higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

COMPUTER HARDWARE AND SOFTWARE
NQF LEVEL 3

(10041013)

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09:00–12:00

This question paper consists of 11 pages.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)
COMPUTER HARDWARE AND SOFTWARE
NQF LEVEL 3
TIME: 3 HOURS
MARKS: 150

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Start each section on a new page.
5. Use only a black or blue pen.
6. Write neatly and legibly.

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SECTION A

QUESTION 1

Choose an item from COLUMN B that matches a description in COLUMN A. Write only the letter (A–O) next to the question number (1.1–1.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
1.1	It executes programs by directing electronic signals between memory, the arithmetic-logic unit and input/output devices	A	dumb terminal
1.2	They provide connection points on the system board for holding electronic parts	B	sockets
1.3	It can be used to input and receive data, but it cannot process data independently	C	cache
1.4	A system that allows the users to operate computers and to create documents using voice commands	D	plug-and-play
1.5	The first line of defence against viruses that inspects the master boot record, program files and macro code for the presence of viruses	E	universal serial bus
1.6	A set of hardware and software standards developed by Intel, Microsoft and others	F	control unit
1.7	A memory that is used to store most frequently accessed information stored in RAM	G	touch screen
1.8	It increases storage capacity by reducing the amount of space required to store data and programs	H	voice recognition systems
1.9	A particular kind of monitor screen covered with a plastic layer	I	file compression
1.10	Ports that are gradually replacing serial and parallel ports	J	antivirus software
		K	smart terminal
		L	internet terminal
		M	motherboard
		N	PDA
		O	random access memory

(10 × 1) **[10]**

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QUESTION 2

Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (2.1–2.10) in the ANSWER BOOK.

2.1 Video cards can be over clocked by decreasing the speed of their graphics processing unit (GPU).

2.2 Magnetic disks are the most common method of permanent data storage.

2.3 Resolution is the number of pixels displayed horizontally and vertically.

2.4 The mouse is the only pointing device that has been invented.

2.5 A memory address lets the PC know where in the RAM information or code has been stored and can be found.

2.6 A firewall is a security device that controls access from the internet to a local network.

2.7 The name of a modem is not derived from the two terms, *modulate* and *demodulate*.

2.8 Crackers and hackers have nothing in common.

2.9 Installation involves removing all files, folders and registry entries that were previously installed.

2.10 Tests such as smoke tests and sanity tests can be done in isolation.

(10 × 1) **[10]**

QUESTION 3

Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (3.1–3.10) in the ANSWER BOOK.

3.1 A sheet of plastic onto which metallic circuits have been printed and to which slots for other components wait to receive daughter boards:

A Motherboard
B Sockets
C CPU
D Fatherboard

3.2 Small disk files that contain software code that are the first files that a computer reads from the disk when it is booted up:

A E-commerce
B E-books
C System files
D Shared folder

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3.3 … consists of only two integers, 0 and 1.

A Data line
B Decimal
C Binary
D Address line

3.4 The process of exercising an integrated circuit at elevated voltage and temperature is called … testing.

A cache
B feasibility
C wafer
D burn-in



3.5 Problems that may be a result of misunderstanding, or a lack of training are called …

A hardware problems.
B software problems.
C user problems.
D network problems.

3.6 A term for high-speed, high capacity internet and data connection is …

A broadband.
B analogue.
C channel.
D data bundle.

3.7 A computer's BIOS information is typically stored in chips, which retain their data even when the PC is turned off.

What is this chip called?

A Operating system checklist
B Device driver
C Erasable programmable read only memory (EPROM)
D Random access memory (RAM)



3.8 Recently released technology allows a wide variety of nearby devices to communicate with one another without any physical connection:

A Bluetooth
B Modem
C Microwave
D ADSL

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3.9 The process of finding problems in a computer system is called …

A troubleshooting.
B implementing.
C pipelining.
D executing.

3.10 The process of installing software if the initial installation was problematic, or errors had occurred:

A Reinstall
B Restore
C Repair
D Rework

(10 × 1) **[10]**

TOTAL SECTION A: 30

SECTION B

QUESTION 4

4.1 Briefly describe the following types of software installations.

4.1.1 Web installation

4.1.2 Upgrade installation

4.1.3 Over the air installation

4.1.4 Offline installation

4.1.5 Repair installation

(5 × 1) (5)

4.2 By hardware configurations, we refer to the specific arrangement of physical hardware resources that make up an IT Infrastructure or network.

Differentiate between the TWO main categories of hardware configurations. (4)

4.3 Name FOUR characteristics of client-server network configurations. (4)

4.4 Describe the purpose for which I/O devices are used on computers. (2)

[15]

QUESTION 5

5.1 Name the component shown below and state its function.



(3)

5.2 Name FIVE different types of printers. (5)

5.3 Outline at least TWO basic installation guidelines for each of the following computer components:

5.3.1 Motherboards (2)

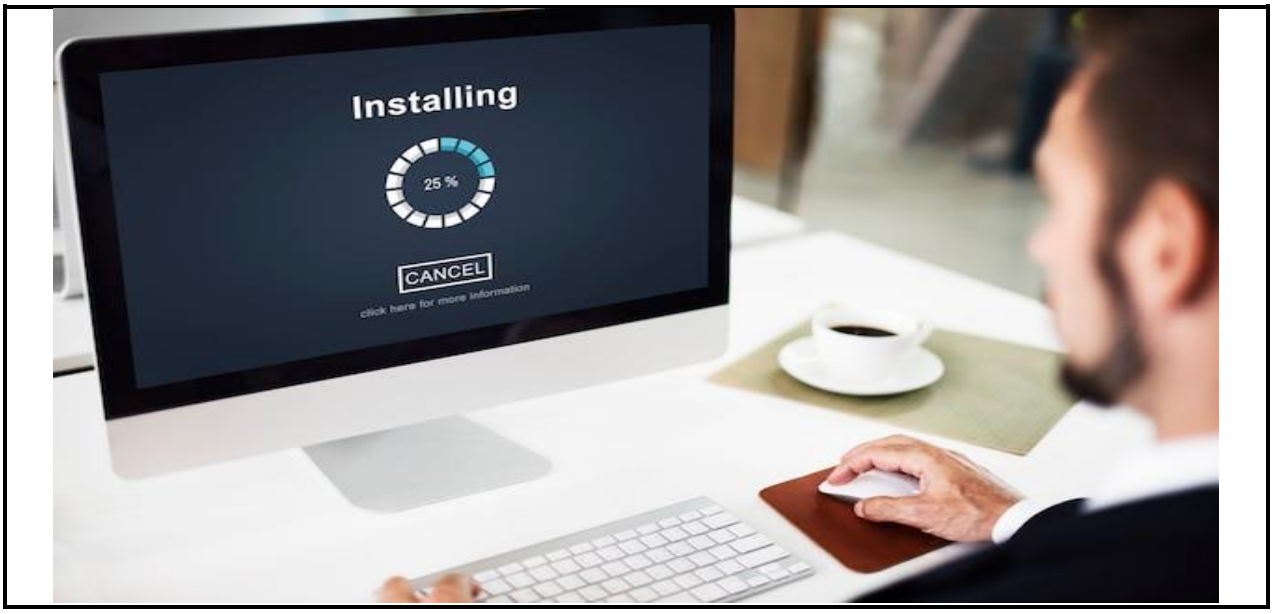
5.3.2 Central processing units (2)

5.3.3 Adapter cards (2)

[14]

QUESTION 6

The following illustration depicts the different phases in a V-Model of the SDLC.



6.1 Briefly describe FOUR steps involved in software specification review. (4)

6.2 Name at least FOUR examples of software installation milestones. (4)

6.3 Once all software installation planning has been done and the feasibility assessment of an installation is positive, the technician can now prepare the computer for installation.

Determine FOUR steps that a technician must perform to prepare the computer for installation. (4)
[12]

QUESTION 7

7.1 Name FIVE different peripheral devices that users can install or connect to their computers. (5)

7.2 State at least ONE customisation that users can configure on each of the peripherals named in QUESTION 7.1. (5)

7.3 Summarise FOUR recommended peripheral testing procedures. (4)
[14]

QUESTION 8

8.1 Draft criteria that can be used to determine whether the testing of IT systems has passed or failed. (10)

8.2 When testing IT systems it is crucial to comply with various regulatory, licensing, contractual, and health and safety requirements to ensure that the testing process is conducted in a legally and ethically sound manner.

8.2.1 Name at least THREE types of contractual compliancy requirements. (3)

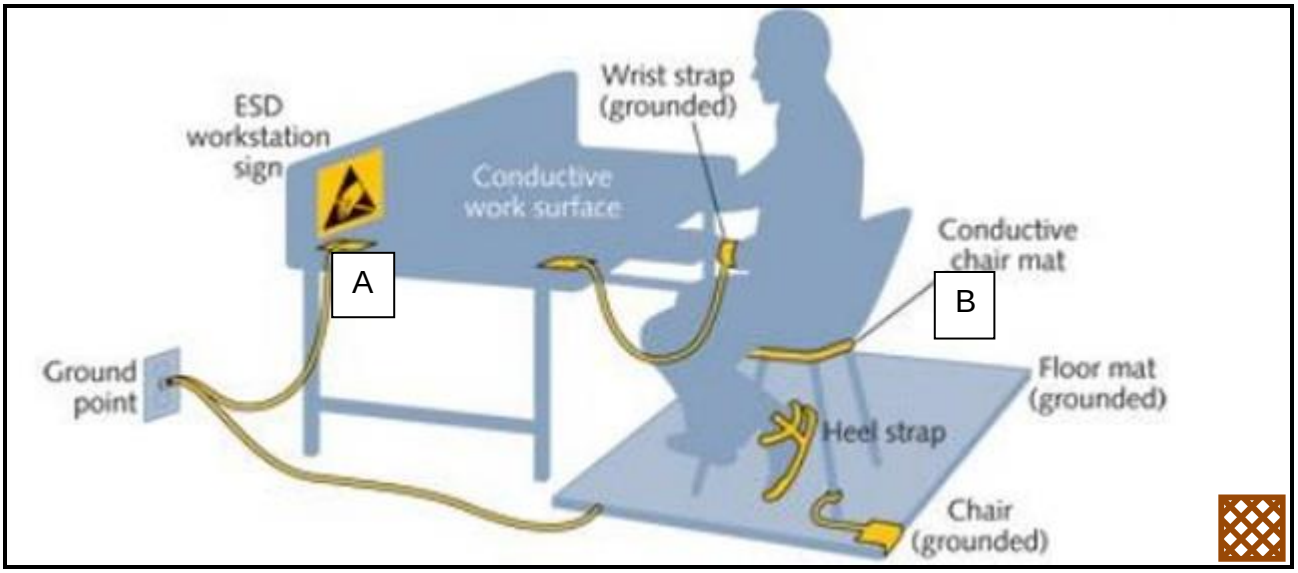
8.2.2 Name at least TWO types of health and safety compliancy requirements. (2)

[15]

QUESTION 9

Static electricity is a huge concern in a computer operating environment as it can damage electronic components. The image below illustrates precautions that computer users can follow in order to have an electrostatic protected area.

Reduce the potential for charge build up
Grounded equipment and furniture
Clean room – controlled humidity and particles



9.1 Discuss FIVE possible causes of static electricity build-up. (10)

9.2 Briefly describe how an IT technicians can achieve or create an EPA for their clients. (3)

[13]

QUESTION 10

10.1 Flowcharts or textual representations of flowcharts are valuable tools when gathering information for resolving and reporting technical computer issues for several reasons, i.e. troubleshooting, root cause analysis and communication.

Provide a textual representation of an information gathering flowchart for resolving and reporting technical computer issues. (12)

10.2 Outline the terms of support that one can offer to an IT Business or a company's clients listed below:

10.2.1 Small business owner

10.2.2 Individual client

10.2.3 Educational institution

10.2.4 Corporate IT division

10.2.5 Healthcare facility

(5 × 1) (5)

10.3 What IT services would one offer exclusively to each client listed above (10.2.1–10.2.5)? (5)

[22]

QUESTION 11

11.1 Discuss how the critical considerations listed below can help one determine the feasibility of a personal computer repair plan.

11.1.1 Cost benefit analysis

11.1.2 Availability of parts

11.1.3 Technical expertise

11.1.4 Warranty and support

(4 × 2) (8)

11.2 Using second-hand components in computer repairs can be a tempting cost-saving measure, but for several reasons computer technicians should be cautious and, whenever possible, avoid using second-hand parts when repairing clients' computers.



State at least FOUR reasons why computer technicians should avoid using second-hand components when repairing clients' computers. (4)

11.3 What are the basic challenges that could arise if a software program is installed in a computer that does not meet its minimum requirements? (3)

[15]

TOTAL SECTION B: 120
GRAND TOTAL: 150

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