



Province of the  
**EASTERN CAPE**  
EDUCATION

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 11**

**NOVEMBER 2011**

**INFORMATION TECHNOLOGY P2**

**MARKS: 180**

**TIME: 3 hours**

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This question paper consists of 12 pages.

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**INSTRUCTIONS AND INFORMATION**

1. This question paper consists of FIVE questions.
2. Answer ALL the questions.
3. Read ALL the questions carefully.
4. Number the answers correctly according to the numbering system used in this question paper.
5. Write neatly and legibly.

**SECTION A: MULTIPLE-CHOICE QUESTIONS AND MATCHING THE COLUMNS****QUESTION 1**

Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A – D) next to the question number (1.1 – 1.10) in the answer book.

- 1.1 The Chipset consists of ...
- A the processor.
  - B cache memory.
  - C two chips.
  - D two chips, the AND the ALU. (1)
- 1.2 The FIREWIRE port on a PC is used to connect ...
- A USB devices.
  - B graphics cards.
  - C video and high speed storage devices.
  - D 127 devices in a daisy chain configuration. (1)
- 1.3 The acronym BIOS stands for ...
- A Basic Input Output System.
  - B Back-end Input Output system.
  - C Background Inherited Output System.
  - D Basic Input Output Storage. (1)
- 1.4 Parts of the CPU that can be upgraded include ...
- A the cache memory.
  - B the system clock.
  - C nothing in the CPU can be upgraded.
  - D the graphics card. (1)
- 1.5 Which folder is NOT regarded as a system folder?
- A Windows folder
  - B Games DLL
  - C My Documents
  - D Program Files (1)

- 1.6 Which of the following protocols is NOT considered to be one of the TCP/IP suite of protocols?
- A TCP
  - B IPX
  - C SMTP
  - D Telnet
- (1)
- 1.7 Which of the following is NOT a benefit of e-commerce?
- A Purchases can be done anywhere you have internet access.
  - B It is easy to do comparative shopping.
  - C Businesses do not have to carry large amounts of stock.
  - D Delivery periods can be lengthy.
- (1)
- 1.8 Which ONE of the following is not a valid SQL statement?
- A `SELECT * FROM learners WHILE firstname = "FREDDY"`
  - B `SELECT * FROM learners WHERE firstname = "FREDDY"`
  - C `SELECT DISTINCT firstname FROM learners`
  - D `SELECT * FROM learners`
- (1)
- 1.9 A byte data type can only hold numbers between ...
- A -32 768 and 32 767.
  - B 1 – 256.
  - C 0 – 255.
  - D -254 and 255.
- (1)
- 1.10 Characteristics of a fibre optic cable include ...
- A thin and light weight, hence can be used in cramped areas.
  - B supports low transmission rates.
  - C protects networks from viruses.
  - D has a higher attenuation than UTP.
- (1)

Match the COLUMN A with the correct answer in COLUMN B. Write down only the question number and the matching letter in COLUMN B in your answer book.

	<b>COLUMN A</b>		<b>COLUMN B</b>	
1.11	The most upgraded component in a PC is ...	A	A protocol for transferring data to small hand held devices like PDA's and cellphones	(1)
1.12	A tool of social networking is...	B	An operating system associated with mobile devices	(1)
1.13	Ethernet is defined by the ... specification.	C	A protocol used over an IP network for voice communications	(1)
1.14	Symbian	D	Permanent connection to the internet	(1)
1.15	Cluster	E	Disk based memory	(1)
1.16	VoiP	F	RAM	(1)
1.17	ROM	G	Memory that one cannot change	(1)
1.18	Virtual memory	H	IEEE 802.3	(1)
1.19	ADSL	I	Type of processor	(1)
1.20	WAP	J	The minimum size storage unit in a file system	(1)
		K	Blogs	
		L	TCP/IP port	

**TOTAL SECTION A: 20**

**SCENARIO**

You are part of an IT club that does work for underprivileged schools in the region. There are 15 members in the club, from Grade 10 to Grade 12.

**SECTION B: HARDWARE AND SOFTWARE****QUESTION 2**

You have been asked to take a look at an upgrade which a large corporation is sponsoring one of your schools. You meet with the school governing body that need advice.

- 2.1 CPU's, motherboards, RAM, NETWORK CARDS, printers, cases. They fill a room dedicated to you and your team. The Governing Body meets your team to ask some questions to clear up issues they have regarding the upgrade.
- 2.1.1 The chairman wants to know what input and output devices are. Explain what they are, giving TWO examples of each. (6)
- 2.1.2 One of the governing body members said someone told him the chipset is very important when making decisions regarding motherboards. Name the TWO chips that make up the chipset. (2)
- 2.1.3 Name the components which connect to each of these chips in QUESTION 2.1.2. (8)
- 2.1.4 The chairman says he has heard that PCI slots are becoming redundant. What are the new peripherals used to connect to a modern computer? (1)
- 2.1.5 One SGB member says he thinks it would be good if all the new equipment has upgraded cache memory but he says he cannot find it. Explain why cache memory cannot be upgraded. (2)
- 2.1.6 Explain to the meeting in detail what cache memory is. (4)
- 2.1.7 CPU's follow instructions in an endless cycle known as the machine cycle. Name and describe each of these FOUR steps. (8)
- 2.1.8 Your team has the latest in network card technology to install into the new motherboards. Which slot would they likely be installed in to? (1)
- 2.1.9 List in a table FIVE differences between SRAM and DRAM. (5)

- 2.1.10 The chairman wants to know if anyone in your team can repair computer circuit boards at the component level. You say the PC is modular in design so this is not necessary. Explain what is meant by modular design. (4)
- 2.2 After working on the machines for a few days, software is now ready to be loaded. One of the new Grade 10's connects a printer and the operating system asks for the driver disk.
- 2.2.1 What is a driver? (3)
- 2.2.2 Why do some devices like flash disks, keyboards and mice not ask for a driver disk? (1)
- 2.3 You decide to brief the group on disks and file systems because you can see they are a bit lost with loading some of the software.
- 2.3.1 Name FOUR file systems in common use today. (4)
- 2.3.2 In terms of sectors and clusters, describe the term, "slack". (4)
- 2.3.3 How can it be that there is one physical drive in the machine (no external drives) but the system is showing two drives in Windows Explorer? (2)
- 2.4 One of the teachers at the school prefers the Linux operating system but needs Windows because some of her programs only run on Windows. Is it possible to load both operating systems? Briefly motivate your answer. (4)

**TOTAL SECTION B: 59**

**SECTION C: APPLICATIONS AND IMPLICATIONS****QUESTION 3**

- 3.1 As part of the upgrade you have to install a network and have to ensure internet access for all machines. Your team has been working hard on the upgrade and everyone is tired. One of the members jokingly says it is because of the “Information Overload”.
- 3.1.1 Describe to the team the significance of the above “joke” by describing the term, “information overload” and where this information comes from. (2)
- 3.1.2 The implication of information overload is that one has to judge whether information is “good” or relevant. Information is only as good as the data we put in. What is this principle called? (1)
- 3.2 “Technology can revolutionise education. However not all have access to technology.”
- In terms of the above statement, explain the “digital divide”. (2)
- 3.3 In the medical field, describe THREE areas where technology is being relied on. (3)
- 3.4 E-commerce refers to commercial transactions that take place over a network.
- State FIVE advantages of e-commerce for either the customer or the business. (5)
- 3.5 Name and describe THREE tools of social networking. (6)

**TOTAL SECTION C: 19**



**SECTION D: PROGRAMMING AND SOFTWARE DEVELOPMENT****QUESTION 4**

As part of your computer clubs activities, you are required to write some short programs to help the administration of the schools activities.

4.1 One of your programmers tries to implement the following code:

```
1 count ← 0
2 number1 ← 1
3 input number2
4 total ← number1 + number2
5 while count < total
6     result ← total / count
7     output result
8     count ← count + 1
9 endwhile
```

When this algorithm is coded and executed, a critical error occurs.

4.1.1 What will the error be and give the line number(s) where it occurs? (2)

4.1.2 How can this error be corrected? (1)

4.2 You are given the following text file by one of the administration personnel. The file does change periodically. The file is called lnr.txt.

```
Stuttoford,Jim,73,57,62,71
Drewry,Alice,56,76,59,58
Tjijila,Kamva,79,67,75,71
.
.
Gregg,Billy,67,46,52,55
```

The file format is:

surname,name,mark1,mark2,mark3,mark4

You are requested to write code to work out the averages of the four terms marks for each learner.

4.2.1 What kind of loop would you use to read this text file? Justify your answer. (2)

4.2.2 If you are required to sort the data into alphabetical order, what data structure would be the most appropriate to read the data into? Justify your answer. (3)

4.2.3 Write down the declaration for the data structure you recommend in QUESTION 4.2.2. (2)

- 4.3 You recommend to the school governing body that they should consider using a database for personnel and learner records. You suggest it would be a better solution to their spreadsheet based files because one can use SQL to query the database.

4.3.1 What does SQL stand for? (1)

4.3.2 Give FOUR appropriate field names for data that would need to be captured in the personnel table. (4)

4.3.3 Assuming the table name for learners is Learners\_Table, write down the SQL statement to display ALL fields in this table. (2)

**TOTAL SECTION D: 17**

**SECTION E: INTEGRATED SCENARIO****QUESTION 5**

All the machines at the school have been upgraded and networked. They all have an operating system and software loaded and there are three networked printers around the campus.

- 5.1 You are handing over the equipment to the school at a meeting of key personnel where questions are raised.
- 5.1.1 One staff member who has only used DOS asks how it is possible to run more than one program at once. Give the term for this and describe how it works. (3)
- 5.1.2 How does this differ from multithreading? (2)
- 5.2 You decide the network protocol to be used on the schools network will be TCP/IP.
- 5.2.1 What does TCP/IP stand for? (1)
- 5.2.2 What is a protocol? (2)
- 5.2.3 TCP/IP is considered to be a suite of protocols. Name FIVE protocols in this suite. (5)
- 5.3 The star topology was decided upon because of the layout of the buildings at the school.
- 5.3.1 What is meant by the “topology” of the network? (1)
- 5.3.2 By means of a diagram, describe the layout of a star topology. (2)
- 5.3.3 Name TWO other topologies. (2)
- 5.4 You have managed to connect the entire school to the LAN.
- 5.4.1 Two buildings are 150 m from each other. What cable type would you have used to connect the buildings? Explain your choice. (2)
- 5.4.2 What would be the alternative to the choice in QUESTION 5.4.1? (1)

- 5.5 You set up a wireless hotspot in the staffroom for staff to access the network from their laptops.
- 5.5.1 What is a hotspot? (2)
- 5.5.2 Give THREE advantages and THREE disadvantages of using wireless. (6)
- 5.6 You have set up an ADSL link into the internet. A firewall has also been configured.
- 5.6.1 Why are two speeds advertised when one asks about ADSL? (1)
- 5.6.2 What is the function of a firewall? (3)
- 5.6.3 How does a firewall achieve this? (2)
- 5.7 Your school decides to setup a twinning arrangement with a similar school in Europe.
- What hardware device allows the connection of two networks? (1)
- 5.8 Your computer club is called on to give staff training to a school across town, particularly regarding the internet and e-mail.
- 5.8.1 One staff member says she has heard anyone can hack into her internet connection while doing banking transactions and get her account details and pin. Assure her by describing THREE security measures banks take to safeguard their clients. (3)
- 5.8.2 Give FIVE measures you can take to protect yourself from someone getting your banking details. (5)
- 5.9 The staff has all heard of viruses and want to know more about them.
- 5.9.1 Describe a virus to the staff. (3)
- 5.9.2 Describe FOUR ways viruses can be passed on between computers. (4)
- 5.10 One of the staff has heard the term “hot swappable”. What does “hot swappable” mean? (2)
- 5.11 A computer can run out of RAM if one loads lots of programs and large games. The system makes use of “virtual memory”. What is virtual memory? (3)

5.12 One computer was identified as capable of being a server because it has a quad-core processor.

5.12.1 What is a quad-core processor? (2)

5.12.2 There are 50 machines on the network. Which network model should be used at this site, peer-to-peer or client/server? Explain your decision by listing THREE advantages of your chosen model. (4)

5.12.3 List THREE advantages of using a network compared to stand-alone machines. (3)

**TOTAL SECTION E: 65**

**GRAND TOTAL: 180**