



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2013

**INFORMATION TECHNOLOGY P2
MEMORANDUM**

MARKS: 180

This memorandum consists of 9 pages.

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

- 1.1 D Bluetooth (1)
- 1.2 D FSB. (1)
- 1.3 B a chipset on the motherboard connecting to faster motherboard components. (1)
- 1.4 D The code puts the text 'sString4' into editText1, 'sString3' into editText2, etc. (1)
- 1.5 D is browser software which locates all existing URL's which fit a given description on the internet. (1)
- 1.6 C external hard drive. (1)
- 1.7 A faster and smaller. (1)
- 1.8 C A cellphone which has internet connectivity and provides a GUI. (1)
- 1.9 C best suited to video communications. (1)
- 1.10 A hand held device with an operating system and applications useful to a mobile office worker. (1)

MATCH THE COLUMNS

- 1.11 1.11.1 G Windows file system (1)
- 1.11.2 A Update regularly (1)
- 1.11.3 J High speed cellular internet connection method (1)
- 1.11.4 E Dynamic Link Library (1)
- 1.11.5 H Processing type (1)
- 1.11.6 D Asymmetric Digital Subscriber Line (1)
- 1.11.7 K Spyware (1)
- 1.11.8 L Databases (1)
- 1.11.9 B Graphical interface to an application (1)
- 1.11.10 C Value to the company besides physical assets (1)

TOTAL SECTION A: 20

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

- 2.1 2.1.1 Hardware – physical things you can touch and see ✓
Software – the operating system and programs on the computer ✓
- Any TWO suitable examples of each. ✓✓ (6)
- 2.1.2 An OS is:
- a collection of programs ✓ designed to
 - control and manage the operation of the computer ✓
 - and provide programmers with a standard method of accessing and controlling hardware ✓ (3)
- 2.1.3 It is free. ✓ (1)
- 2.1.4 It is the ability of the operating system to run more than one program at once ✓ and it seems like each program has exclusive use of the CPU and resources. ✓ (2)
- 2.1.5 Multithreading is when a single program ✓ is broken up into independent parts ✓ that run at the same time. ✓ (3)
- 2.1.6 A word processor checking spelling while you are typing. ✓ (1)
- 2.1.7 It is a method of connecting to a network ✓ without the use of cables. ✓ (2)
- 2.1.8 **ADVANTAGES**
- Portability and mobility ✓
 - Cost savings ✓
 - Flexibility ✓
 - Planning easier ✓
- DISADVANTAGES**
- Security ✓
 - Range limited ✓
 - Reliability ✓
 - Slower speed ✓ (8)
- 2.1.9 This statement is incorrect. ✓ A firewire port is used to connect high speed devices ✓ like digital video cameras. The port that should be used for flash drives would be a USB port. ✓ (3)

- 2.1.10 It is possible that drivers for certain devices might not be included in the database of drivers included as part of the OS
√√√ (or any suitable explanation). (3)
- 2.1.11 Plug-and-play is a technology where a device is recognised, √
queried √ and drivers are loaded if necessary √ (3)
- 2.1.12 A driver is software √ which is the interface between the installed hardware √ and the operating system. √ (3)
- 2.2 2.2.1 System software and Application software √√ (2)
- 2.3 2.3.1
- Manage shared hardware
 - Manage shared software
 - Manage backups
 - Manage security of files and passwords
- (Any THREE) √√√ (3)
- 2.3.2
- Setup of users
 - Setup of user rights/policies
 - Monitor activities on the network
- (Any TWO or suitable alternatives) √√ (2)
- 2.3.3
- Backups
 - New peripheral setup, including permissions
 - Creating folders including permissions
 - Adding users to the network
 - Removing users from the network
- (Any THREE or other suitable alternative) √√√ (3)
- 2.4 2.4.1 The percentage of fraudulent transactions compared to the millions of transactions that take place is minute. Use common sense when performing banking transactions. Type in the bank URL rather than following a link. √√
- Discuss ONE of the risks:
- Phishing – attempting to trick a person to giving out personal information
 - Keyloggers – record keystrokes on a PC
 - Identity theft – transacting on the internet as you are someone else
- (Or any other suitable risk.) √√ (4)
- 2.4.2 On-screen keypad to avoid keylogger capturing. √√
A second password that asks for random characters each time one logs into the bank. √√ (2)

TOTAL SECTION B: 54

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

3.1 3.1.1 The moral guidelines ✓ that govern the use of computers and information systems. ✓ (2)

3.1.2

- Violating copyright
- Hacking other computers while on the internet
- Vandalising websites

(Any TWO) ✓✓ (2)

3.2 The digital divide is the technological gap ✓ between those who have and those who do not have technology. ✓ (2)

3.3 No, ✓ it is unethical because the software would be copied illegally ✓ which is against the law. ✓ (3)

3.4 ADVANTAGES FOR THE SCHOOL

- Purchases can be made anywhere there is internet access
 - They can shop anytime
 - Items will be cheaper
 - It is easy to do comparative shopping
 - Many sites include reviews of products
- (THREE of these advantages) ✓✓✓

ADVANTAGES FOR THE BUSINESSES

- Do not have to carry large stocks
 - Reduced overheads
 - Businesses can market globally
 - Electronic catalogues are easy and cheap to produce and to distribute
 - 24hr shopping
 - Improved customer service
- (THREE of these advantages) ✓✓✓ (6)

3.5 3.5.1 Spam is unwanted ✓ e-mails. ✓ (2)

3.5.2 Phishing is an e-mail from, for example, what looks like your bank ✓ that has a link to a fake website ✓ which tries to trick you into giving out confidential information. ✓ (3)

3.5.3 A hacker is someone who deliberately ✓ attempts to gain access to your machine for devious purposes ✓ without your permission. ✓ (3)

TOTAL SECTION C: 23

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

- 4.1 4.1.1 Comma Separated Values ✓ (1)
- 4.1.2 While loop. ✓ You do not know how many records you have to read in the text file. ✓✓ (3)
- 4.1.3 Read the data into arrays. ✓✓ (2)
- 4.2 4.2.1 Line 8 ✓✓
- If the time >= 12:00 AND time <= 18:00 ✓✓ (4)
- 4.2.2 A logical error means the output of the program will be incorrect but the program will run. ✓✓
A syntax error is when there is an error in the syntax of the coding, i.e. missing semi-colons, incorrect operators etc. ✓✓ (4)
- 4.2.3 Overflow ✓ (1)
- 4.3 4.3.1 Data abstraction is defining a data type about which Delphi does not know, i.e. an object. ✓✓
In OOP we take this further by defining the methods which manipulate the data fields. ✓✓ (4)
- 4.3.2 Encapsulation is keeping the inner workings of the class private. ✓✓ (2)
- 4.4 4.4.1 Structured Query Language ✓ (1)
- 4.4.2 SELECT * ✓ FROM sweets ✓ WHERE sweet-type = 'chocolate' ✓ (3)
- 4.4.3 UPDATE <table> ✓
SET ✓ <field1> = <value>
 <field2> = <value> ✓
<WHERE> <criteria> ✓ (4)

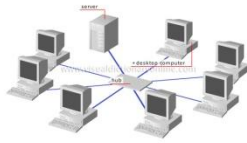
TOTAL SECTION D: 29

SECTION E: INTEGRATED SCENARIO**QUESTION 5**

- | | | | |
|-----|-------|--|-----|
| 5.1 | 5.1.1 | Unshielded Twisted Pair ✓ | (1) |
| | 5.1.2 | 100 m ✓ | (1) |
| | 5.1.3 | Wi-Max is a standard developed by the IEEE that specifies how wireless devices communicate over air in a wide area. ✓✓ | (2) |
| | 5.1.4 | Connecting buildings in the network. ✓ | (1) |
| | 5.1.5 | Fibre optic cable. ✓ It can extend well over a kilometre. ✓ | (2) |
| | 5.1.6 | People can find the open network with their laptops or cellphones and then use the bandwidth for which they are not paying. ✓✓ | (2) |
| 5.2 | 5.2.1 | A protocol is a set of rules ✓ that govern communications on a network. ✓ | (2) |
| | 5.2.2 | <ul style="list-style-type: none">• TCP – ensures reliable data transfer• IP – establishes internet communication• FTP – ensures easy transfer of files• SMTP – responsible for the delivery of e-mail• Telnet – allows you to log on to a remote computer. (Any THREE) ✓✓✓✓✓✓ | (6) |
| | 5.2.3 | The network topology is the physical layout of the network. | (1) |

5.2.4 One of: Labelled drawing of a bus, star or ring topology ✓✓✓

Star



Bus



Ring



(3)

5.3 5.3.1 Peer-to-peer and client server ✓✓

(2)

5.3.2 Client server ✓ It is more suited for larger networks. ✓

(2)

5.4 5.4.1 Disk subsystem ✓

(1)

5.4.2 RAID one is MIRRORING ✓ where one drive is an exact mirror copy of the other. ✓ Two drives are necessary for this configuration. ✓

(3)

5.5 5.5.1

- Control unit ✓
- ALU ✓
- FPU ✓
- Registers ✓
- Cache ✓

(5)

5.5.2

- CU – controls the machine cycle.
- ALU – makes comparisons and does integer arithmetic
- FPU – same as ALU but works with real numbers
- Registers – temporary storage within the CPU
- Cache – high speed memory storing the frequently used data and instructions

(THREE of the above descriptions) ✓✓✓

(3)

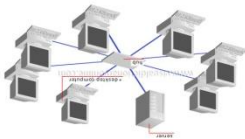
- 5.5.3
- Fetch ✓
 - Decode ✓
 - Data transfer ✓
 - Execute ✓
- (4)
- 5.5.4 Multiprocessing is a technique where the computer contains more than one physical CPU ✓ and the operating system manages the processes in such a way as to distribute them between the CPU's. ✓ (2)
- 5.6 5.6.1 To prevent hackers and unwanted applications ✓ from accessing your network from the outside ✓ and to control what goes out of your network. ✓ (3)
- 5.6.2 By blocking incoming ✓ and outgoing ✓ network ports. (2)
- 5.7 5.7.1 A virus is self-replicating ✓ executable code ✓ which copies itself onto machines with possible malicious intent. ✓ (3)
- 5.7.2
- Through an infected e-mail
 - Infected flash disk
 - Malicious web site
 - Malicious screen savers
 - Any other reasonable means
- (THREE of the above) ✓✓✓ (3)

TOTAL SECTION E: 54
GRAND TOTAL: 180

5.5.3	• Haal ✓ • Dekodeer ✓ • Data oordrag ✓ • Uitvoer ✓	(4)	
5.5.4	Multiverwerking is 'n tegniek waar die rekenaar meer as een fisiese SVE bevat ✓ en waar die bedryfstelsel die prosesse so kan beheer dat hulle tussen die SVE's verdeel word. ✓	(2)	
5.6	5.6.1	Om <i>hackers</i> en ongemaagtigde toepassings te keer ✓ om toegang tot jou netwerk van buite te kry ✓ en om kontrole te hou van wat jou netwerk verlaat. ✓	(3)
	5.6.2	Deur inkomende ✓ en uitgaande ✓ netwerkpoorte te blokeer.	(2)
5.7	5.7.1	'n Virus is self-duplikerende ✓ uitvoerbare kode ✓ wat homself op rekenaars kopieer met moontlike kwaadwillige intensies. ✓	(3)
	5.7.2	• Deur 'n besmette e-pos • Besmette geheuestokkie • Kwaadwillige webtuiste • Kwaadwillige skermskutte (<i>screen savers</i>) • Enige ander redelike manier (DRIE van bogenoemde) ✓✓✓	(3)

TOTAAL AFDELING E: 54
 GROOTTOTAAL: 180

5.2.4 Een van: Tëkening met byskritte van 'n bus-, stër- of ringtopologie ✓✓



Stër



Bus



Ring

(3)

5.3 5.3.1 Eweknie (*Peer-to-peer*) en kliënt-bedieners ✓

(2)

5.3.2 Kliënt-bedieners ✓ Dit is meer geskik vir 'n groot aantal rekenaars. ✓

(2)

5.4 5.4.1 Skyf substeem (*Disk subsystem*) ✓

(1)

5.4.2 RAID vlak 1 is *MIRRORING* ✓ waar die een skyf 'n spieëlbeeld van die ander is. ✓ Twee skywe is nodig vir hierdie konfigurasie. ✓

(3)

5.5 5.5.1 Beheereenheid ✓

- ALU (rekenkundige logiese eenheid) ✓
- FPU (wisselpunteenheid) ✓
- Registers ✓
- Kasgeheue ✓

(5)

5.5.2

- BE – beheer die masjien siklus.
 - ALU – maak vergelykings en doen heelgetalrekenkunde.
 - FPU – dieselfde as ALU, maar werk met reële getalle.
 - Registers – tydelike stoorarea binne die SVE.
 - Kasgeheue – hoëspoed geheue vir die tydelike stoor van data en instruksies wat gereeld gebruik word.
- (DRIE van bogenoemde beskrywings) ✓✓

(3)

AFDELING E: GEÏNTEGREERDE SCENARIO

VRAAG 5

5.1	5.1.1	<i>Unshielded Twisted Pair</i> ✓	(1)
	5.1.2	100 m ✓	(1)
	5.1.3	Wi-Fi is 'n standaard ontwikkeling deur die IEEE wat spesifiseer hoe koordlose toestelle deur lug in 'n wye area kommunikeer. ✓✓	(2)
	5.1.4	Koppel geboue in 'n netwerk. ✓	(1)
	5.1.5	Optiese veselkabel. ✓ Dit kan oor meer as 'n kilometer verleng word. ✓	(2)
	5.1.6	Mense kan die beskikbare netwerk met hul skootrekenaars of selfone vind en dan die bandwydte gebruik waarvoor hulle nie betaal nie. ✓✓	(2)
5.2	5.2.1	'n Protokol is 'n stel reëls ✓ wat kommunikasie in 'n netwerk beheer. ✓	(2)
	5.2.2	• TCP – verskeie betroubare data-oordrag • IP – bewerkstellig kommunikasie met die Internet • FTP – verskeie oordrag van lêers • SMTP – verantwoordelik vir die aflewering van e-posboodskappe • Telnet – laat jou toe om op 'n ander verafgeleë rekenaar aan te teken.	(6)
	5.2.3	Die netwerktopologie is die fisiese uitleg van die netwerk.	(1)

AFDELING D: PROGRAMMERING EN ONTWIKKELING VAN PROGRAMMATUUR

VRAAG 4

4.1	4.1.1	Comma Separated Values ✓	(1)
	4.1.2	While-lus. ✓ Jy weet nie hoeveel rekords jy in die teksleë moet lees nie. ✓	(3)
	4.1.3	Lees die data in skikings (arrays) in. ✓	(2)
4.2	4.2.1	Rêel 8 ✓	
	4.2.2	'n Logiese fout beteken die afvoer van die program sal verkeerd wees, maar die program sal hardloop. ✓ 'n Sintaksfout is wanneer daar in die sintaks van die kodering 'n fout is, bv. kommapunte wat uitgelaat is, verkeerde operators ens. ✓	(4)
	4.2.3	Oorloop ✓	(1)
4.3	4.3.1	Data abstraction is die verklaring van 'n datatipe waarvan Delphi nie weet nie, bv. 'n objek. ✓ In OOP vat ons dit verder deur die metodes wat die dataleëde manipuleer, te definieer. ✓	(4)
	4.3.2	Enkapsulering (Encapsulation) is die privaat hou van die binnewerkings van 'n program. ✓	(2)
4.4	4.4.1	Structured Query Language ✓	(1)
	4.4.2	SELECT * ✓ FROM lekkegoed ✓ WHERE lekkegoed-tipe = 'sjokolade' ✓	(3)
	4.4.3	UPDATE <tabel> ✓ SET ✓ <veld1> = <waarde> <veld2> = <waarde> ✓ <WHERE> <kriteria> ✓	(4)

TOTAAL AFDELING D: 29

AFDELING C: TOEPASSINGS EN IMPLIKASIES

VRAAG 3

3.1	3.1.1	Die morele riglyne √ wat die gebruik van rekenaars in inligtingstelsels beheer. √	(2)
	3.1.2	• Skending van kopiereg • Kraking (<i>Hacking</i>) van ander rekenaars terwyl op die internet is. • Beskadiging van webtuistes. √√	(2)
	3.2	Die <i>digital divide</i> is die tegnologiese gaping √ tussen die wat tegnologie het en die wat dit nie het nie. √	(2)
	3.3	Nee, √ dit is oneties, want die programmatuur sal onwettig gekopieer word √ wat teen die wet is. √	(3)
3.4	VOORDELE VIR DIE SKOOL		
		• Aankope kan vanaf enige plek waar internettoegang is, gedoen word • Hulle kan enige tyd koop • Items sal goedkoper wees • Dit is maklik om pryse met mekaar te vergelyk • Baie webtuistes sluit kommentaar oor produkte in (DRIE van hierdie voordele) √√√	
	VOORDELE VIR DIE BESIGHEDE		
		• Hoef nie groot hoeveelhede voorraad aan te hou nie • Minder oorhoofse kostes • Besighede kan produkte regoor die wêreld bemark • Elektroniese katalogusse is maklik en goedkoop om op te stel en te versprei • 24 uur besigheid • Verbeterde kliente-diens	(6)
3.5	3.5.1	Gemorspos (<i>Spam</i>) is ongewenste √ e-posse. √	(2)
	3.5.2	Strikroof (<i>Phishing</i>) is 'n e-posboodskap wat byvoorbeeld soos 'jou bank lyk √ wat dan 'n skakel na 'n vals webtuiste het √ wat jou probeer kuli sodat jy jou konfidensiële inligting uitgee. √	(3)
	3.5.3	'n Kraker (<i>Hacker</i>) is iemand wat opsetlik, √ sonder jou toestemming, √ probeer om toegang tot jou rekenaar vir slykse doeleindes te kry. √	(3)

TOTAAL AFDELING C:

23

2.1.10	Dit is moontlik dat drywerprogramme vir sekere toestelle nie ingesluit is in die databasis van drywerprogramme wat ingesluit is as deel van die BS nie.	✓✓ (of enige gepaste verduideliking).	(3)			
2.1.11	Plug-and-play is 'n tegnologie waar 'n toestel herken word, bevestigte word en waar drywers gelaai word indien nodig.	✓	(3)			
2.1.12	'n Drywerprogram is programmeer wat die koppelvlak tussen die geïnstalleerde programmeer en die bedryfstelsel is.	✓	(3)			
2.2	2.2.1	Stelselprogrammeer en Toepassingsprogrammeer	✓	(2)		
2.3	2.3.1	Bestuur gedeelde programmeer	• Bestuur gedeelde programmeer • Bestuur rugsteunkopieë • Bestuur die sekuriteit van lêers en woorde	✓✓ (Enige DRIE)	(3)	
	2.3.2	Opstel van gebruikers	• Opstel van regte/beleid van gebruikers • Monitor aktiwiteit op die netwerk	(Enige TWE of gepaste alternatiewe)	✓	(2)
	2.3.3	Rugsteunkopieë	• Opstel van nuwe randtoestelle, wat toestemmings insluit • Skep van lêers wat toestemmings insluit • Toevoeg van gebruikers tot die netwerk • Verwydering van gebruikers vanat die netwerk	(Enige DRIE of gepaste alternatiewe)	✓✓	(3)
2.4	2.4.1	Die persentasie van bedrieglike transaksies, in vergelyking met die miljoene transaksies wat plaasvind, is klein. Gebruik algemene kennis wanneer jy banktransaksies doen. Tik die bank se URL in, in plaas daarvan om 'n skakel te volg.	✓			
		Bespreek EEN van die risiko's:	• Phishing – probeer 'n persoon uitlok om sy persoonlike inligting uit te gee • Keyloggers – neem sleutelbordaksies van 'n rekenaar op • Identiteitsdiefstal – doen transaksies op die internet asof jy iemand anders is	(Of enige ander gepaste risiko)	✓✓	(4)
	2.4.2	Sleutelbord op die skerm om keylogger vaslegging te vermy	✓	'n Tweede woorde wat elke keer wat jy by die bank inteken, ewekansige karakters versoen.	✓✓	(2)
54	TOTAAL AFDELING B:					

AFDELING B: APPARATUUR EN PROGRAMMATUUR

VRAAG 2

2.1	2.1.1	Apparatuur – fisiese dinge wat jy kan aanraak en sien √ Programmatuur – die bedryfstelsel en programme op die rekenaar Enige TWEË gepaste voorbeelde van elk. √√	(6)
	2.1.2	∇ BS is: • ∇ versameling programme ∇ wat ontwerp is om • die werking van jou rekenaar te bestuur en te beheer √ • en om aan programmeerders ∇ standaard metode te verskat om toegang tot apparatuur te verkry en dit te beheer. √	(3)
	2.1.3	Dit is gratis. √	(1)
	2.1.4	Dit is die vermoë van die bedryfstelsel om meer as een program op ∇ slag te hardloop ∇ en dit lyk asof elke program eksklusiewe gebruik van die SVE en hulpbronne het. √	(2)
	2.1.5	<i>Multitreading</i> is wanneer ∇ enkele program ∇ opgedeel word in onafhanklike dele ∇ wat op dieselfde tyd gehardloop word. √	(3)
	2.1.6	∇ Woordverwerker wat spelling toets terwyl jy besig is om te tik. √	(1)
	2.1.7	Dit is die metode waar ∇ netwerk gekoppel word ∇ sonder die gebruik van kables. √	(2)
	2.1.8	VOORDELE • Draagbaarheid en mobiliteit √ • Kostebesparing √ • Buigsaamheid √ • Makliker beplanning √	
		NADELE • Sekuriteit √ • Reikwydte beperk √ • Betroubaarheid √ • Stadiger spoed √	(8)
	2.1.9	Hierdie stelling is verkeerd. ∇ ∇ <i>Firewire</i> poort word gebruik om hoe-spoed toestelle, ∇ soos digitale videokameras, te koppel. Die poort wat gebruik word vir geheuestokkies, sal ∇ USB poort wees. √	(3)

AFDELING A: MEERVOUDIGEKEUSE-VRAE

VRAAG 1

1.1	D	<i>Bluetooth</i>	(1)
1.2	D	FSB.	(1)
1.3	B	'n skyfiesstel (<i>Chipset</i>) op die moederbord wat aan vinniger komponente op die moederbord koppel.	(1)
1.4	D	Die kode plaas die teks 'sString4' in editText1, 'sString3' in editText2, ens.	(1)
1.5	D	is deurlaaiër (<i>browser</i>) programmatuur wat alle bestaande URL'le op die internet, wat met 'n gegewe beskrywing ooreenstem, allokkeer.	(1)
1.6	C	eksterne hardeskyf.	(1)
1.7	A	vinniger en kleiner.	(1)
1.8	C	'n Selfoon wat internet konektiwiteit het en 'n GUI voorsien.	(1)
1.9	C	die beste geskik vir video kommunikasie.	(1)
1.10	A	handtoestel met 'n bedryfstelsel en toepassings wat nuttig is vir 'n mobiele kantoorwerker.	(1)

PAS DIE KOLOMME BYMEKAAR

1.11	1.11.1	G	Windows lêrsisteen	(1)
	1.11.2	A	Gradeer gereeld op	(1)
	1.11.3	J	Hoë-spoed selfoon Internetverbindingsmetode	(1)
	1.11.4	E	<i>Dynamic Link Library</i>	(1)
	1.11.5	H	Prosesseringstipe	(1)
	1.11.6	D	<i>Asymmetric Digital Subscriber Line</i>	(1)
	1.11.7	K	<i>Spyware</i>	(1)
	1.11.8	L	Databasisse	(1)
	1.11.9	B	Grafiese koppelvlak vir 'n toepassing	(1)
	1.11.10	C	Waarde vir die maatskappy, bo en behalwe fisiese bates	(1)

TOTAAL AFDELING A:

20



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**NASIONALE
SENIOR SERTIFIKAT**

GRAAD 12

SEPTEMBER 2013

**INLIGTINGSTEGNOLOGIE V2
MEMORANDUM**

PUNTE: 180

Hierdie memorandum bestaan uit 9 bladsye.