



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

NOVEMBER 2019

INFORMATION TECHNOLOGY P2

MARKS: 150

TIME: 3 hours



This question paper consists of 11 pages.

INSTRUCTIONS AND INFORMATION

1. This paper consists of SIX sections:

SECTION A: Short questions	(15)
SECTION B: Systems Technologies	(23)
SECTION C: Communication and Network Technologies	(25)
SECTION D: Data and Information Management	(24)
SECTION E: Solution Development	(25)
SECTION F: Integrated Scenario	(38)

2. Read ALL questions carefully.
3. Answer ALL the questions.
4. The mark allocation generally gives an indication of the number of facts/reasons required.
5. Number the answers correctly according to the numbering system used in this question paper.
6. Write neatly and legibly.

SECTION A: MULTIPLE-CHOICE QUESTIONS**QUESTION 1**

1.1 Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A–D) next to the question number (1.1.1–1.1.10) in your ANSWER BOOK, for example 1.1.11 D.

1.1.1 Translates programming instructions into machine code one line at a time.

- A Interpreter
 - B Computer
 - C Compiler
 - D Programmer
- (1)

1.1.2 Which of the following is NOT true?

- A Many laptops have a built-in/integrated video adapter and a video card.
 - B All computers come out with separate video card.
 - C A video card's job is to generate images that are displayed on your monitor.
 - D Without a separate video card, the CPU has to do the job of the video card.
- (1)

1.1.3 Calculate the answer of the following:

$$2 - 30 + 3 * (30 \text{ DIV } 3)$$

- A 166
 - B -150
 - C 2
 - D -2
- (1)

1.1.4 Which ONE is related to the *global* village?

- A Telecommunication
 - B Centralised labour
 - C Social office
 - D Mobile office
- (1)

1.1.5 Which ONE is NOT a characteristic of quality data in a database?

- A Accuracy
 - B Punctuality
 - C Currency
 - D Relevance
- (1)

- 1.1.6 Which one is NOT an advantage or characteristic of a dynamic website?
- A Need more powerful servers
 - B Makes the social web possible
 - C Designed for client side only
 - D Can adapt to the user's needs and preferences (1)
- 1.1.7 Start-up test performed by hard coded instructions on a ROM chip to ensure that all essential hardware is present and in working order.
- A Caching
 - B CMOS
 - C Plug and Play
 - D POST (1)
- 1.1.8 A software bug is caused by ...
- A a virus.
 - B a triggered Trojan horse.
 - C a programming error.
 - D an installation error. (1)
- 1.1.9 LTE stands for ...
- A Long Transfer Evolution.
 - B Life Time Energy.
 - C Life Transfer Everywhere.
 - D Long Term Evolution. (1)
- 1.1.10 What is the value of $30 \text{ DIV } 5 - 10 \text{ MOD } 4$?
- A 6
 - B 3
 - C 4
 - D 2 (1)
- 1.2 Give ONE word/term for EACH of the following descriptions. Write only the word/term next to the question number (1.2.1–1.2.5) in the ANSWER BOOK.
- 1.2.1 A single fact or the smallest unit of data in a database (1)
- 1.2.2 The combination of more than one field in a database to uniquely identify a record (1)
- 1.2.3 Refers to a situation where a number of people pool their money together, often via the Internet and social networking services, then use this money for projects they feel have merit (1)
- 1.2.4 ... is used to track the way a program executes (1)
- 1.2.5 A new superfast connection technology which can support multiple simultaneous connections (1)

TOTAL SECTION A: 15

SECTION B: SYSTEMS TECHNOLOGIES**QUESTION 2**

- 2.1 Inside the system unit, is a motherboard which is a circuit board with many slots, connectors and different parts clearly visible all over it.
- 2.1.1 Where will you connect the CPU to the motherboard? (1)
- 2.1.2 Another component found on the motherboard is expansion slots.
- (a) Briefly explain the function of expansion slots. (1)
- (b) State TWO hardware components that can be connected to the expansion slots. (2)
- (c) Name TWO ways that are currently used to connect most devices to a computer. (2)
- 2.2 The CPU and RAM are two of the most important components found in a motherboard.
- 2.2.1 A point-to-point connection between these two components is available on the motherboard. What does this mean? (1)
- 2.2.2 You are upgrading your RAM to 8GB of RAM. The computer only recognises 4GB of RAM. The RAM is installed correctly and the RAM is not faulty. What could be the problem? (1)
- 2.2.3 The RAM slots are placed close to the CPU. Why? (1)
- 2.2.4 List THREE characteristics of RAM. (3)
- 2.2.5 What is the name of the type of ROM which is used in most modern devices? (1)
- 2.3 Threats to data can take many forms.
- 2.3.1 Give FOUR of the general categories of threats to data. (4)
- 2.3.2 List and explain ONE type of social engineering. (2)

2.4 One of the categories of system software is an operating system and an OS is very important for the computer system to function. There are many operating systems on the market.

2.4.1 Which operating system would you associate with the following logos?

(a)  (1)

(b)  (1)

2.4.2 What type of systems usually have Windows RT installed on them? (1)

2.4.3 Name the operating system found on devices such as the iPhone, iPod Touch or iPad. (1)

TOTAL SECTION B: 23

SECTION C: COMMUNICATION AND NETWORK TECHNOLOGIES**QUESTION 3**

People are no longer travelling distances to get and distribute information, thanks to the availability of advanced networking techniques.

- 3.1 3.1.1 Define the concept *communication medium/channel*. (1)
- 3.1.2 Name the TWO broad categories of communication channels or ways of connecting equipment in a computer network. (2)
- 3.1.3 List and describe THREE weaknesses of UTP cables. (3)
- 3.2 A NIC is one of the components needed to establish a network.
- 3.2.1 Briefly explain TWO roles performed by a NIC in a network. (2)
- 3.2.2 The *802.11* indicates that NIC is for a wired network. Is this statement TRUE or FALSE? (1)
- 3.2.3 In terms of speed, which NIC standard between *802.11g* and *802.11n* is faster? Indicate the speed of each network standard. (3)
- 3.3 3.3.1 Briefly explain the concept *VoIP* (the meaning of the acronym is not required). (2)
- 3.3.2 Name TWO advantages of using VoIP software. (2)
- 3.4 There are many types of LAN (Local Area Network) used by businesses.
- 3.4.1 Define the concept *topology*. (1)
- 3.4.2 State TWO main advantages of using a star network. (2)
- 3.5 3.5.1 What is the main difference between static and dynamic websites? (2)
- 3.5.2 List TWO advantages of static pages compared to dynamic web pages. (2)
- 3.5.3 You can often tell if a page is static or dynamic simply by looking at the page's file extension in the URL, located in the address field of the Web browser. Name the file extension which indicates the web page is:
- (a) Static (1)
- (b) Dynamic (1)

TOTAL SECTION C: 25

SECTION D: DATA AND INFORMATION MANAGEMENT**QUESTION 4**

- 4.1 4.1.1 Explain the concept *database*. (1)
- 4.1.2 (a) Differentiate between a *distributed database* and *centralised database*. (2)
- (b) State TWO potential problems in using a centralised database which cannot cope with the number of connected users and requests. (2)
- (c) Why is security a more complex issue with a distributed database? (1)
- 4.2 An appropriate DBMS system will need to be installed. (1)
- 4.2.1 Briefly explain how a server DBMS software works. (4)
- 4.2.2 What is the general term given to the requests or calls made to a DBMS by its clients? (1)
- 4.3 List THREE functions of a Unix administrator besides installing the DBMS software. (3)
- 4.4 Products/items are sold in a mini shop. A database is needed to keep track of supplier details and stock/products' information. The database has the following tables.

tblSuppliers	
	SupplierID
	SupplierName
	ContactNumber
	DeliveryDay
	DeliveryCost
	PercDiscount

tblProducts	
	ProductID
	ProductName
	SupplierID
	OrderUnit
	UnitPrice

- 4.4.1 Re-draw the above tables in your ANSWER BOOK. Create a relationship between the two tables and show what kind of relationship exist between the two tables. (2)
- 4.4.2 Draw an ER diagram to link the above entities/tables and show the type of relationship between these entities. (4)
- 4.5 A badly designed database will result in potential problems or errors.
- 4.5.1 Give ONE name given to potential errors in database design. (1)
- 4.5.2 List and explain THREE types of potential errors in database design. (3)

TOTAL SECTION D: 24

SECTION E: SOLUTION DEVELOPMENT**QUESTION 5**

- 5.1 It is very important to understand how text files are used as a source of input in programming and in databases.
- 5.1.1 Write the filename extension *csv* in full. (1)
- 5.1.2 Explain the purpose of the following:
- (a) `Reset(tf);` (1)
- (b) `Rewrite(tf);` (1)
- 5.2 List THREE types of errors that you may encounter when writing programs. (3)
- 5.3 Variables can be accessed by different parts of a program, depending on where they are declared in the program. This is called variable scope/scope of a variable/scope.
- 5.3.1 List and explain THREE types of *scope of variable/variable scope*. (6)
- 5.3.2 The lifetime of a variable or how long a variable exists in a program is called duration of a variable.
- Differentiate between *local duration* and *static duration*. (2)
- 5.4 Write down the result of each of the following functions.
- sLine = 'I love programming';
- 5.4.1 `iPos := Pos('o', sLine);` (1)
- 5.4.2 `iL := Length(sString);` (1)
- 5.4.3 `sWord := Copy(sString, 3,4);` (1)
- 5.4.4 `iPosSpace := Pos(' ', sString);` (1)
- 5.4.5 `sWord := Copy(sString, iPosSpace+1, 8); //`
Use `iPosSpace` obtained in QUESTION 5.4.4. (1)
- 5.5 Distinguish between *Elements* and *Index* in an array. (2)
- 5.6 Name FOUR ways of populating elements in an array. (4)

TOTAL SECTION E: 25

SECTION F: INTEGRATED SCENARIO**QUESTION 6**

You will find that different people and sources emphasise different aspects of the impact and contribution of ICT. Some may even see the impact of ICT as a very negative thing.

- 6.1 The effective use of ICT and implementation of ICT projects within a country and society depend on some factors.
- 6.1.1 List any THREE factors that contribute to the effective use of ICT and implementation of ICT related projects. (3)
- 6.1.2 List THREE factors that can limit the use of ICT in a country. (3)
- 6.1.3 Briefly explain the concept *restrictions*. (2)
- 6.1.4 List TWO functions of a *firewall*. (2)
- 6.2 Automation is where tasks are carried out without the need for humans. Automated tasks can be carried out faster and more accurately than human workers can do them, but need a great deal of planning and development to ensure they run well.
- Differentiate between *robotics* and *office automation*. (2)
- 6.3 List any THREE duties of a network administrator. (3)
- 6.4 What are the TWO main categories of techniques for managing network use? (2)
- 6.5 Technology has made it increasingly possible to view the world as a village because of the increased ease and speed of communication and the quick availability of information in all media types.
- 6.5.1 List any THREE trends or factors that are influencing globalisation. (3)
- 6.5.2 Briefly explain the following:
- (a) Online banking (1)
- (b) E-learning (1)
- 6.6 6.6.1 Briefly describe what *DNS* is (the meaning of the acronym is not required). (1)
- 6.6.2 Name the organisation tasked with making sure that URLs are unique and can be trusted. (1)
- 6.6.3 Explain what is meant by *DNS poisoning*. (2)

- 6.7 Digital certificates are used frequently.
- 6.7.1 Name the purpose of a digital certificate. (1)
- 6.7.2 State the duration of a digital certificate. (1)
- 6.8 Data plays a critical role in both our lives and society as a whole. This means that any threat to our data can have a far-reaching and devastating effect/result.
- 6.8.1 Mention FOUR ways in which we can make mistakes as humans and cause the loss of data. (4)
- 6.8.2 Explain the importance of *disk imaging*. (2)
- 6.8.3 State TWO functions of UPS. (2)
- 6.9 More and more people are backing up data on a server on the Internet (the cloud).
- List TWO advantages of backing up data on a server on the Internet using online storage services. (2)

TOTAL SECTION F: 38
GRAND TOTAL: 150

