



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

NOVEMBER 2020

**INFORMATION TECHNOLOGY P2
(EXEMPLAR)**

MARKS: 150

TIME: 3 hours

This question paper consists of 14 pages.

INSTRUCTIONS AND INFORMATION

1. This paper consists of SIX sections:

SECTION A: Short questions	(15)
SECTION B: System Technologies	(26)
SECTION C: Communication and Network Technologies	(25)
SECTION D: Data and Information Management	(21)
SECTION E: Solution Development	(24)
SECTION F: Integrated Scenario	(39)

2. Read ALL the 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: SHORT 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 numbers (1.1.1–1.1.10) in your ANSWER BOOK, for example 1.1.11 D.

- 1.1.1 The type of programming that is mainly used for producing highspeed, efficient code when writing system (OS) software or when writing embedded code that will control a dedicated device and that will produce a program that is small and fast.
- A High-programming languages
 - B Low-level programming languages
 - C Middle-level programming languages
 - D Rapid application development
- (1)

- 1.1.2 Choose the correct answer for the following expression:
20 DIV (10 - 20 MOD 3)
- A 0
 - B 2
 - C 4
 - D 3
- (1)

- 1.1.3 Any sequence of instructions that can be executed by a CPU is called ...
- A process.
 - B program.
 - C thread.
 - D multitasking.
- (1)

- 1.1.4 Checking for the accuracy of data from a human perspective:
- A Data validation
 - B Data verification
 - C Processing
 - D Authorisation
- (1)

- 1.1.5 Identify the correct variable name(s) from the options listed below.
- A 1Team
 - B Begin
 - C _Discount
 - D Subject?
- (1)

- 1.1.6 ... refers to adding or deleting records or updating/editing of data in a database.
- A Data processing
 - B Data maintenance
 - C Data independence
 - D Data manipulation (1)
- 1.1.7 Modem stands for ...
- A Modulator and Demodulator
 - B Modulation and Demodulation
 - C Morden and demodex
 - D Both B and C (1)
- 1.1.8 Instructions in binary format (0's and 1's) that the CPU can directly execute.
- A Assembler
 - B Coding
 - C Machine code
 - D Assembly code (1)
- 1.1.9 AUP means ...
- A Acceptable Use Policy
 - B Accelerated User Policy
 - C Acceptable Uniform Policy
 - D Access Usage Program (1)
- 1.1.10 Process whereby certain routine office processes are carried out without human intervention.
- A Outsourcing
 - B Office automation
 - C Centralisation
 - D Teleprocessing (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 The unnecessary repetition of data in a database is called ... (1)
- 1.2.2 Working in decentralised locations e.g. from home, but using modern communication to check in occasionally at a physical office. (1)
- 1.2.3 Problems or errors that occur when you try to insert data, delete data or update data. (1)
- 1.2.4 ... is a fixed value allocated to a variable in a program. (1)
- 1.2.5 Installing a new, cracked version of the operating system's firmware that removes restrictions and controls. (1)

TOTAL SECTION A: 15

SECTION B: SYSTEMS TECHNOLOGIES

QUESTION 2

This is the era of modern computing. Reliable performance in computing is very vital to consumers. Manufacturers are producing a variety of competitive electronic devices which are affordable to users. Study the specifications and package details below and answer the questions that follow.

Spec A	Spec B
 <p>Windows 10 Pro (64 bit) 16 x 1024 MB DDR3 Intel Core™ i7 9750H 960 GB NVME and Intel RX 5700XT 8GB Kaspersky OfficeSuite10.5</p>	 <p>Windows 10 Home (32 bit) 8 x1024 MB DDR3 Intel Core™ i5 8265H 1.5 TB 9200 RPM and NVIDIA GTX 1660 4GB ESET LibreOffice v10.2</p>

2.1 RAM is an important component of any type of an electronic device.

- 2.1.1 What is another name of the hardware component that houses RAM? (1)
- 2.1.2 Which type of memory is associated to RAM? (1)
- 2.1.3 Name the component in the motherboard where we connect the RAM. (1)
- 2.1.4 Spec B has an operating system that is 32-bit. What impact does this have in terms of RAM? (1)
- 2.1.5 Name the role of RAM in an electronic device. (1)

2.2 List examples of system software in any specification (Spec A or Spec B) and state what type of system software each one represents. (2)

- 2.3 Both laptops have DDR modules.
- 2.3.1 Convert the RAM of the specification on laptop **B** to GB. (1)
- 2.3.2 Write the acronym DDR in full. (1)
- 2.4 Modern CPUs run at speeds much higher than the motherboard. They need to make extensive use of cache to keep them going at maximum productivity.
- 2.4.1 Name the fastest CPU speed quoted in the above specifications. (1)
- 2.4.2 The sequence of steps the CPU follows is called ... (1)
- 2.4.3 List the FOUR steps the CPU follows. (4)
- 2.5 Many laptops have a *built-in/integrated video adapter* and a *video card*.
- 2.5.1 Name the purpose of a built-in or integrated video adapter and video card on laptops. (2)
- 2.5.2 Name the video cards quoted in the above specifications. (2)
- 2.6 List and explain TWO different programming language translators. (4)
- 2.7 HDMI ports are standard inclusions on many computers these days.
- 2.7.1 Name the purpose of the HDMI port in computers. (2)
- 2.7.2 Write HDMI in full. (1)

TOTAL SECTION B: 26

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

Do you know what is lurking in your network? Businesses and individuals alike are encouraged to think about the *ghosts* that may or may not be hiding in their machines in the form of malware. Threats are capable of remaining undetected within a network for extended periods of time before deploying their weapons of both system-compromise and or intelligence theft.

3.1 People want to be connected 24/7.

3.1.1 Briefly explain the concept *computer network*. (1)

3.1.2 List TWO reasons for having a network. (2)

3.1.3 What is another name for the Internet? (1)

3.2 Different media require data to be encoded differently. Data is sent differently when using different media. That is why modern devices (especially mobile devices) contain at least two different NICs.

Answer the following questions in terms of types of NICs used by devices mentioned in each question. Complete the following sentences.

3.2.1 Smartphones and tablets tend to have a 3.2.1(a) _____ NIC and a 3.2.1(b) _____ cellular modem. (2)

3.2.2 Laptops have a 3.2.2(a) _____ NIC and an 3.2.2(b) _____ port. (2)

3.3 Name the function of the Wi-Fi access point. (1)

3.3.1 What is another name for an access point? (1)

3.3.2 Distinguish between *hotspot* and *bandwidth*. (2)

3.4 Voice over Internet Protocol (VoIP) is the communication protocol, the technologies, the methodologies and transmission methods involved in the delivery of voice communications and multimedia sessions over the Internet.

3.4.1 Name the popular software package that allows people to communicate using VoIP. (1)

3.4.2 Name TWO disadvantages of using VoIP software. (2)

3.5 There are file transfer programs that you can install which will improve the transfer speeds of data over the Internet for the different file transfer protocols using different compression techniques.

3.5.1 List and explain TWO types of data compression. (2)

3.5.2 List ONE example of each type of data compression. (2)

3.6 The best example of a WAN is the Internet, which is also called public WAN or GAN.

3.6.1 List and explain TWO types of Internet connections. (4)

3.6.2 List ONE example of each connection. (2)

TOTAL SECTION C: 25

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

A database at a school, for example, contains data about its students and classes. When a student is admitted to a school, an admission department clerk enters several data items into a computer. The clerk uses a digital camera to take a photo of the new student. This photo, along with other entered data, is stored in a database on the server's disk.

- 4.1 By taking time to learn about what a database management system is, you will also gain an insight into what is involved in the concept and tasks of database management.
- 4.1.1 Define the concept DBMS (the meaning of the acronym is not needed). (1)
- 4.1.2 Name THREE functions of DBMS software. (3)
- 4.1.3 What is another name for Google's Database? (1)
- 4.2 Data validation is any technique used to reduce the number of errors that can be made during the input of data.
- 4.2.1 Name THREE measures/ways that can be incorporated in programs/applications to ensure that data is valid. (3)
- 4.2.2 List THREE qualities of valuable information. (3)
- 4.3

tblStudent	
	StudentID
	FirstName
	LastName
	Address
	City
	PostalCode
	DateAdmitted
	Major
	Photo

tblStudentTransactions	
	TransactionID
	StudentID
	PostDate
	Amount
	Description

- 4.3.1 Re-draw the above tables in your ANSWER BOOK. Identify a primary key (PK) and foreign key (FK) on each table. Link the tables and show the type of relationships that exist among the tables. (5)
- 4.3.2 Distinguish between the *composite keys* and a *primary key*. (2)
- 4.4 Name THREE functions of a DBA. (3)

TOTAL SECTION D: 21

SECTION E: SOLUTION DEVELOPMENT**QUESTION 5**

- 5.1 Text files provide a simple, convenient and permanent way of storing textual data and are common for importing and exporting data to and from programs. Text files consist of text usually containing very little formatting.
- 5.1.1 ... specifies a set of 128 standardised characters including 52 upper case and lower-case characters of the English alphabet, 10 digits, 32 typographical symbols and 34 control characters. (1)
- 5.1.2 Data saved in an Excel file can be converted(exported) into a text file format as a ... file type. (1)
- 5.1.3 Describe the function of the following text file operations:
- (a) AssignFile(txtStock, 'Goods.txt'); (1)
- (b) Append(txtStock); (2)
- 5.2 ... is a debugging facility in Delphi used to control execution of the program and view the values of variables while the programming is executed. (1)
- 5.3 Briefly explain the concept *data persistence*. (1)
- 5.4 In programming, we usually want to display decimal values/points aligned below one another.
- 5.4.1 Explain the purpose of the *Format* function. (1)
- 5.4.2 Explain the purpose of the control codes in this argument displayed below except *Format*.
- (a) Format('%10.2f', [rWeight]) (5)
- (b) You can change the *f* format option to an _____, which tells the format function that the value is _____. (2)
- 5.5 Differentiate between *selection sort* and *bubble sort*. (2)

- 5.6 Re-draw the given trace table below in your ANSWER BOOK. Use the given code to show what will be displayed when the program is run.

```

var
  value1, value2, value3 : integer;
  value4 : real;
begin
1. value3 := 10;
2. value1 := 30 - 5 * 5;
3. value2 := 32 - value1 * value1;
4. value4 := (value1 + value2) - value2/value1;
5. value2 := value3 MOD 4;
6. value1 := value3 DIV value2;
7. redOut.Lines.Add(IntToStr(value1));
8. redOut.Lines.Add(IntToStr(value2));
9. redOut.Lines.Add(IntToStr(value3));
10. redOut.Lines.Add(FloatToStr(value4));

```

Line No	Value1	Value2	Value3	Value4	Output
1.					
2					
3					

$$(10 \div 2) = (5)$$

- 5.7 Distinguish between *Readln* and *Writeln*. (2)

TOTAL SECTION D: 24

SECTION F: INTEGRATED SCENARIO**QUESTION 6**

It is difficult to think of any area of human endeavour that could not benefit from the use of ICT because of its amazing applications. ICT is making a difference in some global trends that affect humanity as whole.

- 6.1 The way in which IT has affected the workplace depends on the type of work you do.
- 6.1.1 Name any THREE examples of changes IT has brought to the workplace. (3)
- 6.1.2 Name TWO ways in which IT systems have made life much more-easier for musicians. (2)
- 6.1.3 Differentiate between *workplace* and *employment practices*. (2)
- 6.1.4 Government entities and companies use outsourcing. Explain what *outsourcing* is. (2)
- 6.2 Networking is a very important part of ICT and has made it easy to share data and resources. It has made piracy, plagiarism and other forms of cybercrime much easier to commit.
- 6.2.1 Where do you set policies that control what the user can access on the network? (1)
- 6.2.2 List any THREE aspects that should be included in AUP. (3)
- 6.2.3 Limiting user activity and controlling access by changing settings in the software and hardware is called ... (1)
- 6.3 The improved communication made possible by ICT reduced the importance of physical presence at a specific place of work. Employers are able to look for employees in different cities or even countries, all of whom can work and deliver the product of their work in digital format from anywhere.
- 6.3.1 Name THREE ways ICT can help improve the efficiency of the government. (3)
- 6.3.2 List THREE reasons why people are often afraid of ICT. (3)
- 6.4 Development in technology affects and changes far too many aspects of life and society.
- 6.4.1 Explain what *globalisation* is. (2)
- 6.4.2 List any THREE benefits/results of globalisation. (3)

6.4.3 Society has gone through various stages of the Industrial Revolution. List any TWO sectors and benefits the 4IR has packed together on each sector. (4)

6.5 All kinds of institutions need data and information to do their jobs and be successful. Institutions today use computers to store and manage their data and information.

One characteristic of computers that makes it useful is accuracy. Accuracy depends on the quality and correctness of the data.

6.5.1 Name any THREE common human errors that can cause huge damage in terms of data loss. (3)

6.5.2 There needs to be a systematic plan or schedule in place to guarantee that data is backed up regularly. List any THREE backup tips. (3)

6.6 There are measures that can be incorporated/included in programs and applications to ensure data is valid.

List any THREE methods and techniques used in data validation. (3)

6.7 Briefly explain the concept *mandatory fields*. (1)

TOTAL SECTION F: 39
GRAND TOTAL: 150