higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

COMPUTER HARDWARE AND SOFTWARE
NQF LEVEL 3

26 February 2020

This marking guideline consists of 7 pages.

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SECTION A

QUESTION 1

1.1 E
1.2 H
1.3 G
1.4 J
1.5 A
1.6 K
1.7 F
1.8 B
1.9 I
1.10 D

(10 × 1) **[10]**

QUESTION 2

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

(10 × 1) **[10]**

QUESTION 3

3.1 A
3.2 D
3.3 C
3.4 D
3.5 C
3.6 A
3.7 C
3.8 A
3.9 A
3.10 A

(10 × 1) **[10]**

TOTAL SECTION A: 30

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SECTION B

QUESTION 4

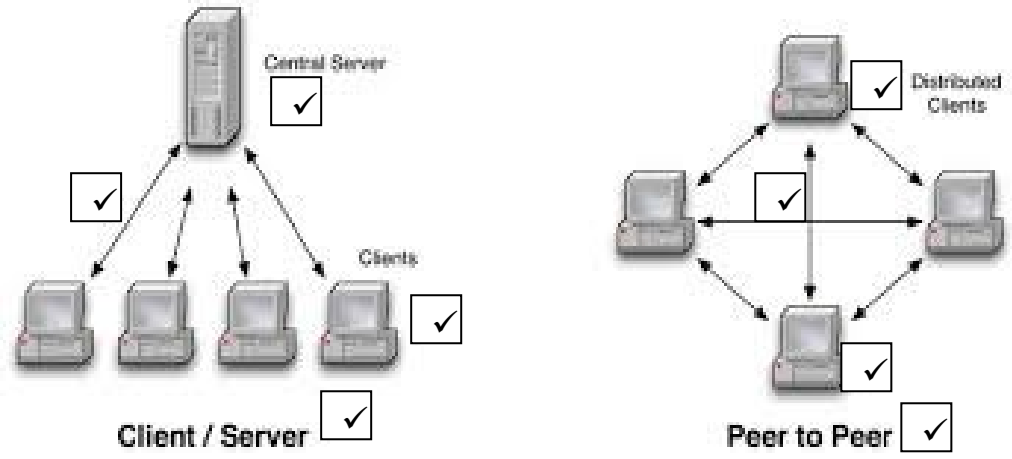
4.1
- Arithmetic instruction – these instructions enables the processor to perform mathematical operations such as adding, subtracting, multiplying and dividing.
- Logic instruction – these instructions contains conditions such as 'and', 'or' and 'not'.
- Data instruction – these instructions tell the processor to move, store, input and output data.
- Control flow instruction – these instructions control the flow of data by calling it or asking it to return. (4)

4.2
- Remove the power supply and battery.
- Remove any device connected to the laptop e.g. printer, memory sticks.
- Remove the hinge plate cover (HPC)/Keyboard bezel.
- Remove the cables under the keyboard.
- Remove the visual display unit.
- Remove screws from the case.
- Pry case apart.
- Remove the motherboard and peripherals. (8)

[12]

QUESTION 5

5.1



Client Server Mark Allocation:
1 mark for naming the diagram.
1 for showing cable connections to the server.
1 mark for the server.
1 mark for the four computers connecting to the server.

Peer to Peer Mark Allocation:
1 mark for naming the diagram.
1 for showing cable connections from one computer to the other.
2 Marks for the four computers. (8)

5.2
- Input/output Ports✓ – The I/O ports are built to connect the monitor, speakers, a microphone, an Ethernet networking cable and multiple USB devices (all input and output devices.✓
- BIOS✓ – contains all the information and settings of the motherboard, and you can update or modify the setting from the BIOS mode.✓
- CPU Socket✓ – Helps to install the processor into the Motherboard and supplies the power to the processor, at the same time, it transports the data among the other parts/components of the computer.✓
- RAM (Memory) Slots✓ – For installing RAM modules, a motherboard may have more than one slot, and it is positioned near the CPU socket.✓
- Expansion Card Slots✓ – When you need to add new components to the motherboard or if you want to update any parts of the motherboard, a motherboard's expansion card slots allow you do that.✓
- Storage Device Connectors✓ – Allows connecting storage devices to a computer as computer needs some other types of storage devices to store the data or performing efficiently including hard drives, optical drives, and floppy drives.✓
- Power Connectors✓ – A Motherboard needs the power to keep running and it gets the power from SMPS. There are connectors to keep the process going on.✓
- IDE connector✓ – It is used to connect the disk drives including floppy disk drives and HDD (Hard Disk Drives).✓
- SATA connector✓ – It is used to connect the SATA hard disks or optical drives and it is faster and better than the IDE Connector.✓
- Co-Processor✓ – It is used to perform mathematical calculations and computer graphics with the main processors.✓
- Cabinet connections✓ – It is the place where the motherboard is installed. It contains many buttons to connect the cabinet with the motherboard.✓

(Any 5 × 2) (10)

5.3 5.3.1 Is used to detect electrical current so you can see if the component is working.

5.3.2 Used for getting rid of dust that is trapped on small surfaces or in small spaces inside a computer.

(2 × 1) (2)
[20]

QUESTION 6

6.1
- Plan
- Assemble
- Test
- Dispatch (4)

6.2 Business Application Performance Corporation. (1)
[5]

QUESTION 7

7.1 Software Piracy refers to the illegal copying, distribution or use of software (1)

7.2 MSI file

- MSI stands for Microsoft Installer.
- An MSI is a Windows Installer database.
- Windows Installer (a service installed with Windows) uses this to install software on your system (i.e. copy files, set registry values, etc.).
- Windows Installer only allows one MSI to be installing at a time.
- MSI files are executed by an EXE file that is part of Windows, called MSIEXEC.EXE.

EXE file.

- EXE is a file extension for an executable file format.
- A setup.exe may either be a bootstrapper or a non-msi installer.
- A non-msi installer will extract the installation resources from itself and manage their installation directly.
- A bootstrapper will contain an MSI instead of individual files.
- A setup.exe gives complete control over the software configuration process. (10)

7.3

- Define the problem. If the problem is large, it may help to break it down into smaller parts.
- Gather data and evidence. Gathering information is important to help define the problem clearly.
- Identify the issues that contribute to the problem. This is also a process of eliminating items that do not contribute to the problem.
- Find the root cause. This aspect of problem solving may still require diagnostic tests to be run.
- Develop recommendation for possible solutions.
- Implementation the selected solution.
- Monitor the solutions to ensure it is effective. (Any 5 × 2) (10)

[21]

QUESTION 8

8.1

- The very first step is to create a Test Plan.
- Create System Test Cases and test scripts.
- Prepare the test data required for this testing
- Execute the system test cases and script.
- Report the bugs. Re-testing the bugs once fixed.
- Perform regression testing to verify the impact of the change in the code.
- Repetition of testing cycle till the system is ready to be deployed.
- Sign off from the testing team. (8)

8.2 User Acceptance Testing – Also known as 'Beta Testing', is used to find bugs in a website's design. User acceptance testing is done near the end of the design process and It is generally used for the developers to prove to the client that the project is complete✓✓ whereas Usability Testing is used to test if an application is or will be easy to use for the end user. Usability testing is done towards the middle and end of the design process, making incremental changes to the website design when issues are discovered.✓✓ (4)
[12]

QUESTION 9

9.1
- Ensure that the printer is positioned in such a way that the paper fed from if can land correctly.
- If the paper is jammed inside the printer, do not force it out of the printer by pulling it.
- Do not dismantle the printer, only open the sections of the printer meant to be open, such as the paper feed tray.
- Do not put more paper into the printer than it can handle.
- Do not use damaged, worn, wet or scrunched paper. (5 × 2) (10)

9.2
- Heat or magnetism and excessive build-up of dust
- Static electricity, power surges and lightning
- Bumping or dropping the computer
- Computer set up in high traffic areas are potential problems
- Carelessness, such as spilling liquids onto a computer

  Viruses, either picked up from the Internet or spread from storage media share between computers (Any 5 × 2) (10)

9.3
- Clean your floor regularly
- Dust your nearby shelves and cabinets
- Move your computer away from doors and windows
- Install an air filter
- Elevate your computer from the floor (5)

[25]

QUESTION 10

10.1 As a computer technician, when you maintain information logs, you can access the volume of occurrences and by viewing a volume of occurrences, you can learn about the different events on a computer.

OR

In order to improve system performance, technicians use log maintenance to see the patterns in how computers behave and they analyse the information log to see where the system has problems. (2)

10.2
- The troubleshooting section of a user manual have information about the most common problems that people encounter with their devices or software.
- The troubleshooting section of a user manual outlines methods recommended by the manufacturer.
- A user manual is freely available as it comes with purchased product. (3)

10.3
- Listen to other people.
- Ask necessary questions.
- Speak or write clearly when communication with someone.
- Try to control your emotions.
- Give feedback where necessary. (5)

10.4
- Component Isolation technique is part of Systematic Fault Isolation.
- When using this technique, the first step is to strip the system down to a minimum, so it is able to boot or eliminate everything, and then add elements gradually.
- Component isolation offers a fail-safe method of confirming that hardware components are functional.
- It should be considered as a companion technique to diagnostic software.
- Component isolation can be used when you are attempting to isolate intermittent, hard-to-find hardware issues. (5)

[15]

QUESTION 11

11.1
- The PC will not boot.
- The PC does boot but will not start the operating system.
- The PC crashes during start-up and if it does boot, crashes frequently when running applications.
- The PC suddenly has POST parity error problems in many devices.
- The PC locks up after a few minutes of operation. (5)

11.1
- Check for resource conflicts – determine if there are any resource conflicts (IRQ, DMA, or I/O address) between the sound card and other devices.
- Speakers – Make sure the sound card is connected to the speakers and the correct cable is plugged into the correct jack on the sound card.
- Make sure the volume on the sound card and the speakers is turned up.
- Make sure that the speaker wires are not crimped or broken and that all of the jacks are seated in the appropriate plugs.
- Device drivers – Verify that the latest version of the sound card's driver software is installed.
- EMF (Electromagnetic Field) – Make sure that the sound card is not placed too close to a disk drive or the power supply inside the system case.

(Any 5 × 1) (5)

[10]

TOTAL SECTION B: 120
GRAND TOTAL: 150

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