Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2022

INFORMATION TECHNOLOGY P2 (EXEMPLAR)

MARKS: **150**

TIME: **3 hours**

This question paper consists of 10 pages.

INSTRUCTIONS AND INFORMATION

1. This paper consists of SIX sections:

SECTION A: Short questions	(15)
SECTION B: System Technologies	(27)
SECTION C: Communication and Network Technologies	(24)
SECTION D: Data and Information Management	(23)
SECTION E: Solution Development	(22)
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 to 1.1.5) in your ANSWER BOOK, for example 1.1.6 D.

1.1.1 Can be defined as a process of connection, interaction and integration among people, companies and government.

A Automation
B Globalisation
C Robotics
D Revolution (1)

1.1.2 Any organised system for the collection, organisation, storage and communication of information.

A Decentralisation
B Crowd funding
C Information Systems/IS
D Virtualisation (1)

1.1.3 An error found in a database is called a/an …

A bug.
B anomaly.
C exception.
D flaw. (1)

1.1.4 The data in a database is stored in …

A forms.
B tables.
C reports.
D micros. (1)

1.1.5 Which ONE of the following is NOT a language translator?

A Assembler
B Compiler
C Interpreter
D Codec (1)

1.2 Choose a term from COLUMN B that matches the description in COLUMN A. Write only the letter (A–K) next to the question numbers (1.2.1 to 1.2.10) in the ANSWER BOOK, for example 1.2.11 L.

COLUMN A		COLUMN B	
1.2.1	Small programs which help users to maintain their computers	A	RAM
1.2.2	A set of instructions that tells the operating system how to communicate with specific piece of hardware	B	driver
1.2.3	A temporal memory of the computer which can store and retrieve active data and programs at high speed	C	ROM
1.2.4	Specific attributes that are compulsory and need to be filled in with values	D	utilities
1.2.5	A way for a program to split itself into two or more simultaneously running tasks	E	social media
1.2.6	A form of electronic communication through which users create online communities to share information, ideas, personal messages and other content	F	mandatory fields
1.2.7	The first word or letter is in lowercase and each word/letter afterwards starts with an uppercase letter, e.g. sLastName	G	thread
1.2.8	The process of converting between different data types	H	casting/typecasting
1.2.9	Variety of symbols that show the start and end of individual pieces of data in plain text	I	CamelCase
1.2.10	The deliberate act of creating a source code or a machine code that is difficult for humans to understand	J	delimiters
		K	obfuscated

(10 x 1) (10)

TOTAL SECTION A: 15

SECTION B: SYSTEMS TECHNOLOGIES

QUESTION 2

Computers are everywhere, at work, school and at home.

2.1 Most modern programming languages value the importance of programming code that is simple, easy to read and easy to use.

2.1.1 Briefly explain the concept *machine code.* (1)

2.1.2 List TWO classification/categories of programming languages. (2)

2.1.3 Name the full meaning of the filename extension **.exe**. (1)

2.1.4 Write the acronym *API* in full. (1)

2.2 Imagine that you are browsing the internet and decide to download a large file. If a program could only run one task at a time, you would have to stop browsing the Internet while your browser downloads this file and you would only be able to continue browsing the Internet once the download has completed.

2.2.1 List and explain THREE processing techniques. (6)

2.2.2 Give a name for the task that runs on a computer. (1)

2.2.3 Nowadays, many CPUs (including smartphone CPUs) are made up of more than one processor called a … (1)

2.3 Most editions of Windows Server include Hyper-V, which is virtualisation technology.

2.3.1 Briefly explain the concept *virtualisation*. (1)

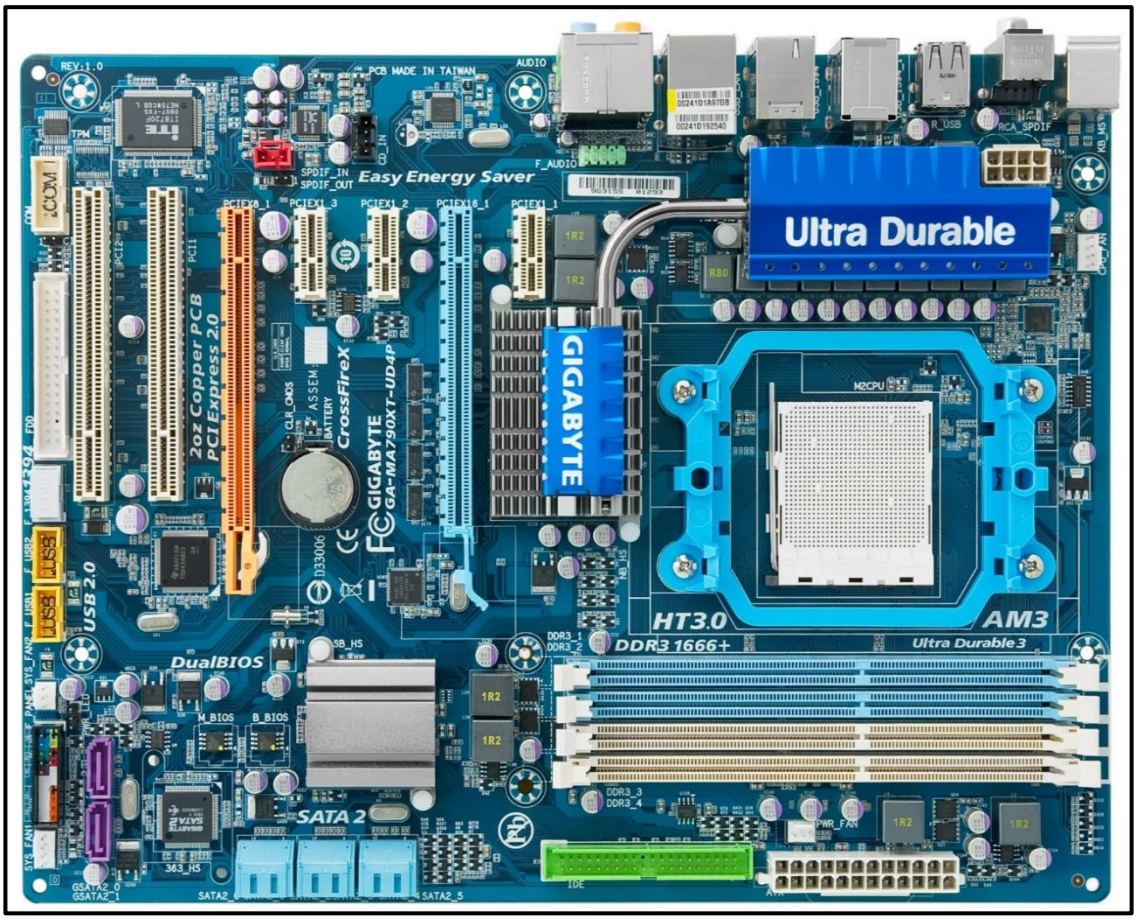
2.3.2 List THREE reasons/advantages of using virtual machines. (3)

2.4 Certain computing device components have limited amount of physical cache memory built into them.

2.4.1 Briefly explain what *caching* is. (1)

2.4.2 List THREE forms of caching. (3)

2.5 Analyse the diagram below and answer the questions below the diagram.



2.5.1 Give the other name of the above computer part (except the name motherboard). (1)

2.5.2 Explain what a *motherboard bus* is. (1)

2.5.3 Name TWO types of a motherboard bus. (2)

2.5.4 Name the motherboard slots used to connect the following components:

(a) CPU (1)

(b) RAM (1)

TOTAL SECTION B: 27

SECTION C: COMMUNICATION AND NETWORK TECHNOLOGIES

QUESTION 3

Computers are primary means of local and global communication for billions of people. Consumers use computers to correspond with business, employees with other employees, customers, students with classmates and teachers. Through computers, society has instant access to information from around the globe.

3.1 Data transmission is supported by various pieces of hardware, media and devices setup in a specific layout.

3.1.1 Name and explain TWO categories/classification of communication medium. Name ONE example for each category. (6)

3.1.2 A computing device connected to a network is usually referred to as a … (1)

3.2 There are many network topologies used by network engineers to connect computers.

3.2.1 Briefly explain what a *network topology* is. (1)

3.2.2 List TWO advantages of a star network. (2)

3.2.3 Name the main disadvantage of a star network. (1)

3.2.4 Name the role of a switch other than connecting computers on the same wired network. (1)

3.2.5 Name another device that can be used to connect computing devices in a star network except a switch. (1)

3.3 Many businesses create Intranets that give employees access to network resources. Name any TWO network resources that can be shared in an Intranet. (2)

3.4 Today young people, from around the world, have realised that money can be made if you have a large enough online following. Many brands are working with Internet personalities and influencers to market their products.

3.4.1 Briefly explain the following terms/concepts:

(a) *Social media* (1)

(b) *Influencers* (1)

3.4.2 List TWO guidelines you can follow when communicating on the internet. (2)

3.4.3 What is the name of the unwanted mail received by e-mail users? (1)

3.5 Name and briefly explain TWO categories of websites. (4)

TOTAL SECTION C: 24

SECTION D: DATA AND INFORMATION MANAGEMENT

QUESTION 4

The amount of data and information about individuals that is stored anywhere on the internet has increased rapidly every day.

4.1 Photos, financial records, employment history and purchases are just a few of the types of data and information available to others for free or for a fee stored in databases.

4.1.1 Briefly explain what a *database* is. (1)

4.1.2 List and explain TWO types of databases. (4)

4.1.3 When designing a database, it is determined by TWO factors. Name these TWO factors. (2)

4.1.4 Briefly explain the concept *distributed databases* and list TWO examples of distributed databases. (3)

4.1.5 List any TWO disadvantages of a centralised database. (2)

4.2 List any THREE roles of a database programmer. (3)

4.3 In order for the computer to use the data to produce results that allows decision-making, the data has to be of good quality. Name THREE characteristics of quality data. (3)

4.4 Explain what *data validation* is. (1)

4.5

tblSuppliers	
	SupplierID
	SupplierName
	ContactNo
	Address1
	Address2
	City
	PostalCode
	Email

tblProducts	
	ProductCode
	SupplierID
	BrandName
	ProductDesc
	CostPrice

tblTransactions	
	TransactionID
	ProductID
	TransDate
	Quantity
	UnitPrice
	AmountDue

4.5.1 Copy the above tables to your ANSWER BOOK. Identify a primary key (PK) and foreign key (FK) on each table. Create an ER that exist amongst the entities. (10 ÷ 2) (5)

4.5.2 Name the datatype for the field *ContactNo* in **tblSuppliers**. (1)

TOTAL SECTION D: 25

SECTION E: SOLUTION DEVELOPMENT

QUESTION 5

5.1 Differentiate between a *logical file* and a *physical file*. (2)

5.2 In general, it is better to prevent users from making mistakes than to inform them that they have made mistakes afterwards.

5.2.1 Name THREE categories of programming errors. (3)

5.2.2 What is another name of an error in programming except the word bug? (1)

5.2.3 A professional way to prevent a program from crashing in programming is called … (1)

5.3 In many applications, large amounts of data needs to be stored and accessed randomly, arrays are used for this most of the time.

5.3.1 Briefly explain what an *array* is. (1)

5.3.2 List and explain TWO types of arrays. (4)

5.3.3 Analyse the arr*Marks* array diagram displayed below and answer the questions that follow.

60	70	85	80	90	75

(a) Use the above given data structure to declare an array called arrMarks. (1)

(b) Write an index that can be used to access the value 90 in arrMarks. (1)

(c) What is another name for an index? (1)

(d) What are values stored in an array called? (1)

5.3.4 List THREE ways/options of declaring an array. (3)

5.4 Given the following Delphi statement.

sWord: = 'Dwelling in the computing world';

Write down the results of each of the following functions:

5.4.1 Delete(sWord, 17, 15); (1)

5.4.2 Insert('4th IR', sWord, 15); // Use the results in QUESTION 5.4.1 (1)

5.4.3 setLength(sWord, 13); (1)

TOTAL SECTION D: 22

SECTION F: INTEGRATED SCENARIO

QUESTION 6

There are massive volumes of data that can be used to address business problems, you would not have been able to solve before. The value that the world's biggest technology companies offer comes from their data, which they are constantly analysing to promote efficiency and develop new products.

6.1 *Big data* has become a buzzword.

6.1.1 List any THREE online services where big data is used. (3)

6.1.2 List THREE disadvantages associated with big data. (3)

6.2 Differentiate between a *mobile office* and a *virtual office*. (2)

6.3 Most people automatically/naturally understand privacy and the importance of privacy.

6.3.1 Briefly explain the concept *privacy*. (1)

6.3.2 Write the acronym *POPI* in full and explain the purpose of *POPI*. (2)

6.3.3 List any THREE ways/techniques that can be used to protect your online identity. (3)

6.4 List FOUR types of problems generally associated with computers. (4)

6.5 The desire to be cool and embrace new technologies definitely overtook the desire to be safe with the very buzzy mobile, location-based apps.

6.5.1 Briefly explain what *location-based computing/service* is. (1)

6.5.2 List TWO risks/disadvantages of location-based computing. (2)

6.5.3 List THREE examples of location-based computing apps. (3)

6.6 List THREE capabilities of ICT. (3)

6.7 Differentiate between *HTTP* and *HTTPS* (acronyms are not needed). (2)

6.8 Write the acronym *OTP* in full. (1)

6.9 List any THREE duties of a web designer. (3)

6.10 Data is a valuable asset to any business nowadays.

6.10.1 Briefly explain the concept *backup*. (1)

6.10.2 List THREE types of backups. (3)

6.10.3 List TWO different locations where backups can be stored. (2)

TOTAL SECTION F: 39
GRAND TOTAL: 150