higher education & training

Department:
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REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

COMPUTER HARDWARE AND SOFTWARE
NQF LEVEL 3

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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

Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (1.1–1.10) in the ANSWER BOOK.

1.1 Laser-jet printers produce high-quality text and images using laser beams.

1.2 The speed at which multifunction printers print documents, is shown in *gigabit per second.*

1.3 One major reason for unsuccessful software installation is the computer's ability to switch to sleep mode while the installation is in progress.

1.4 Input, output and storage devices attached to a computer are known as peripherals.

1.5 An automatic document feeder is a feature of an operating system used to feed documents to the main memory.

1.6 The more operands there are in an instruction, the shorter the instruction length.

1.7 Magnetic fields are crucial elements of computer architecture.

1.8 Parallel ports provide faster signal transmission than USB ports.

1.9 Bluetooth devices are only capable of transmitting voice and data files.

1.10 Thunderbolt refers to a brand name of a hardware interface used for the connection of external computer peripherals.

(10 × 1) **[10]**

QUESTION 2

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 (2.1–2.10) in the ANSWER BOOK.

2.1 Locating hardware units in accordance with specifications involves …

A clients.
B the installation of an antivirus.
C preventing equipment from getting in contact with water.
D planning.

2.2 Possible physical limitations when positioning each piece of equipment may include …

A cable length.
B installation tools.
C a Phillips screwdriver.
D software.

2.3 Software supplied with the hardware equipment usually includes …

A device drivers.
B cables.
C antivirus.
D firewall.

2.4 The user's specification configuration requirements may include …

A a router.
B an optical mouse.
C changing the mouse functions to suit a left-handed person.
D diagnostic software.

2.5 Testing connections between the computer and peripherals involves ….

A printing a document on the printer.
B connecting to the internet using a router.
C scanning a document.
D All the abovementioned.

2.6 Installation is only complete when …

A the equipment is unpacked and switched on.
B the equipment has been tested.
C the user signs the sign-off documents.
D payment has been received.

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2.7 Popular monitor connections include …

A HDMI
B VGA
C DVI
D All of the abovementioned

2.8 … is an example of digital audio cables.

A S/PDIF
B HDMI
C VGA
D The display unit

2.9 The … is the guide to what needs to be done to thoroughly test the installation.

A test identification
B test procedure
C manual test
D test validation

2.10 The … allows users to view and control the hardware connected to a computer.

A task bar
B LCD
C disk cleanup
D device manager

(10 × 1) **[10]**

QUESTION 3

Choose an item from COLUMN B that matches a description in COLUMN A. Write only the letter (A–L) next to the question number (3.1–3.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
3.1	A process of forwarding unresolved problems for expert help	A	problem escalation process
3.2	A set of values, rules, standards and principles outlining what employers expect from staff within an organisation	B	warranty
3.3	A person or group of people other than the client and technician who must always be informed of progress	C	MTBF (mean time between failures)
3.4	A file that records either the events that occur in an operating system or other software runs, or messages between different users of communication software	D	PII (Personal Identifiable Information)
3.5	The average time between the non-repairable failures of a technology product	E	log file
3.6	A contract defining the level of expected service between a service provider and a user or company	F	code of conduct
3.7	A statement that describes conditions under which the technician will repair, replace or compensate for defective items at no costs to the user	G	Service Level Agreement
3.8	Any data that could potentially identify a specific individual	H	third party
3.9	The ability to allow the customer to tell the whole story	I	GDPR
3.10	Regulates how client data is handled for personal, financial and health-care information	J	active listening
		K	Data Disaster Recovery
		L	Protected Health Information

(10 × 1) **[10]**

TOTAL SECTION A: 30

SECTION B

QUESTION 4

4.1 Briefly describe how each of the following strategies minimises end-user disruptions during a software installation:

4.1.1 Communication

4.1.2 Scheduled downtime

4.1.3 Compatibility checks

4.1.4 Data backup

4.1.5 Progressive deployment

(5 × 1) (5)

4.2 Emerging systems, especially in the context of hardware configurations, refer to innovative and evolving computing technologies. These systems are designed to address specific challenges or leverage new opportunities in the computing world.

Differentiate between the following:

4.2.1 Quantum computing (2 × 1) (2)

4.2.2 Edge computing (2 × 1) (2)

4.3 FIGURE 1 depicts a Peer-to-Peer network configuration. Peer-to-Peer networks are an example of multi-user systems and one of their distinct advantages over client/server networks is the cost factor.

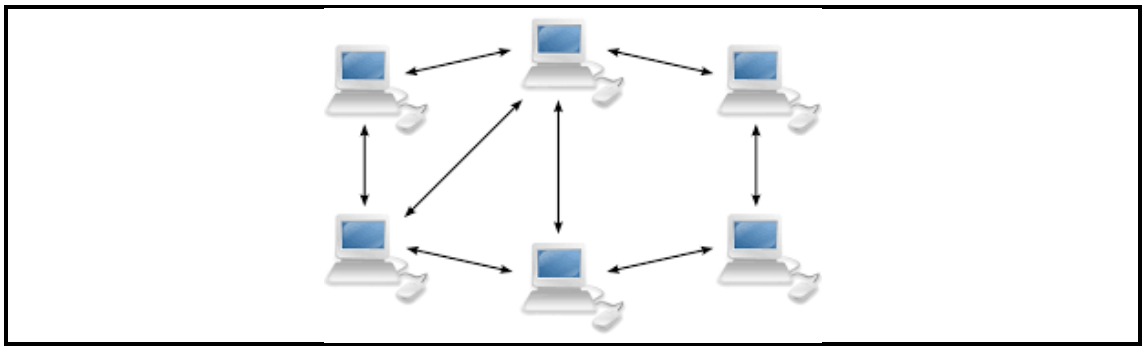

FIGURE 1

Name and explain FOUR ways in which Peer-to-Peer (P2P) networks achieve cost savings for organisations. (4)

4.4 State and explain TWO purposes of cables and connectors in computer systems. (2)

[15]

QUESTION 5

Personal computer hardware components have distinct specifications that define their functionality and performance.

5.1 Name and describe THREE specifications for each of the following components:

5.1.1 Tower\Case

5.1.2 Memory\RAM modules

(2 × 3) (6)

5.2



FIGURE 2

5.2.1 State FOUR functions of the component shown in FIGURE 2. (4)

5.2.2 Briefly describe THREE **NIC** form factors in relation to the component depicted in FIGURE 2. (4)

[14]

QUESTION 6

Specific customisations available can vary based on the brand and model of the peripheral. Always consult the manufacturer's documentation or software for detailed customisation options.

6.1 Effective IT systems testing is an iterative process that requires careful planning, selection and execution of a test procedure(s).

State and discuss FOUR common guidelines for testing IT systems. (4 × 2) (8)

6.2 Define the term *peripheral devices.* (2)

6.3 Briefly describe the following categories of test scripts:

6.3.1 Manual test scripts

6.3.2 Computer-based test scripts

(2 × 1) (2)

[12]

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QUESTION 7

7.1 Application software, often referred to as end-user software or simply 'apps', is a category of software designed to perform specific tasks for end users. These programs can be found on various platforms, such as desktop computers, mobile devices and web browsers.

Give ONE example for each type of application software listed below:

7.1.1 Database software

7.1.2 Graphics and multimedia software

7.1.3 Web browsers

7.1.4 Video conferencing software

7.1.5 Instant messaging/Communication software

(5 × 1) (5)

7.2 When preparing to install an operating system, it is essential to ensure that a computer's system architecture is compatible with the chosen OS. An architecture compatible with an OS is always provided on the operating system's specification list.

Name THREE types of bit-oriented system architecture. (3)

7.3 Scanners can often be configured to customise the settings and parameters for Optical Character Recognition (OCR) based on the specific needs and requirements of a client.

Name and describe SIX different settings of the scanner's Optical Character Recognition features that you can customise for clients. (6)

[14]

QUESTION 8

The classes of fires refer to the categorisation of fires based on the types of materials or substances that are burning. Understanding the classes of fires is essential for selecting the appropriate firefighting methods and extinguishing agents to combat a fire safely and effectively.

8.1 Name and briefly describe FIVE classes of fires. (5 × 2) (10)

8.2 State FIVE aspects to consider when handling a printer. (5)

[15]

QUESTION 9

Technical computer problems can be frustrating, but they are often solvable with some troubleshooting and, if necessary, professional help.

9.1 State TWO solutions for each of the following categories of technical computer problems:

9.1.1 Internet connectivity issues

9.1.2 Hardware issues/failure

9.1.3 Peripheral issues

9.1.4 Performance issues

9.1.5 Software issues

(5 × 2) (10)

9.2



FIGURE 3

FIGURE 3 shows a windows error code. It is important to note that these error codes can have various causes and can occur in different contexts.

State and briefly explain THREE basic troubleshooting steps. (3)

[13]

QUESTION 10

10.1 Big Data Solutions, an IT services company where you work as a senior IT technician, has purchased new laptops for their 50 employees working in various departments in the company.



FIGURE 4

10.1.1 Advise the employees on how they can take care of their portable devices to avoid unnecessary damages.

10.1.2 Advise them on how to improve the efficiency of their devices.

(2 × 5) (10)

10.2 By following a well-thought-out plan, you can approach fault repairs systematically and increase the likelihood of a successful outcome. Planning is a critical aspect of troubleshooting and maintenance in various fields, from IT to manufacturing to automotive repair.

State FOUR major strategies for repairing technical faults. (4)

10.3 Name and discuss FOUR important considerations for ensuring that the compatibility and integrity of replacement modules and software are aligned to the industry's best practices. (4 × 2) (8)

[22]

QUESTION 11



FIGURE 5

11.1 State EIGHT basic guidelines that you would adhere to when replacing a PC's hard drive (HDD). (8)

11.2 The Code of Good Practice for the IT professionals or technicians when dealing with clients, is an important set of guidelines and principles that help ensure ethical and professional behaviour in the information technology field.

State and briefly define FIVE important principles and ethical considerations relevant to the IT field. (5)

11.3 How would you assign priority to a problem you received and discuss the time frame with the user? (2 × 1) (2)

[15]

TOTAL SECTION B: 120
GRAND TOTAL: 150

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