



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

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**INFORMATION TECHNOLOGY P2
MEMORANDUM**

MARKS: 150

This memorandum consists of 12 pages.

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

- 1.1 ✓ D Plug-and-play (1)
- 1.2 ✓ B Biometrics (1)
- 1.3 ✓ A Phishing (1)
- 1.4 ✓ A Rootkit (1)
- 1.5 ✓ A Is the simulation of human decision-making processes by a computer system, programmed to react on input from sensors. (1)
- 1.6 ✓ D -10 (1)
- 1.7 ✓ C Nvidia (1)
- 1.8 ✓ D Linux (1)
- 1.9 ✓ C Compiler (1)
- 1.10 ✓ D All computers come out with a separate video card. (1)

TOTAL SECTION A: 10

SECTION B: SYSTEM TECHNOLOGIES**QUESTION 2**

- 2.1 2.1.1 ✓ SATA connectors are where you plug in the cables that connect your storage device(s) to the motherboard. (Hard drive OR CD/DVD drive OR SSD OR combination of these.) (1)
- 2.1.2 ✓ A bus is a set of wires (or paths) etched into the motherboard
✓ used to transfer data between the parts of a computer. (2)
- 2.1.3 ✓ Zif socket (1)
- 2.2 2.2.1 ✓ Point-to-point connection means that the wires or paths used to transfer data are not shared between multiple components. (1)
- 2.2.2 ✓ The CPU is responsible for all the processing taking place inside the computer.
✓ All the data and instructions have to be loaded into the RAM, before the CPU can work with them. (2)
- 2.2.3 ✓ Fetching the instructions and data from the RAM (memory).
✓ Decoding the instructions.
✓ Executing the instructions.
✓ Transferring data back to the memory. (4)
- 2.2.4 ✓ Your operating system could be a 32 bit operating system that can only recognise 4 GB of memory. (1)
- 2.3 2.3.1 ✓ Virtual memory is an area of storage or disk space that the operating system keeps for its own use to fool the computer into thinking that there is more RAM than there actually is. (2)
- 2.3.2 ✓ The operating system creates pages/swop files
✓ and swops part of the program/data presently being used between the RAM and the hard drive. (2)
- 2.4 2.4.1 ✓ Software stored on ROM chips. (1)
- 2.4.2 ✓ It can make the device work faster/better.
✓ New features can be added to the device. (2)
- 2.4.3 ✓ A partition is a logical division of a hard disk created so that you can have different operating systems on the same hard disk, or to create the appearance of having separate hard drives (1)

TOTAL SECTION B: 20

SECTION C: COMMUNICATION TECHNOLOGIES AND NETWORK TECHNOLOGIES**QUESTION 3****3.1 A network is:**

- ✓ A collection of computers or computing devices
- ✓ that are connected by some sort of communication media
- ✓ to allow users to share hardware, software, data and information and to communicate. (3)

3.2 Any THREE

- ✓ Fast efficient communication
- ✓ Centralisation of data
- ✓ Transfer of files
- ✓ Leisure
- ✓ Flexible access

Do NOT accept the following:

X Sharing of hardware resources.

X Sharing of Internet. (3)

- 3.3 ✓ The NIC encodes and ✓decodes the data so that it can be sent over a specific medium. (2)

- 3.4 3.4.1 ✓ Topology refers to the physical layout and connection of computers in a network. (1)

3.4.2 Any TWO

- ✓ In a star topology, every device is connected via its own cable to a central device such as a switch.
- ✓ That device controls the traffic in the network.
- ✓ If a single cable breaks, then only that one device will be enabled – the whole network is not affected. (2)

3.5 3.5.1 UTP

- ✓ Transfer data as electrical pulses along copper cables.
- Fibre optic
- ✓ Transfer data as light pulses along fine glass tubes. (2)

- 3.5.2 ✓ UTP (1)

3.6 Any TWO

- ✓ No signal loss due to location.
- ✓ Fixed bandwidth.
- ✓ Data costs is general lower.
- ✓ Fixed cost for rental of line.
- ✓ Faster (2)

- 3.7 Router
✓ Makes communication between networks possible over the Internet by directing data to its correct destination.
Switch
✓ Connect computers in a central location to a network so that communication can occur. A switch directs traffic between devices connected to a network. (2)
- 3.8 ✓ A modem converts the data or signal from a computer
✓ to a format that can be transmitted over a communication channel such as an ADSL line. (2)
- 3.9 ✓ A firewall prevents unauthorised programs on your computer from accessing the Internet.
✓ Prevents computers on the network from accessing your computer. (2)
- 3.10 ✓ Client-server LAN (1)
- 3.11 3.11.1 SMTP – ✓sending e-mail via the Internet. (1)
- 3.11.2 POP3 – ✓downloading e-mail via the Internet. (1)
- 3.12 ✓ SSL (Secure Sockets Layer) relies on a trusted third party selling a digital certificate that is used to confirm the website is what it claims to be.
✓ The owner of the website has to register for the certificate which usually is only valid for a year and needs to be renewed.
✓ An SSL transaction can only take place if the URL and IP address of the site you are communicating with matches the ones registered in the certificate – and if the certificate has not expired. (3)
- 3.13 Any TWO
✓ The aim of a server is to provide resources.
✓ A server is usually NOT used as a normal workstation.
✓ A server has better specifications than a workstation.
(Any suitable answer.) (2)

TOTAL SECTION C: 30

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

4.1 Data

- ✓ Raw, unprocessed facts and numbers.

Information

- ✓ Results of the processing of data and should be useful and meaningful.

- ✓ Any suitable example underlining the differences. (3)

- 4.2 ✓ Currency of data refers to how 'recent' or up to date the data is. (1)

- 4.3 Data warehousing – how to securely store, manage and retrieve large amounts of data. ✓

- Data mining – how to process and analyse this data, looking for valuable information that you did not even know was there. ✓ (2)

- 4.4 4.4.1 ✓ Stores data electronically in a structured and organised way

- ✓ Manipulates and changes data.

- ✓ Process the data within seconds. (3)

4.4.2

Desktop database	DBMS
✓ The tools that you need to work with the data are all included in a single application.	✓ Never directly accessed by the user.
✓ Usually for single user applications.	✓ Runs on many computers in different locations but connected to the database over the network.
✓ Installed on personal computers	✓ Installed on a server.

- (Any TWO comparisons.) (4)

- 4.4.3 ✓ More complex security needed.

- ✓ Data synchronisation is important. (2)

- 4.5 4.5.1 ✓ To uniquely identify each record in a table. (1)

- 4.4 4.5.2 ✓ sID

- ✓ eID (2)

- 4.5.3 ✓ A foreign key is a field in one table that is linked to the

- ✓ primary key in another table. (2)

- 4.5.4 ✓ ExpID

(1)

4.5.5

tblStudents
sID
sName
sSchool
sSchoolNumber
sSchoolEmail
sGrade
sGender
ExpID

1

tblExpo
eID
eName
eType

- ✓ 1-to-many relationship
- ✓ correct fields used.

(2)

4.5.6 Any TWO

- ✓ Delete anomaly
- ✓ Insert anomaly
- ✓ Update anomaly

(2)

4.5.7

tblStudents
sID
sName
sGrade
sGender
ExpID

tblSchool
School
SchoolID
Number
Email

tblExpo
eID
eName
eType

- ✓ TableName
- ✓ Correct fields

(2)

TOTAL SECTION D: 27

SECTION E: SOLUTION DEVELOPMENT

QUESTION 5

5.1 5.1.1 ✓ For-loop

5.1.2

Line	Sum	Loop_var	Loop_Var MOD 2	Loop_var MOD 2 = 0?	Loop_var > 10?	Display
1	0					
2		1			False	
3			1	False		
2		2			False	
3			0	True		
4	2					
2		3			False	
3			1	False		
2		4			False	
3			0	True		
4	12					
2		7			False	
3			1	False		
2		8			False	
3			0	True		
4	20					
2		9			False	
3			1	False		
2		10			False	
3			0	True		
4	30					
2		11			True	
6						30

✓✓✓✓✓ for each correct column (not display) ($6 \div 2$)

✓ Correct answer in Display

(4)

5.1.3 ✓ The purpose of the program is to calculate the sum of

✓ all the even numbers from 1 to 10.

(2)

5.2 5.2.1 ✓ Read line of text file

✓ Find the position of the comma

✓ Delete from 1 to the position of the comma

(3)

- 5.2.2 ✓ arrNum := ✓ Array[1..N] ✓ of Integer;
(N represents any number of 14 or more)
(Also accept if they first declare it under Type and then under private or var.)
It SHOULD be Integer (you cannot sell half a ticket!) ☺
The name should be arrNum (as given in the algorithm). (3)
- 5.2.3 ✓ Division by zero will occur when the average is determined.
✓ Swop the statement $N \leftarrow N+1$ around with the avg. statement. (2)
- 5.2.4 ✓ The value of the Tot is not initiated before the loop.
✓ Add $Tot \leftarrow 0$ before the loop. (2)
- 5.2.5 ✓ The loop is a post-loop test type of loop so it will try to read at least one line
✓ which could cause an error if the file is empty/blank. (2)
- 5.3 Function ✓ VowelCount(✓ sString: ✓ string) : ✓ Integer;
- Any descriptive name
- Any string name
- Should receive string as parameter
- Should send back Integer as a result. (4)

TOTAL SECTION E: 23

SECTION F: INTEGRATED SCENARIO**QUESTION 6**

- 6.1 6.1.1 ✓ A website is a collection of web pages
✓ supporting files such as formatting information, images, movies, sounds and JavaScript programming. (2)
- 6.1.2 Any TWO characteristics of each.
✓✓ Web 1.0
- Static HTML web pages with hyperlinks.
 - Websites not frequently updated
 - Few content creators; many content consumers
- ✓✓ Web 2.0
- Dynamic web pages
 - Users are content creators, and not just content consumers
 - Social networking sites such as Facebook allow people to link up and keep in touch with friends and family worldwide. (4)
- 6.1.3 ✓✓✓ Any THREE
- Portal website
 - News website
 - Informational website
 - Personal website
 - Webblog (blog)
 - Social networking site
 - Wiki
 - Educational website
 - Entertainment website
 - Advocacy website
 - Web application website
 - Content aggregator (3)
- 6.2 ✓✓ Crowd-funding is where a number of people pool their money together, often via the Internet and social networking services like KickStarter, then use this money for projects they feel have merit. (2)
- 6.3 6.3.1 ✓ iOS/Mac
(Any operating system from Apple) (1)
- 6.3.2 ✓ VoIP (1)
- 6.4 ✓ Lossy compression compress data by losing some of the data – most commonly used in applications such as streaming media to compress audio, video and still images such as jpegs.
✓ Lossless compression compresses data without losing any data – for digital data like documents, spreadsheets, databases, etc. Where accuracy is important. (2)

- 6.5 6.5.1
- | SSD | HDD |
|------------------------------|----------------------|
| Faster data transfer ✓ | Slower data transfer |
| Use flash drive technology ✓ | Use magnetism |
| Smaller capacity ✓ | Larger capacity |
- (3)
- 6.5.2 Any THREE
 ✓ Display – set the device to automatically switch the display off after a time when you are not using it. Or change the setting to a lower brightness level.
 ✓ Applications – Close apps when you are not using them.
 ✓ GPS – Ensure your GPS is switched off.
 ✓ Bluetooth and Wi-Fi – turn them off.
 ✓ Media – playing videos drain the battery. (3)
- 6.5.3 ✓ PAN (Personal Area Network).
 (Also accept HAN – Home Area Network) (1)
- 6.6 6.6.1 Any THREE
 ✓ Provides an interface.
 ✓ Manages processes and tasks.
 ✓ Manages memory.
 ✓ Manages input and output.
 ✓ Manages the disk/s. (3)
- 6.6.2 ✓ Virtualisation (1)
- 6.7 6.7.1 ✓ Yes.
 ✓ Multi-tasking can be used to allocate CPU time to each of the active programs, so that it appears that the computer is performing more than one task at the same time. (2)
- 6.7.2 ✓ No.
 ✓ Multiprocessing only takes place when the operating system divides the programs or threads or processes between more than one physical CPU. (2)
- 6.8 6.8.1 ✓ Backups are made so that you have a copy or duplicate of files in case something goes wrong.
 ✓ Archiving refers to storing files that are static (not going to be changed) for example the report cards of the school at the end of the year. You need it, but will never change it. (2)
- 6.8.2 Cloud storage hosts such as Dropbox, ✓ allow you to store your files on their servers. ✓ Synchronising refers to the fact that files are automatically uploaded or downloaded so the files on your computer and the files on your cloud storage account are identical. (2)

- 6.9.1 ✓ Worldwide (1)
- 6.9.2 ✓ Https
✓ Padlock (2)
- 6.9.3 ✓ A reversible set of rules used to scramble data. (1)
- 6.9.4 ✓ Verification refers to checking that data entered is correct or accurate. Checking for the 'correctness' or verifying data is something that computers can never really do.
✓ Validation is like when the computer asks you to fill in your age or gender it can only perform data validation to check that you are not entering totally invalid data, e.g. less than 0 for the age. The 'computer', however, has no way of 'knowing 'or verifying whether your data is accurate or not. (2)

TOTAL SECTION F: 40
GRAND TOTAL: 150