MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)
NQF LEVEL 3

SUPPLEMENTARY EXAMINATION 2010

COMPUTER HARDWARE AND SOFTWARE

This marking guideline consists of 10 pages.
SECTION A

QUESTION 1

TRUE OR FALSE

1.1 1.1.1 TRUE  
1.1.2 FALSE  
1.1.3 TRUE  
1.1.4 TRUE  
1.1.5 FALSE  
1.1.6 FALSE  
1.1.7 TRUE  
1.1.8 FALSE  
1.1.9 FALSE  
1.1.10 TRUE (10 x 1) (10)

MATCHING

1.2 1.2.1 HARDWARE (H)  
1.2.2 SINGLE PROCESSOR (L)  
1.2.3 EXECUTION (O)  
1.2.4 BURN-IN TESTING (I)  
1.2.5 PIRACY (P)  
1.2.6 LOAD TESTING (B)  
1.2.7 ELECTRICAL SURGES (F)  
1.2.8 INFORMATION SOURCES (A)  
1.2.9 TRAIL (E)  
1.2.10 FORUMS (C) (10 x 2) (20)

MULTIPLE-CHOICE

1.3 1.3.1 B – MULTI-PROCESSING  
1.3.2 C – ANTISTATIC WRIST STRAP  
1.3.3 A – BENCHMARKING  
1.3.4 B – USER ACCEPTANCE SIGN-OFF  
1.3.5 B – LOGIC  
1.3.6 C – TIMEFRAME  
1.3.7 C – STAKEHOLDER  
1.3.8 A – COMPATIBILITY  
1.3.9 A – COMPUTER ARCHITECTURE  
1.3.10 B – TEST SCRIPT (10 x 2) (20) [50]

TOTAL SECTION A: 50
SECTION B

QUESTION 2

2.1 When you need to run different types or versions of operating systems on the same hardware.
When you want to set up different and hardware configurations for each operating system, if you are running more than one operating system.

(2 x 2) (4)

2.2 Twisted pair cables
- A pair of insulated wires is twisted about each other to form a twisted pair.
- One or more of these pairs form a twisted pair cable.
OR any other applicable answer

(2 x 1) (2)

Coaxial cables
- Made up of two conductors sharing the same axis.
- The centre of the cable consists of a copper wire, which is encased in a plastic insulator.
- A second conductor in the form of a wire mesh tube surrounds the inner insulation.
- The outer conductor serves as shielding.
- The outer plastic covering forms a tough protective cover.
OR any other applicable answer

Any (2 x 1) (2)

Fibre optic cables
- Light signals rather than electrical signals are transmitted by fibre.
- Each fibre consists of an inner core of glass or plastic.
- Cladding, a layer of glass that reflects and the light back into the core, then covers this inner core.
- The actual glass fibre is very thin, comparable to the width of a human hair.
OR any other applicable answer

Any (2 x 1) (2)

QUESTION 3

3.1 Scientific applications
- It often takes more than one computer to run scientific applications.
- Use of computers and specialised software applications to solve complex scientific or engineering problems.
- Speed, accuracy and reliability are important, particularly if the application is using distributed computing.
- If one of the computers being used failed, it could cause the entire process to be aborted.
OR any applicable answer

Any (2 x 1) (2)
Business applications
• Most business applications rely on users' computers being connected to each other via a network.
• A greater degree of validation is done by the programme with interactive systems.
• To ensure that the data is correct before it is updated.
• To process thousands of transactions from thousands of terminals quickly.
• To cope with high volumes and these systems have to be dependable.

OR any applicable answer

Educational applications
• Generally do not need as much processing power or speed as home applications.
• If the system is less than reliable or unavailable, it is unfortunate rather than critical.
• Students react to prompts from the computer system, and the system responds to commands from the student.
• It may also be batch systems, because the student will gather and prepare data over time, and update the system when the data is complete and correct.

OR any applicable answer

3.2
• A dedicated fileserver.
• Workstations capable of processing data.
• All workstations are able to share data.
• Data management is done by the fileserver.
• Security is handled by the fileserver.
• Greater processing power than peer-to-peer networks or stand alone systems.

OR any applicable answer

QUESTION 4

4.1
• To connect all of the other components of the computer together.
• A flat sheet that contains circuits, the CPU and slots for expansion cards and RAM.
• It also contains the BIOS chip, power connectors, keyboard connector, disk drive connectors, keyboard connector, disk drive connectors, peripheral port connectors and CMOS battery.
• Power cables, keyboards, disk drives and peripheral devices such as modems and USB devices plug into these connectors.

OR any other applicable answer
4.2 Memory
- The RAM is the temporary memory and ROM is the permanent memory.
- If it does not have enough RAM, it will run slowly.
- This is because the CPU stores the data it processes in the RAM.
- If there is not enough RAM, the CPU cannot store the data quickly enough.
- The CPU has to slow down to wait for enough RAM to become available.
- It is also to ensure that the computer performs well.
- It is this interaction with the CPU that is the most valuable operating principle of memory.

OR any other applicable answer

Any (3 x 1)

Buses
- Allows information or power to flow from one place to another in a computer.
- Expansion buses allow you to add devices to the computer.
- You do this by plugging devices into the expansion slots on the bus.
- The devices and the CPU can then communicate with each other.
- This function increases the number of tasks that the computer is able to do.
- The operating principle of buses is to make the computer more functional by allowing devices to interact with each other.

OR any other applicable answer

Any (3 x 1)

QUESTION 5

5.1 Complete any warranty forms, date and sign them and include them with the system for dispatch.
- Complete any documentation to expedite the delivery of the system to the user.
- File copies of documentation required by the organisation.
- If delivery is via courier, make sure that the courier dispatch documents are complete.
- This will include the delivery address and the contact details of the responsible person at the delivery address.

OR any other applicable answer

Any (3 x 1)
5.2 • Your skills level. Will you be able to complete the job without additional training?
• The availability of the components. Are they all available locally?
• The expected delivery date. Is there enough time to get the components and assemble the PC?
• The budget within which you have to work. Can the components be bought, and your labour and delivery costs covered?
• If you are working for yourself or for a computer supply company, is there enough to make a profit?
• Do you have the resources required to assemble the PC? Do you have a suitable work area, tools, testing and diagnostic software?

OR any other applicable answer Any

(2 x 1) (2)

[5]

QUESTION 6

6.1 Time
• How long will it take for the delivery of the software?
• How long will it take to install the system and application software and testing?
• To cope with the demands on your time and to meet deadlines, careful planning is vital.
• Your records should show how many hours it took you to assemble that computer.
• You can then estimate that it should take you twice that time to assemble the new computers.

OR any other applicable answer

Any (3 x 1) (3)

Resources
• Planning helps you decide what resources are needed for an installation.
• Ensures that all equipment needed is listed.
• Things like money, tools, space, advise from the IT manager and of course hardware.
• Helps you to allocate sufficient time to do a thorough job.

OR any other applicable answer

Any (3 x 1) (3)

6.2 Auto run
• The Auto run program starts the installation process without the user having to do anything.
• The Auto run program is working when you see a small CD icon next to the pointer on your screen.

OR any other applicable answer

(2 x 1) (2)
Executable file
- An executable file is an application that you download from the Internet, however you do not have an Auto run program.
- This means that you have to start the installation yourself, you do this by running an executable file, or .exe file, that is generally called Setup.exe or SETUP.exe.
- This file starts the installation process. It is a file that opens and runs a program.

QUESTION 7

7.1
- Temperature – a range of ideal temperatures are specified.
- Keeping equipment out of direct sunlight.
- Keeping equipment out of contact with water.
- Not covering ventilation slots, such as placing papers or other equipment on top of ventilation slots.
- Cables length.

OR any other applicable answer

7.2
- Tools
- Cables, including extension cords for power and cables ties
- Trunking
- Glue gun and cable clips
- Double adaptors or multi plug power extension

OR any other applicable answer

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 or 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.

OR any other applicable answer

8.2
8.2.1 Each tester completes the test script that details the action, input, expected results and the actual results.

8.2.2 At the end of every day of testing, the project manager is able to collate the recordings.

8.2.3 The data will be adequate to meet the test purpose if all aspects are specified on the test script.
8.2.4 The project manager must do a daily collation to see if any tester is not recording data - he/she will take steps to ensure that recording does take place. (1)

QUESTION 9

9.1 Class A
- It is the most common fires and is known to everybody.
- Fuel is a substance such as wood, paper, rubber or cloth.
- Control involves removing the source of heat by use of water or
- Removing source of fuel by back-burning or digging trenches. Any (2 x 1) (2)

Class B
- The fuel for this type is a flammable liquid such as petrol, paint, oils and some types of plastics.
- It is best controlled by smothering or removing the source of oxygen.
- Fire extinguishers filled with substances such as foam, dry powder or carbon dioxide can be used.
- Water is not recommended, as the water may spread the burning liquid. Any (2 x 1) (2)

Class C
- It may involve any of the materials found in Class A and B fires, but with the heat source being electricity.
- Presence of electricity makes this type of fire dangerous.
- Best way to deal with an electrical fire is to remove the source of heat by switching off the electricity.
- It will turn the class C fire into a class A or B fire.
- Never use water to put out an electrical fire.
OR any other applicable answer Any (2 x 1) (2)

9.2 All conductive materials are grounded to allow the static to escape rather than building up.
- Technicians who work with ESD-sensitive components are grounded through the use of conductive wrist and ankle straps.
- ESD prevention within EPA may include using appropriate ESD safe packing material.
- The use of conductive filaments on garments worn by assembly workers.
- The use of anti-static mats or conductive flooring materials ensures that harmful electric charges are conducted away from the work area.
- Humidity is controlled as it prevents static electricity charge from building up.
- The use of ion generators which inject ions into the air.
OR any other applicable answer Any (4 x 1) (4)
QUESTION 10

- Take the easiest route to eliminate possible problem components.
- Alternative places to find solutions are technical manual and knowledge bases.
- Spend some time reviewing manuals and checking settings.
- Ask among colleagues to identify anybody who may have dealt with a similar problem.
- The product manufacturer may also be able to help.
- Do not think that any given step is a waste of time in a troubleshooting guide.
- Diagnostic software is available for both hardware and software problems.
- Ask as many questions as necessary to clearly define and identify the problem.

OR any other applicable answer

Any (5 x 1) (5)

QUESTION 11

- Prepare a full report on each problem reported, and how it was solved.
- Submit the report to the user, along with a request to sign-off on the fault.
- Report should be clear and detailed.
- File a copy of the report along with the user sign-off.
- Notify management and any suppliers or manufacturers who have an interest in the solution, about problem solution.
- If necessary supply them with a copy of the report to show how the fault was resolved.

OR any other applicable answer

Any (5 x 1) (5)

QUESTION 12

12.1  
- Problem type
- Problem parameters
- Possible causes (3)

12.2  
- You should always consider that the people you are dealing with might have different cultures than you.
- Older people need to be helped in a different way than you would help somebody who is younger and who has used computers before due to their different backgrounds.

OR any other applicable answer

(2 x 1) (2)

[5]
QUESTION 13

13.1 • **Evidence of integrity** means to ensure that the modules or components that you are using to replace faulty components are not faulty themselves.
• This means that you replace the component or module with a similar or better component of module. (2 x 1)
• A warranty is written agreement in which a company selling something, promises to repair it if it breaks within a particular period.
**OR any other applicable answer** (2 x 1)

13.2 • Arrange to pick up the user's PC at the end of the working day.
• Install and test the system and application software in your workshop.
• Return the PC at the beginning of the next working day.
• If there is a lot of application software to be installed, arrange to do installation over a weekend.
• Test whether the software communicates with the peripherals - will have to be done at the user's premises.
• Consider the nature of the software products to be installed.
• The number of software products to be installed.
• Whether the user is on a network or a stand-alone system.
**OR any other applicable answer** Any (6 x 1)

TOTAL SECTION B: 100
GRAND TOTAL: 150