



Province of the  
**EASTERN CAPE**  
EDUCATION

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 12**

**SEPTEMBER 2016**

**INFORMATION TECHNOLOGY P2  
MEMORANDUM**

**MARKS: 150**

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This memorandum consists of 12 pages.

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**SECTION A: SHORT QUESTIONS****QUESTION 1**

1.1	1.1.1	Primary Key ✓	(1)
	1.1.2	Robotics ✓	(1)
	1.1.3	Protocol ✓	(1)
	1.1.4	Router ✓	(1)
	1.1.5	Spyware ✓	(1)
	1.1.6	Convergence ✓	(1)
	1.1.7	Encryption ✓	(1)
	1.1.8	Rollback ✓	(1)
	1.1.9	Data warehousing ✓	(1)
	1.1.10	Fuzzy logic ✓	(1)
1.2	1.2.1	C ✓ freeware	(1)
	1.2.2	D ✓ Clock multiplication	(1)
	1.2.3	C ✓ HTML	(1)
	1.2.4	D ✓ encapsulation.	(1)
	1.2.5	A ✓ interpreter	(1)

**TOTAL SECTION A: 15****NOTE:**

- Do not accept answers that use general terms: cheaper, faster
- Do not accept rephrasing of the question
- Do not accept rephrasing/duplication of the answers in a list

## SECTION B: SYSTEMS TECHNOLOGIES

## QUESTION 2

- |     |       |  |     |
|-----|-------|--|-----|
| 2.1 | 2.1   | <ul style="list-style-type: none"> <li>Provides connectors to allow other circuits (CPU, RAM, etc.) to connect to it. ✓</li> <li>Ensures that all components of the computer can communicate with one another. ✓</li> <li>Distributes power to the parts that connect to it. ✓</li> </ul>  | (3) |
| 2.2 | 2.2.1 | 1 333 MHz ✓  | (1) |
|     | 2.2.2 | The System clock measures the speed at which data is moved on the Front Side Bus. ✓  | (1) |
|     | 2.2.3 | RAM✓ and CPU✓  | (2) |
| 2.3 | 2.3.1 | Clock multiplication ✓+ definition (speed ratio between the FSB and the CPU , which allows the CPU to do more tasks as it waits for the FSB) ✓   | (2) |
|     | 2.3.2 | High speed memory that stores frequently accessed instructions. ✓  | (1) |
|     | 2.3.3 | Web/Internet Cache ✓ + description (temporary storage for visited web pages to reduce bandwidth usage). ✓<br>Hard Drive Cache ✓+ description (embedded memory on the hard drive that acts as buffer between the physical platter that stores data and the rest of the computer, keeping a record of frequently accessed data) ✓              | (4) |
| 2.4 | 2.4.1 | No. ✓<br><i>ANY ONE of the following explanations:</i> ✓ <ul style="list-style-type: none"> <li>No expansion slots</li> <li>Cannot change processor</li> <li>Add RAM etc.</li> </ul>   | (2) |
|     | 2.4.2 | <i>ANY TWO:</i> ✓✓ <ul style="list-style-type: none"> <li>Easy to repair the computer by replacing a broken or faulty component.</li> <li>Easy to upgrade the computer by adding new parts or replacing existing ones with more powerful versions.</li> <li>Determine own system configuration by combining different components.</li> </ul> | (2) |

- 2.5     2.5.1     *Any TWO: ✓✓*
- Manages hardware and software
  - Manages memory space and tasks
  - Provides a user interface
- (2)
- 2.5.2     *Any TWO Advantages: ✓✓*
- Often Free
  - Can add to code
  - Often available for multiple platforms.
- (2)
- 2.5.3     *Any TWO Disadvantages: ✓✓*
- Limited support
  - Not always fully debugged
  - Not always fully tested
- (2)

**TOTAL SECTION B:     24**

**SECTION C: COMMUNICATION AND NETWORK TECHNOLOGIES****QUESTION 3**

- 3.1 3.1.1 WAN ✓ (1)
- 3.1.2 LAN or WLAN ✓ (1)
- 3.2 3.2.1 *Network Interface Cards:*  
Used to link the network cable to the PC – supplies the port ✓ and to convert the outgoing data to the format ✓ that the cable will be able to carry ✓ and vice versa to transform the incoming data into a format that the computer can work with. (3)
- 3.2.2 *Switch:* A device that connects computers in a network to a central location so that communication can occur. ✓ It directs traffic between devices connected to the network. ✓ (2)
- 3.3 3.3.1 Skype ✓ (1)
- 3.3.2 Voice Over Internet Protocol, ✓ is the protocol that allows telephone calls to be made over LAN, WAN and Internet. ✓ (2)
- 3.3.3 Twitter (1)
- 3.3.4 Microblogging is the posting of short text entries usually via a cellphone or smartphone on a platform like *twitter* ✓ whilst blogging is updating your website regularly with news and events like a journal. ✓ (2)
- 3.4 3.4.1 Cookies are small files which are stored on a user's computer. ✓ They are designed to hold a modest amount of data specific to a particular client and website, ✓ and can be accessed either by the web server or the client computer. (2)
- 3.4.2 • Not having to re-enter some of your information when you re-visit, ✓ as it remembers you. (1)
- 3.4.3 *Any TWO* ✓✓ (2)
- Must be from a reliable and well-known source (well-known author)
  - Compare information from different websites
  - Must be from authors who are frequently cited by other authors in the field.
  - Any other useful advice

- 3.4.4 Used for security purposes to verify the authenticity of the owners of the site. ✓ (1)
- 3.5 3.5.1 *Any TWO* ✓✓  
Dropbox, Google Docs, Skydrive, any other valid online facility. (1)
- 3.5.2 *Any TWO* ✓✓ + Explanation ✓✓  
Read – The user is allowed to view the files only  
Write – The user can also delete, modify, and save new files.  
Execute – The user can run the directly programs from this location. (4)
- 3.5.3 Yes. ✓ Most of the services have strong online antiviruses installed on their servers. ✓ (2)

**TOTAL SECTION C: 26**

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

- 4.1 4.1.1 Server ✓ (1)
- 4.1.2 *Any ONE* ✓  
• Blackfish  
• Microsoft SQL Server  
• MySQL  
• Any other valid server based DBMS (1)
- 4.1.3 Allows many concurrent connections ✓  
Can be accessed remotely ✓ (2)
- 4.1.4 No. ✓ A distributed database ✓ would be recommended so as to  
respond to local requirements. ✓ (2)
- 4.2 4.2.1 *Any TWO* ✓✓  
• Management  
• Maintenance  
• Security access rights  
• Backup  
• Installing software  
• Configuring software (2)
- 4.2.2 Data Independence – When the data is independent of storage  
media and application. ✓ (1)
- 4.2.3 Physical independence ✓  
Logical independence ✓ (2)
- 4.2.4 Protection of data from unauthorised access by users. ✓ (1)
- 4.2.5 *Any TWO* ✓✓  
• Passwords  
• Access rights  
• Data encryption (2)
- 4.3 4.3.1 A field that is used to link to a field in another table. ✓ (1)
- 4.3.2 InnoDB ✓ (1)
- 4.3.3 The process of making a database optimal, ✓ by removing  
anomalies ✓ like redundancy to enable easy reports. (2)
- 4.3.4 Update, ✓ Delete ✓ and Insert ✓ anomalies (3)

- 4.4    4.4.1    SELECT \* ✓FROM PlantDetails ✓ (2)
- 4.4.2    UPDATE ✓PlantDetails SET BotanicalName= 'Merwillaplumbea' ✓  
From PlantDetails WHERE BotanicalName='Merwillaplumbea' ✓ (3)

**TOTAL SECTION D:    26**



**SECTION E: SOLUTION DEVELOPMENT****QUESTION 5**

- 5.1      5.1.1      (-) private ✓  
                         (+) public ✓ (2)
- 5.1.2      Any ONE ✓  
                         +getName:String;  
                         +getBotanicalName:String;  
                         +getStock (1)
- 5.1.3      The purpose of a constructor is to create an instance of the  
                         object/To instantiate the object. ✓ (1)
- 5.1.4      Yes, ✓ If a class does not contain a constructor, a default  
                         constructor will be called to instantiate the object. ✓✓ (2)
- 5.2      5.2.1      While Loop / Conditional Loop✓ (1)
- 5.2.2      Display iNumber ✓ and Increase the value of iNumber by 13. ✓ (2)
- 5.2.3      7 ✓ (1)
- 5.2.4      As soon as iNumber >100✓← (1)
- 5.2.5      iNumber ← 13 ✓  
                         Loop until iNumber>100 ✓  
                         Dis← play iNumber ✓  
                         iNu ← mber ← iNumber +13 ✓  
                         End Loop ✓  
                         Display Statement ✓ (6)
- 5.3      5.3.1      An Array is a data structure ✓ that contains elements of the  
                         same data type. ✓ (2)
- 5.3.2      ArrNames:Array[1..3] ✓ of string✓ = ('One', 'Two','Three');✓  
                         Alternative Solution:  
                         **Type**  
                         TarrNames=Array[1..3] of string = ('One', 'Two','Three');  
                         **Private**  
                         ArrNames:TarrNames; (3)

**TOTAL SECTION E: 22**

**SECTION F: INTEGRATED SCENARIO****QUESTION 6**

- 6.1      6.1.1      Web browser ✓  
                      *Any ONE* ✓  
                      • Internet Explorer  
                      • Google Chrome  
                      • Mozilla Firefox (2)
- 6.1.2      HyperText Transfer Protocol ✓ (1)
- 6.1.3      Bandwidth: The total volume of data that can be transmitted from  
                      one point to another during a given time. ✓✓ (2)
- 6.1.4      Yes. ✓ They need to setup their webserver ✓ and register their  
                      server address on the Internet. ✓ (3)
- 6.2      6.2.1      *Any THREE* ✓✓✓  
                      • Phone numbers  
                      • Address  
                      • School  
                      • E-mail address  
                      • Any other relevant answer. (3)
- 6.2.2      By sending e-mails purporting to be from reputable companies ✓  
                      in order to induce individuals to reveal personal information, such  
                      as passwords and credit card numbers, online. ✓ (2)
- 6.2.3      Phishing ✓ (1)
- 6.2.4      Trolling is sowing discord on the Internet by starting arguments  
                      or upsetting people, by posting inflammatory, extraneous, or off-  
                      topic messages in an online community (such as a newsgroup,  
                      forum, chat room, or blog) with the deliberate intent of provoking  
                      the readers. ✓ (1)
- 6.2.4      *Any ONE* ✓  
                      • If the person is a friend on social networks, unfriend him.  
                      • Do not reply to their messages.  
                      • Expose them online. (1)

- 6.2.5    *Any THREE ✓✓✓*
- Physical computer theft
  - Theft of intellectual property
  - Identity theft
  - Money theft
  - Data Theft/Espionage
- (3)
- 6.2.6    *Any THREE ✓✓*
- Hacker
  - Cracker
  - Virus Author
  - Cybergang
  - Spammer
- (3)
- 6.3    6.3.1    An **app** is a computer program designed to run on mobile devices such as smartphones and tablet computers. ✓
- (1)
- 6.3.2    *Any TWO Mobile devices ✓✓*
- Cellphone
  - Tablet
  - iPad
- (2)
- 6.3.3    The trend for information that was previously accessed through conventional web pages and browsers, ✓ to be accessed by mobile apps on mobile devices. ✓
- (2)
- 6.4    6.4.1    *Any ONE – Wi-Fi ✓*
- Wireless network connectivity
  - A standard that allows devices to communicate wirelessly with one another
  - Wireless Fidelity
- (1)
- 6.4.2    *Any suitable explanation ✓✓*
- Some Wi-Fi networks are used for WLAN connectivity without Internet access.
  - The business may require users to pay for Internet access.
- (2)
- 6.4.3    *Any ONE ✓*
- Packet-sniffing
  - Eavesdropping
- (1)

- 6.4.4 (a) No. ✓ A firewall protect a computer from unwanted access but they do not secure outgoing data. ✓ (2)
- (b) Yes. ✓
- *Any ONE* ✓ You can only decrypt the transmitted data if the encryption key is known.
  - Without decrypting the data would not be useful. (2)
- (c) No. ✓ Virus scan only scans local computers and does not affect outgoing data. ✓ (2)

**TOTAL SECTION F: 37**  
**GRAND TOTAL: 150**