download drivers from a trusted site, preferably the manufacturer's website. (Any ONE) (1)

[25]

QUESTION 7

7.1
- Performance testing✓ - To test how the system processing time. ✓
- Load testing✓ -To test how the system will behave when the load is increased to its specific unit. ✓
- Stress testing✓ - To test the breaking point of the system. ✓
- Reliability testing✓ - To test the system's sustainability over a period of time or a number of transactions. ✓
- Usability testing✓ - To test how easy the system is to use, modify and update. ✓
- Portability testing✓ - To test the system's ability to be moved from one device to the next. ✓
- Maintainability testing✓ - To test the ability of the system to be maintained or fixed while it is still in testing phases. (Any 5 × 2) (10)

7.2
- Smoke tests
- Sanity tests
- Unit tests (Any 2 × 1) (2)

7.3 Test deliverables are the test artefacts that are given to the stakeholders of a software project during the SDLC (software development life cycle);✓ these are delivered to the client along with the final software application.✓ (2)

[14]

QUESTION 8

8.1 8.1.1
- Reduces potential hardware and software problems
- Reduces computer downtime
- Decreases repair costs
- Decreases the number of equipment failures
- Improves data protection
- Improves equipment life and stability
- It saves money (Any 6 × 1) (6)

8.1.2
- Hardware preventative maintenance✓ – Taking care of hardware components by cleaning them using preferred cleaning materials.✓
- Software preventative maintenance✓ – Taking care of computer programs by updating and scanning them for viruses.✓
- Environmental preventative maintenance✓ – The recommended practice of keeping the environment where computers are used clean, free of dust, moisture, humidity.✓ (3 × 2) (6)

8.2 8.2.1
- Date of the last backup
- Contents of the backup
- Data integrity of the backup
- Availability of all backup media for a data restore.
(Any 3 × 2) (6)

8.2.2
- Permission to work on the computer without a current backup available.
- Release from liability if data is lost or corrupted.
- Description of the work to be performed. (3)

8.3
- Ask direct questions to gather information.
- Do not use industry jargon.
- Do not talk down to the customer.
- Do not insult the customer.
- Do not accuse the customer of causing the problem. (Any 2 × 1) (2)

[23]

QUESTION 9

9.1 9.1.1 A customer service-level agreement (SLA) includes:✓
- exact details of the service expected by the customer;✓
- provisions of the service availability;
- standards for each level of service;
- each party's responsibilities;
- escalation procedures; and
- terms for cancellation.

(ONE mark each for naming the SLA type and any ONE fact)

An internal service-level agreement (SLA) ✓ is between an organisation and its internal customer – this could be another organisation, department, or site.✓ That means that although a company could have an SLA with each of its customers, it might also have a separate SLA between its marketing and sales departments.

(ONE mark each for naming the SLA type and any ONE fact)

A multi-level service-level agreement (SLA)✓ will divide the agreement into various levels that are specific to a series of customers using the service.✓ For example, a software-as-a-service (SaaS) provider might offer basic services and support to all customers using a product, but they could also offer different price (6)

ranges when buying the product that dictates different service levels. These various levels of service will be layered into the multi-level SLA.

(ONE mark each for naming the SLA type and any ONE fact)

9.1.2
- Social media
- Emails
- Chat bots
- Telephone (4)

9.1.3 Advice or help given by someone who has studied a particular field thoroughly or who is very skilled at a particular job. ✓ (1)

9.2
- Print to file
- Print to PDF
- Print to XPS
- Print to image
- Cloud storage (5)

[16]

QUESTION 10

10.1
- Arrange suitable packaging.
- Arrange time to be at the destination office or building so that someone will be there to receive.
- Get clearance from your manager.
- Write down serial numbers of components in case of damage or theft.
- Make sure all the components have been packed.
- Make sure the boxes or packaging is sealed.
- Organise proper transport such as a trolley to transport the boxes.
- Store the boxes in an area that is free from water, humidity and sunlight.

(Or any other applicable answer) (Any 6 × 1) (6)

10.2 10.2.1 A built-in or stand-alone camera✓ that captures still images and video on a computer. ✓

OR

Webcams are commonly used for video conferencing✓ and for online video streaming. ✓

10.2.2 Is a device that translates sound vibrations in the air into electronic signals✓ or scribes them to a recording medium. ✓

OR

Microphones enable many types of audio recording devices✓ for purposes including communications of many kinds, as well as music and speech recording. ✓

10.2.3 A cordless mouse, also called a wireless mouse, is a mouse that connects to a computer without the use of wires✓, instead, the mouse uses some manner of wireless technology, like Bluetooth, RF, or infrared radio waves. ✓

(3 × 2) (6)
[12]

TOTAL SECTION B: 120
GRAND TOTAL: 150