Province of the
EASTERN CAPE
EDUCATION

NATIONAL
SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2012

INFORMATION TECHNOLOGY P2

MARKS: 180

TIME: 3 hours

This question paper consists of 12 pages.

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 North Bridge connects the …

    A   RAM, CPU, PCI and PCI-Express.
    B   AGP video, USB, Firewire and CPU.
    C   North bridge and South bridge.
    D   RAM, CPU, AGP video and PCI-Express.   (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 An internal bus …

    A   connects printers to stand-alone PC's.
    B   comes in several types, such as data, instruction and address.
    C   stores the results of calculations performed in the CPU.
    D   communicates keystrokes to the CMOS.   (1)

1.4 Overflow ...

    A   occurs when you type too much information into a string variable.
    B   occurs when an integer is placed in a variable type used to represent real numbers.
    C   occurs when the result of a division is an extremely small fraction.
    D   occurs when a numerical result exceeds the range of a variable type which is being used to represent it.   (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 ONE of the following statements is true?

    A   123.0.1 is a valid IP address
    B   An IP address is used to indicate the size of an IP packet
    C   www.blog.co.nl is an example of a web site in South Africa
    D   192.168.3.200 is a valid IP address   (1)

1.7 IRQ stands for:

    A   Interrupt Request
    B   Internal Request
    C   Internal Register Queue
    D   Information Return Queue   (1)

1.8 Which of the following is NOT a benefit of E-Commerce?

    A   Purchases can be made anywhere there is an internet connection
    B   It is easy to do comparative shopping
    C   Prices are more expensive
    D   Can shop anytime   (1)

1.9 An example of a free operating system is …

    A   OS x.
    B   Linux.
    C   Microsoft Windows.
    D   Novell.   (1)

1.10 The ALU is:

    A   The Android Logical Unit
    B   A register that stores arithmetic data
    C   How characters are represented in Unicode
    D   A unit which performs mathematical calculations   (1)

Match the COLUMN A (1.11 – 1.20) with the correct answer in COLUMN B. Write down only the question number and the matching letter in COLUMN B (A – L) in your answer book.

	COLUMN A		COLUMN B	
1.11	Instant messaging	A	Refine requirements into specifications	(1)
1.12	Research	B	Internet service provider	(1)
1.13	Step in the programming lifecycle	C	Value to the company besides physical assets	(1)
1.14	File systems	D	Virtual memory	(1)
1.15	Reason for a network	E	Planning	(1)
1.16	Processing type	F	Transfer of data	(1)
1.17	ISP	G	Social networking	(1)
1.18	Thrashing	H	E-Learning	(1)
1.19	Dial-up	I	Modem	(1)
1.20	Intellectual capital	J	Partitioning and formatting	(1)
		K	Internet service Protector	
		L	Multithreading	

TOTAL SECTION A: 20

SECTION B: HARDWARE AND SOFTWARE

SCENARIO

You are very interested in IT and are work-shadowing at a friend's IT business for the holidays.

QUESTION 2

2.1   You are helping one of the technicians evaluate the IT setup in an office complex. You meet with the complex management to decide on a few issues.

        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 member says he has heard that one can use a hard drive as RAM, so he suggests they save costs and leave out the RAM. Is this true? Explain your answer.   (3)

        2.1.3   A question is asked about expanding the machines to take specific hardware needed by a shop. He says that PCI slots are becoming redundant. Explain the validity of this statement and mention the technology that supersedes PCI technology.   (3)

        2.1.4   Name THREE expansion cards which can connect into the new slot mentioned in QUESTION 2.1.3 above.   (3)

        2.1.5   One committee member says he thinks it would be good if all the new motherboards have upgraded cache memory but he says he cannot find it. Explain where this cache memory is and why it cannot be upgraded.   (3)

        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   A motherboard has two bus types, namely the System Bus (or internal/front-side bus) and an External Bus. Describe the System Bus in detail and explain why it is mentioned in motherboard specifications.   (4)

        2.1.9   MRAM is a recent development which will eventually replace SRAM and DRAM. List THREE advantages of MRAM.   (3)

        2.1.10   Name THREE differences between SRAM and DRAM.   (3)

2.2	Upgrading is possible because of the modular design of PC's.

    2.2.1	Explain what is meant by '*modular design*'.	(2)

2.3	After discussing the hardware issues, you open up a discussion on software to be used in the mall.

    2.3.1	Name the TWO broad categories of software.	(2)

2.4	A committee member who knows very little about computers asks why a driver is necessary in a PC. He says there is no steering wheel.

    2.4.1	Explain what a driver is in this case.	(2)

    2.4.2	Explain why some devices like flash disks, do not require driver disks when installed for the first time.	(2)

2.5	One of the committee members 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:	52**

SECTION C: APPLICATIONS AND IMPLICATIONS

QUESTION 3

3.1 Your next work-shadowing experience is to meet with management of the local Nestle factory who outsource their IT requirements to your friend's IT business. They want to set up a hot-spot in their canteen for staff access.

        3.1.1   What is a hot-spot?   (1)

        3.1.2   Give THREE ways in which a hot-spot would benefit the factory.   (3)

3.2 Technology is used extensively by the Nestle training department. They are, however, very aware of what is termed "the Digital Divide".

        3.2.1   What is the "*Digital Divide*"? Explain your answer.   (2)

3.3 Management want to take more control of the employees' time management. They have an old clock card system which is very outdated and breaks down frequently. You have just learned about biometric devices in IT at school. You suggest this be investigated as an alternative.

        3.3.1   Name TWO biometric devices which could be used for this purpose.   (2)

        3.3.2   Smart cards can also be used for time management control. Give a short description of a smart card.   (3)

3.4 The training department encourages social networking in order to generate interest in technology. Name and describe THREE tools of social networking.   (6)

                                                     TOTAL SECTION C: **17**

SECTION D: PROGRAMMING AND SOFTWARE DEVELOPMENT

QUESTION 4

As part of your work-shadow experience, you are asked to design some software to help manage the workshop. The first module you are tasked with is to write some code which interfaces with a special input keypad for customer feedback. Ratings for the technicians are keyed in on a scale of 1 for excellent, to 0 for very poor service and a corresponding message is written to a database.

4.1   An "If" structure was initially used to determine what data to write to a database. This is very inefficient. Which other structure can be used to determine what to write to the database?   (1)

4.2   Another part of the program has to read a text file of names and addresses exported from the accounting system and it must format a new file for import into the workshop management system.

     4.2.1   What kind of loop would you use to read the data from the text file? Explain your choice.   (3)

     4.2.2   If you needed to sort the data, what type of data structure would you need to read the data into?   (2)

     4.2.3   Assuming the two arrays as declared below, write an algorithm to sort the two arrays into ascending order of surname.

           arrSurname: array[1..50] of string;
           arrFirstName: array[1..50] of string;   (6)

4.3   For the stock management system for the workshop, you decide to use a database as a backend with SQL code communicating with the database. Assume the database has the following format and answer the questions that follow:

Table name: **tblParts**				
partNo	**Manufacturer**	**Desc**	**CostPrice**	**Stock**
123	Asus	Motherboard	R789	8
443	Seagate	HDD	R375	12
132	Intel	i5 proc	R980	6

     4.3.1   You have a page to show all parts. Complete the SQL statement to display all fields, sorted by the description.   (3)

     4.3.2   You have a page to report on stock levels. The results must display the part number, manufacturer and description of all parts where the stock is 7 items or less.   (4)

4.3.3   You need to delete a part with part number typed into an edit
called edtDeletePart. Write the SQL code for this deletion.   (4)

4.3.4   What is the general syntax for adding a record into a database?   (3)

TOTAL SECTION D: 26

SECTION E: INTEGRATED SCENARIO

QUESTION 5

You have now accumulated many hours of experience and have enjoyed every
minute of it! You have experience in dealing with customers, programming real-
world applications, upgrading and repairing of hardware and software.

5.1   You are working with hardware in the workshop and a discussion picks up
between you and the technicians. You start debating the advantages and
disadvantages of Wi-Fi. Since you have recently learned about this in IT,
you join in the debate.

5.1.1   What is Wi-Fi?   (1)

5.1.2   Name THREE advantages and THREE disadvantages of Wi-Fi.   (6)

5.2   Discussions soon extend to full-blown networks.

5.2.1   Why do we have networks? Give FOUR reasons.   (4)

5.2.2   Name the THREE network topologies in use. Which ONE is the
most popular?   (4)

5.2.3   TCP/IP is considered to be a suite of protocols. Name FIVE
protocols in this suite.   (5)

5.2.4   What is meant by a "*Network Topology*"?   (1)

5.2.5   Draw ONE network topology and label the parts.   (3)

5.3   At one critical site where speed and reliability is very important, two
buildings are 500 m apart.

5.3.1   What cabling would you suggest to connect the buildings
together? Explain your answer in terms of the requirements
explained above.   (3)

5.3.2 UTP is a good cable to use for short distances. Give a reason for this. (1)

5.3.3 Other than Wi-Fi, name ONE other method of wirelessly connecting two points. (1)

5.4 You have cabling in place at this site and now need to install the machines. There are 40 offices in one building and 27 in the other.

5.4.1 What type of LAN would you install; client-server or peer-to-peer? Explain your answer based on the information given. (3)

5.4.2 Give FIVE strengths of the client-server network over a peer-to-peer configuration. (5)

5.5 You hear someone talking about multitasking but you hear from the conversation they do not know what they are talking about.

5.5.1 Explain what multitasking is by referring to an example. (2)

5.5.2 Name and describe another method of processing excluding multitasking. (2)

5.6 You have to 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? Refer to the concept of 'Ports' in your answer. (2)

5.7 A friend of yours visits many download sites and starts receiving lots of unwanted mail.

5.7.1 What is this unwanted mail called? (1)

5.7.2 Is it right to send out mail to people you do not know? Motivate your answer. (2)

5.7.3 Banks take measures to protect their users from hackers. Describe TWO security features a bank can employ to improve security. (4)

5.7.4 Give FIVE measures you can take to protect yourself from someone trying to get your banking details. (5)

5.8   Every customer you visit you educate regarding the dangers of computer viruses.

         5.8.1   Describe a computer virus.   (3)

         5.8.2   Describe THREE ways viruses can be passed on between computers.   (3)

TOTAL SECTION E: **65**

GRAND TOTAL: **180**