



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2018

**INFORMATION TECHNOLOGY P2
MARKING GUIDELINE**

MARKS: 150

This marking guideline consists of 12 pages.

SECTION A: SHORT QUESTIONS**QUESTION 1**

- | | | | |
|-----|--------|---|-----|
| 1.1 | 1.1.1 | Archiving ✓ | (1) |
| | 1.1.2 | Bandwidth ✓ | (1) |
| | 1.1.3 | Biometric (Security) ✓ | (1) |
| | 1.1.4 | Foreign key ✓ | (1) |
| | 1.1.5 | Disk defragmentation/defrag ✓ | (1) |
| | 1.1.6 | Shareware ✓ | (1) |
| | 1.1.7 | Piggybacking ✓ | (1) |
| | 1.1.8 | Hyperlink ✓ | (1) |
| | 1.1.9 | Ergonomics ✓ | (1) |
| | 1.1.10 | E-waste ✓ | (1) |
| 1.2 | 1.2.1 | D ✓ Digital Signature | (1) |
| | 1.2.2 | A ✓ Flaming | (1) |
| | 1.2.3 | C ✓ Encode Data | (1) |
| | 1.2.4 | A ✓ a method used by peripherals to gain the CPU's attention
when they need to communicate | (1) |
| | 1.2.5 | C ✓ TRUE OR NOT (TRUE OR NOT FALSE) =TRUE | (1) |

TOTAL SECTION A: 15

SECTION B: SYSTEMS TECHNOLOGIES**QUESTION 2**

- 2.1 2.1.1 System Software/Operating System ✓ (1)
- 2.1.2 Software which manages/controls all the activities that take place in a computer. ✓ (1)
- 2.1.3 Smartphone ✓ or Tablet (1)
- 2.1.4 • The operating system splits / shares the CPU time between the active programs. ✓
• It appears as if the computer is running multiple programs at once. ✓ (2)
- 2.2 The combining of several technologies and functions into a single multi-purpose device. ✓ (1)
- 2.3 Accept any THREE of the following: ✓✓✓
• Turn down the brightness of the screen.
• Turn off unused radio devices such as 3G/4G, GPS, Wi-Fi and Bluetooth.
• Turn off Sync.
• Close unused apps.
• Turn on power saving mode.
• Turn off vibrations.
• Minimise notifications. (3)
- 2.4 They are much cheaper ✓ Easily available ✓
ALSO ACCEPT
Can store more data and may be repaired. (2)
- 2.5 2.5.1 Thrashing ✓ (1)
- 2.5.2 It makes use of space on secondary memory / storage / hard drive ✓
using it as primary memory / RAM. ✓
Virtual memory (one mark only) (2)
- 2.5.3 It might be difficult to obtain RAM chips ✓
DIMMs that are compatible with the older motherboards ✓ (2)
- 2.6 2.6.1 Computer 1 ✓ (1)
- 2.6.2 The Intel core i7 CPU ✓ (1)
- 2.6.3 Each core can process separate programs ✓ at the same time. ✓
OR
Each core acts like a separate CPU making it possible to execute multiple tasks simultaneously. (2)

2.6.4 2.6.4.1 The faster the clock speed, the faster the CPU speed ✓✓ (2)

2.6.4.2 The speed of the system clock ✓ will be multiplied by a specific value ✓ in order to obtain the required clock speed for the specific CPU.
Clock multiplication – one mark only. (2)

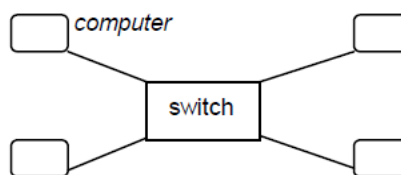
2.7 2.7.1 It connects the different components on the motherboard. ✓
OR
The internal buses transfer data and instructions between components. (1)

2.7.2 CPU ✓ and RAM ✓ (2)

TOTAL SECTION B: 27

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

- 3.1 3.1.1 Correct layout ✓
 Diagram include:
 Switch/Hub ✓
 Computers ✓



(3)

- 3.1.2 Any TWO of: ✓✓

- Easy to troubleshoot
- Easy to replace individual computers
- If one device stops working, network is not disrupted
- Easy to install/set up/maintain

(2)

- 3.1.3 A combination of at least two topologies; star, bus or ring ✓

(1)

- 3.2 3.2.1 mobility ✓

OR

cost saving / easier to set up

(1)

- 3.2.2 Any TWO of: ✓✓

- Wi-Fi range is limited.
- Buildings / obstructions might require a distributed layout
- Multiple computers sharing one access point will drastically decrease speed
- An access point can only support a limited number of connections.

(2)

- 3.2.3 Because the signal is broadcasted, it is easy to intercept the signal ✓ and therefore the data, and passwords, can be accessed.

(1)

- 3.3 3.3.1 Push technology is when the server notifies the device ✓ that a new message has arrived and then downloads it to the mobile device. ✓
 Concepts:
 Automated download
 FOR 1 mark: Notification only

(2)

- 3.3.2 Any TWO of: ✓✓

- Mobile data is expensive.
- Small storage area.
- Application may not be installed to open/read the attachment/cannot handle format of document.

(2)

- 3.4 3.4.1 VoIP ✓

(1)

- 3.4.2 Any TWO of: ✓✓

- Data is expensive.
- Bandwidth of connections is often very low
- Internet connections are not reliable/not available everywhere.
- Not all schools will have the necessary hardware.

(2)

- 3.4.3 Cross-platform means that software is designed to run on different operating systems. ✓ (1)
- 3.5 3.5.1 You need to know the web address to be able to tell your browser what site you wish to view. ✓ This means that, if you had to use only browser software to access online data and information, then you would need to know the URL of every web page you ever wanted to visit. (1)
- 3.5.2 A search engine works as a discovery tool and information locator. ✓ You only need to know one URL – that of the search engine. You start your browser, go to the search engine, type in your search criteria and you are presented with a list of sites that meet your search criteria. (1)
- 3.5.3 Too many results ✓ and they are not always of appropriate quality (what is required). ✓ (2)
- 3.5.4 Mediated searches use people to compile lists of sites in different categories and to make sure that the sites that make it onto the list are genuinely useful, have relevant and up-to-date content and are not scams or affected by malware. ✓ The results returned by this type of search are far fewer than the results that a normal algorithm-based search engine would return, but the idea is that human mediation and selection will give you results that are better and more interesting or relevant. ✓ (2)

TOTAL SECTION C: 24

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

4.1 A desktop database is usually used for single user applications and is installed on personal computers. ✓
 A server database is installed on the server and is accessed by the user using a network connection and shared by users. ✓ (2)

4.2 Data integrity in a database is ensured by implementing principles of normalisation ✓ and including validation in your database design. ✓ (2)

4.3 Name and Describe any THREE of: ✓✓✓
 • Currency/Up to date – This relates to how recent or up to date the data is
 • Relevance/useful – This relates to how closely the data matches your needs
 • Completeness – This refers to how comprehensive the data is
 • Accurate/correct data.
 • Valid data.
 • Unnecessary information is not included.
 Any correct example in each case. (3)

4.4 Any TWO methods/techniques: ✓✓
 • Use good password policies.
 • Make sure that user rights and privileges are implemented and managed.
 • Make sure that devices are secured (e.g. users need passwords to access the device itself).
 • Make sure that locations are physically secured (e.g. key control, access registers, biometric access control, etc.) (2)

4.5 Data maintenance involves keeping information up to date. ✓ (1)

4.6 4.6.1 Normalisation refers to the process of organising a database into separate tables ✓ in such a way as to avoid the duplication of data and also to update/deletion anomalies. ✓ (2)

4.6.2 A field that identifies each record with a unique value. ✓ (1)

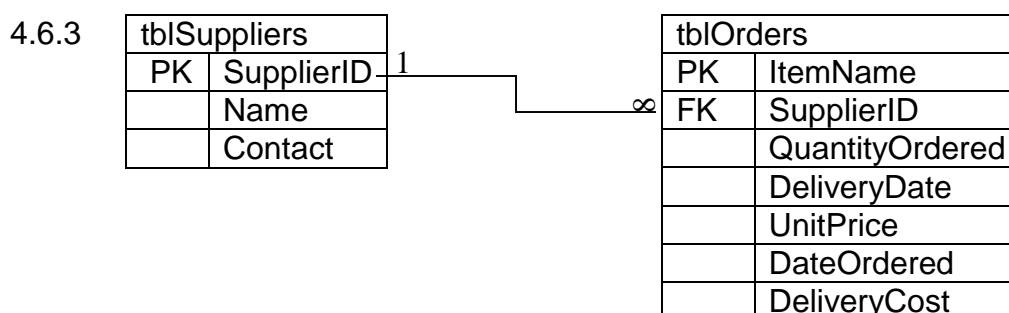


Table Names ✓✓
 Primary Keys ✓✓
 Foreign Key ✓
 Relationship ✓

(6)

4.7 4.7.1 SELECT * FROM tblproducts ✓ Order BY Price ✓ (2)

4.7.2 UPDATE tblproducts ✓ SET name='Pecan Pie' ✓ WHERE name=
'Pecan Pe' ✓ (3)

TOTAL SECTION D: 24

SECTION E: SOLUTION DEVELOPMENT**QUESTION 5**

- 5.1 declare empty string ✓
 get length of string ✓
 loop ✓ from first character to length of string
 if the current character is a space ✓
 change the following character (correct character) ✓ to capital letter ✓
 if the current character is not a space ✓
 add to a new string variable ✓
- ACCEPT any correct method. (8)
- 5.2 5.2.1 To generate a string ✓ designed by the programmer which will usually display the object fields (attributes/class variables) ✓ (2)
- 5.2.2 (a) Changes the values of the instance fields of the object. ✓
 Example: ChangeUserCode ✓/AddSession/ResetAll (2)
- (b) Return information to the application program/class ✓
 Example: getFrequency ✓ (2)
- 5.2.3 (a) Other classes (or application programs) must be able to call the methods (must have access to methods from outside the class) ✓ (1)
- (b) To ensure that the fields belong ONLY to this specific object and cannot be accessed from outside the object ✓ (1)
- 5.2.4 A parameterised method has got brackets () with arguments or variables inside the brackets, ✓ Whilst a non-parameterised method has got no brackets, meaning that it does not have arguments ✓ (2)
- 5.3 5.3.1 (a) Syntax: Errors that do not follow the rules of the programming language used. ✓ Example: No brackets enclosing the conditions of an if statement ✓ (2)
- (b) Runtime errors are errors that cause a program to terminate abnormally. ✓ **OR** Runtime errors occur while an application is running if the environment detects an operation that is impossible to carry out e.g. requesting through code that printing must be done but the printer is not connected ✓ (2)
- (c) Logical error: When the program does not perform the way it was intended to. ✓ Example: When an endless loop occurs. ✓ (2)
- 5.3.2 Syntax Error: Compiler will not compile the program and indicates the error. ✓
 Runtime error: Program crashes / displays an exception. ✓
 Logical error: Results are not what they are expected to be. ✓ (3)

- | | | | |
|-----|-------|--|-----|
| 5.4 | 5.4.1 | Constructor ✓ | (1) |
| | 5.4.2 | To send the information (input) to the other unit so it can be assigned to the attributes. ✓ | (1) |
| | 5.4.3 | Function ✓ | (1) |
| | 5.4.4 | Opens text file so that contents can be read ✓ | (1) |
| | 5.4.5 | iVisits := iVisits +1; | (1) |
| | 5.4.6 | To give the variable a starting value ✓ (to avoid Delphi generating a random value) | (1) |

TOTAL SECTION E: 33

SECTION F: INTEGRATED SCENARIO**QUESTION 6**

- 6.1 6.1.1 This technique involves keeping multiple copies of data (sometimes referred to as mirroring). ✓ Doing this means that, even if one set of data fails, the parallel set can be used immediately, resulting in no downtime. ✓ (2)
- 6.1.2 It means that you need, at a minimum, to double the storage requirements for your system ✓ (and if you have more than one mirror, then you need to multiply this by as many copies as there are of the data). ✓ (2)
- 6.1.3 For safety and security reasons. ✓ (1)
- 6.2 6.2.1 The URL for a dynamic page usually contains many parameters after the actual file name, to include information for the server that will enable it to generate the dynamic page that you end up seeing. ✓ You can see the web page's file extension in the URL, located in the address field of the Web browser. If it is '.htm' or '.html', the page is probably static. If the extension is '.php', '.asp' or '.jsp', the page is most likely dynamic. ✓ (2)
- 6.2.2 Any THREE of: ✓✓✓
- They can easily adapt to users' needs and preferences.
 - They are ideal for online stores and social websites (blogs, wikis, etc.) where content is generated 'on the go'.
 - They make the social web possible (blogs, wikis, etc.).
 - They provide a more comprehensive, interactive web experience.
 - They are ideal for customisable pages or pages that need frequent updating.
- (3)
- 6.3 6.3.1 To store the backups safely off-site in case of theft, fire, etc. ✓ (1)
- 6.3.2 Any THREE of: ✓✓✓
- Files can be accidentally deleted or overwritten.
 - Files can sometimes become corrupt.
 - Files can become infected with malware (viruses, spyware, etc.).
 - Hardware such as a disk drive can fail, etc.
- (3)
- 6.3.3 Any THREE of: ✓✓✓
- Only back up data files (not software that can be reinstalled).
 - Only back up file changes since the previous backup.
 - Compress ('zip') the files that will be backed up into one or more zipped ('compressed') file/s.
 - Perform housekeeping tasks, such as removing duplicate files, before making backup.
- (3)

- 6.4 6.4.1 ANY ONE of: ✓
• Ensure URL begins with https.
• Lock sign/secure symbol on the browser. (1)
- 6.4.2 Encryption is the scrambling of text/data ✓ into a format that cannot easily be read by someone else, using a specified set of rules/algorithm/key/formula. ✓ (2)
- 6.4.3 ANY THREE of: ✓✓✓
• Use a reasonable number of characters (at least 8).
• Use a mixture of alphabetical and numerical characters.
• Use both uppercase and lowercase characters.
• Do not use everyday words like pass/cat etc.
• Include special characters.
• Do not include personal information. (3)
- 6.5 6.5.1 Constant interruptions prevent you from focusing your attention on whatever task you are supposed to be doing. ✓
Social networking can consume several hours of your time each day. ✓ (2)
- 6.5.2 Any ONE advantage of: ✓
• You can let friends know what you are up to.
• Possible business partners/employers can get to know of the work you do (e.g. on LinkedIn).
• You can meet people and make friends, etc.

ONE disadvantage, it is not in the public domain. ✓ (2)

TOTAL SECTION F: 27
GRAND TOTAL: 150