



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

INFORMATION TECHNOLOGY P2

NOVEMBER 2013

MEMORANDUM

MARKS: 180

This memorandum consists of 22 pages.

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

- | | | |
|------|----------|-----|
| 1.1 | A OR B ✓ | (1) |
| 1.2 | D ✓ | (1) |
| 1.3 | C ✓ | (1) |
| 1.4 | A ✓ | (1) |
| 1.5 | A ✓ | (1) |
| 1.6 | C ✓ | (1) |
| 1.7 | B OR D ✓ | (1) |
| 1.8 | B OR C ✓ | (1) |
| 1.9 | B ✓ | (1) |
| 1.10 | A ✓ | (1) |

TOTAL SECTION A: 10

SECTION B: HARDWARE AND SOFTWARE

QUESTION 2

2.1 2.1.1 Any TWO of ✓✓:

The laptop would be preferred because of the following reasons:

- *More powerful CPU/Processing is done faster/Higher processing speed/2.4 GHz CPU/Any valid reason that implies a more powerful CPU*
- *More RAM/8GB RAM/Any valid reason that implies more RAM*
- *Bigger HDD/1.5TB HDD/It has more storage space to save all the video footage*
- *Need a keyboard to do a significant amount of typing/Any valid reason that implies the need of a keyboard*
- *A larger screen to work on*

Also accept any other correct sensible reason

- NOTE:**
- *If learner only answered *Faster/Better* may only receive ONE MARK but any other answer may not imply faster.*
 - **DO NOT** accept any answer about software. (2)

2.1.2 (a) **SSD: Solid State Drive/Disc OR Static State Drive**✓ (1)

(b) *Any THREE comparative differences* ✓✓✓

SSD	HDD
<i>Both sides must be correct to earn one mark:</i>	
• Electronic	• Magnetic
<i>For the following only the left/right half is required:</i>	
• Has no moving parts	• Has moving such as platters and read/write head
• Faster data transfer rate	• Slower data transfer rate
• Smaller storage capacity	• Larger storage capacity
• Smaller (physical dimensions)	• Larger (physical dimensions)
• More robust/reliable	• Less robust/reliable
• Less power consumption/more energy efficient	• More power consumption/Less energy efficient

- NOTE:**
- No half marks
 - Do not accept cost as an answer (3)

2.1.3 (a) A (single) physical hard drive✓ is (logically/virtually) divided into logical drives/(separate parts)/partitions✓ (2)

(b) *Any ONE sensible reason for having a system recovery partition:✓*

- Recover the operating system
- So that the operating system (OS) can easily be restored to factory settings.
- It is difficult to reinstall an operating system on a tablet. The system recovery partition contains a backup of the operating system – makes is easy to recovery the OS.

Also accept any correct alternative reason (1)

2.1.4 *Any ONE of:*

- Cache memory is high speed/faster memory✓ that stores instructions and data that will probably be used next✓ by the CPU✓.

OR

- Cache memory increases the speed of the system✓ by using its a high speed memory that stores instructions and data that will probably be used next✓ by the CPU✓.

OR

- Cache memory increases the speed of the system✓ by preventing the CPU having to wait✓ for data from the slower RAM✓

NOTE: Reference to alleviating the bottleneck – one mark (3)

2.1.5 Use quad pumping/access occur four times (double pumping/access occur two times) during each clock cycle with quad/double pumping. Access occurs during the stable low, the change of voltage (low to high and again high to low) and the high voltage stage ✓✓✓

OR

Multiple✓ access✓ per cycle✓

OR

Quad/double pumping✓

Also accept any correct alternative explanation of double/quad pumping. (3)

- 2.1.6 Any *TWO* reasons ✓✓:
- The **RAM in a tablet** is not removable (fixed) from the motherboard/Not modular
 - **RAM in a laptop** is upgradeable/**RAM in a tablet** cannot be upgraded
 - Motherboards differ
 - Physical space for RAM is different/The RAM in a tablet is specialised memory designed to be as small as possible and is unique to that device as it is physically a part of the logic board
 - RAM in a laptop is generic and can be used in different types of laptops (2)
- 2.2 2.2.1 Any *FOUR* of: ✓✓✓✓
- Registers
 - Arithmetic Logic Unit (ALU)
 - Floating Point Unit (FPU)
 - Control Unit (CU)
 - Cache (4)
- 2.2.2 The *instruction set* is a (unique) set of instructions/rules✓ that the processor is able to execute✓.
- OR**
- The *instruction set* is a collection of machine code instructions which enable a processor to carry out all its tasks. (2)
- 2.2.3 *Multithreading* allows processes to be split into "threads" ✓ which can run simultaneously through the CPU✓.
- Also accept any correct alternative explanation using a correct example.* (2)
- 2.2.4 Any *TWO* of:✓✓
- Increase number of transistors on CPU/Decrease the size of the transistors
 - Increase clock speed of CPU
 - Increase the amount of cache memory
 - Choice of instruction set/Add additional instruction sets
 - Increase the number of pipelines
 - Make use of multiple cores
 - Increase the size of the registers
 - Hyper-threading
- NOTE:** No need to refer to the increase/decrease (2)

- 2.3 2.3.1 *Any TWO advantages of USB over Firewire: ✓✓*
- USB is faster than Firewire.
 - USB can daisy chain more devices than Firewire
 - USB is more common/better supported/more devices make use of USB
 - USB is more cost effective than using Firewire (2)
- 2.3.2 Application software ✓ (1)
- 2.4 2.4.1 *Any ONE of: ✓*
- 3G
 - EDGE
 - GPRS
 - LTE/4G
 - Radio
- NOTE:** Do not accept WiFi; Wireless (1)
- 2.4.2 The *cloud* refers to storage/services/space✓ located on the Internet/on-line/remotely/external✓ (2)
- 2.4.3 Yes/+ OR No/-
- NOTE:**
- If only Yes/No – no marks
 - Mark allocation:
 - ONE mark for taking a stand/Yes/No/+/- with a motivation irrespective if correct ✓
 - ONE mark for valid/correct motivation ✓
- If answered YES/positive/confirm:**
- Data will be automatically backed up/saved somewhere.
 - The data will be available from anywhere via the Internet/remote computer.
 - No need to maintain/manage your own storage media.
- If answered NO/negative:**
- Internet connection is required to access data.
 - Can be slow to access due to slow Internet connection.
 - You have no control over the location where the files are saved.
 - Security of sensitive data/personal information contained in documents may be a concern. (2)

- 2.5 2.5.1 *Any TWO good arguments in favour of laser printers: ✓✓*
- Reduce operational costs (toner/ink cartridges).
 - Have greater page per minute rates than inkjet printers/Faster.
 - Printing done is not water soluble/does not get smudged/is more durable.
 - Better print quality
- Also accept any other correct alternative argument* (2)
- 2.5.2 *Spooling is the process of buffering (temporary storing of)✓ content while waiting for slower printer to become available ✓* (2)
- 2.5.3 *Parallel data transfer means the number of bits can be transferred at the same time along many connections✓ while serial data transfer means the bits are transferred one after the other along a single connection.✓* (2)
- 2.6 2.6.1 VoIP converts (analogue) voice/video/images data into (digital) data✓ that can be sent over a network/Internet✓
OR
VoIP can use a standard Internet connection✓ to make telephone calls✓
- NOTE:** VoIP is voice over Internet protocol – ONLY ONE MARK (2)
- 2.6.2 *Any ONE of: ✓*
- Skype
 - Google Hangouts/Google Talk
- Also accept any other correct VoIP client* (1)
- 2.6.3 *Any ONE of:✓*
- Discussion groups such as chat rooms, newsgroups, forums
 - IM messaging
 - Social networking sites and blogs such as Facebook, Twitter, MySpace, FaceTime, IRC etc.
- Also accept any other appropriate online collaboration tool* (1)
- 2.7 2.7.1 *Any ONE of: ✓*
- The application/file was deleted manually/The application was not uninstalled correctly
 - Not installed properly/fully
 - The DLL files got corrupted by malicious software/hardware failure.
 - Hard drive/file corruption
 - Incorrect shutdown procedures
- Also accept any other correct alternative reason* (1)

- 2.7.2 Any ONE of: ✓
- The application software needs to be re-installed
 - Repair the registry (on a Windows OS machines)
 - Download/Replace the missing DLL-files
- (1)

- 2.7.3 The *registry* is a database ✓ storing the information about the configuration data of the software/hardware/users program settings, etc. ✓
- (2)

TOTAL SECTION B: 49

SECTION C: APPLICATIONS AND IMPLICATIONS**QUESTION 3: e-COMMUNICATION**

3.1 *Any TWO reasons for not being feasible: ✓✓*

- The video footage is contained in large data files
- Netiquette requires not sending large attachments/Do not e-mail large files
- Large e-mail attachments can be blocked/flagged as spam
- Bandwidth constraints/slow to upload or download
- Data cost per MB/GB

NOTE: DO NOT ACCEPT:

- Any answer on privacy/piracy/format of the video (2)

3.2 3.2.1 *Podcasting* is when video/audio clips are made available/published online for downloading purposes✓. The format caters for portable media devices. (1)

3.2.2 *Any ONE of: ✓*

- Podcasts need to be downloaded only once
- Podcasts can normally be downloaded to a device
- You do not need to be online to watch it after you have downloaded it. (1)

3.2.3 *Any ONE of: ✓*

- RSS feeds
- SMS
- Blog post
- Website update
- e-mail
- instant message (IM)

Also accept any other correct alternative medium (1)

3.3 3.3.1 *Broadband* is any high speed/high bandwidth✓ connection✓ to the Internet. (2)

3.3.2 (a) Digital ✓ (1)

(b) *Any ONE advantage of ADSL connection ✓:*

- permanent connection
- you can be browsing the web and receive/make telephone calls at the same time
- cheaper than cellular connections
- fixed monthly rate
- stable connection
- faster (1)

3.3.3 *Any ONE broadband alternative to ADSL ✓:*

- ISDN
- Diginet
- Fibre/FTTH/FTTx (1)

[10]

QUESTION 4: SOCIAL AND ETHICAL ISSUES

- 4.1 4.1.1 *Any TWO ways of misusing personal information: ✓✓*
- There may be predators online that could use that information for harm
 - The location of the children may be tracked down
 - Details may be used for identity theft
 - Online fraud
 - Cyber bullying
 - Details may be used to receive spam
- Also accept any other correct sensible answer* (2)
- 4.1.2 *Any ONE way of protecting personal information: ✓*
- Require username and password for contestants only/Create a login for contestants
 - Do not display personal data such as phone numbers and addresses on publicly accessible web pages.
 - Encrypt data/secure site
- Also accept any correct alternative answer* (1)
- 4.2 4.2.1 Social engineering is the human/electronic interaction of an unauthorised person convincing/conning/deceiving✓ an authorised person to give them access✓ to information.
- Also accept any other correct and relevant explanation.* (2)
- 4.2.2 *Any ONE way to prevent social engineering: ✓*
- The training of staff to recognise threats.
 - Strict security measures to prevent contact with unauthorised people.
- Also accept any other correct and relevant explanation* (1)
- 4.3 4.3.1 *Any ONE of ✓:*
- *Tweet* is the use of a social media website called Twitter to send messages
 - Short message
- (1)
- 4.3.2 *Any ONE of: ✓*
- Flaming
 - Trolling
 - Smashing/Smearing
 - Cyber bullying
 - Defamation of character
- (1)

- 4.4 4.4.1 A blog is an online public diary (focused on a specific topic) ✓
Also accept any other correct and relevant explanation (1)
- 4.4.2 *Any ONE advantage of the blog: ✓*
• Some contestants may try to influence public opinion about him/herself
• The contestants may obtain some help from specialised persons in the industry to gain an unfair advantage.
Also accept any other correct and relevant explanation (1)
- 4.5 Digital divide means not everybody has skills/access to computers/Internet and is disadvantaged because of this lack of access. ✓ (1)
- 4.6 *Any TWO of: ✓✓*
• Not enough face-to-face communication with team members and management about the system - can lead to misunderstandings
• No working hours can lead to too much or too little work done.
• Lack of socialisation with other people at work.
• Feel isolated and not part of the team.
• Easily distracted from work
• Lack of technology
Also accept any other relevant and sensible answer (2)
- TOTAL SECTION C: 23**
[13]

SECTION D: PROGRAMMING AND SOFTWARE DEVELOPMENT**QUESTION 5: ALGORITHMS AND PLANNING**

- 5.1 5.1.1 *Any TWO reasons why combobox is better choice than textfield/editbox: ✓✓*
- Only the given options are available to choose from/ Categories supplied/User friendly
 - No spelling mistakes can be made
 - No need for extra validation required as options/answers are limited
 - No typing required – save time (2)
- 5.1.2 *Any ONE way of preventing both genders selected ✓:*
- Rather make use of radio buttons/radiogroup buttons instead of checkboxes.
 - Write code to prevent selection of both checkbox
 - Change selection component so that only one option can be selected for example a combo box or listbox (1)
- 5.1.3 Data will be *valid* because it will be in the correct range ✓ (13 to 18)
It will not necessarily be *correct* because an age of 15 can be given to a contestant of age 18. ✓ (2)
- 5.2 5.2.1 (a) B (Insert anomaly) ✓ (1)
- (b) Add the schools information to the **tblSchools** table before entering the information of the contestants ✓
OR
You can register a learner without entering the School_ID field ✓ (1)
- 5.2.2 (a) *Any TWO reasons why database is better data structure ✓✓*
- Referential integrity can be applied to prevent invalid entries
 - Neat reports can be created fairly quickly without requiring programming code
 - Queries can be created and executed on the content of a database
 - The availability of database forms for data input and validation before data is saved
 - Better organisation of data
 - Easier to manage database
 - Allows for different data types to be used
 - Database can be secured with use of passwords (2)
- (b) Foreign key ✓ (1)

tblPerformance		Criteria for the new table	Mark
Key	FieldName	<i>Descriptive table name</i>	✓
(PK)	PerformanceID	<i>Primary Key (a new key) OR use a combined primary key</i>	✓
(FK)	ContestantID	<i>Foreign Key (ContestantID)</i>	✓
	Category	<i>Extra fields splitting the Category and Description</i>	✓✓
	Description		

- (d) *Mark allocation:*
- Reference for one-to-many relationship - ONE mark
 - Linking the correct primary key to correct foreign key – ONE mark

Any ONE of: ✓✓

There is a one-to-many relationship between the tblContestants table (one) and the tblPerformances table (many)

OR

The ContestantID field (primary key) in the tblContestants table will be linked to the ContestantID field (foreign key) in the tblPerformances table creating a one-to-many relationship

NOTE:

- The answer must state which table is on the "one" side and which table is on the "many" side of the relationship.
- The use of a diagram to indicate the newly created relationship is acceptable

- 5.2.3 (a) An object is an instantiated ✓ class definition ✓
OR
An object is an instance of a class (2)

- (b) *Any ONE example of an appropriate object for this scenario ✓*
- Contestant
 - School
 - Performance
 - Any windows GUI control (e.g. button/label, etc.)

NOTE: Also accept object declarations using programming language (even if the syntax is incorrect) (1)

- (c) The declaration allows attributes to be (directly) accessed ✓ from outside the class ✓

NOTE: *Also accept any of the following explanations:*

- Defies OOP encapsulation principles/destroys the principle of hiding/protecting data
- If attributes are public – there is no programming control of access to the data values of the object (2)

- 5.3 5.3.1 **Line number** **Correction**
- 1 ✓ highest score ← 0 ✓
- 5 ✓ highest score ← arrScores[counter] ✓ (4)
- OR**
- The algorithm does not display/keep track of the name of the winner ✓✓
- OR**
- The coding to assign the name of the winner inside the IF-statement (lines 4–6) is missing ✓✓
- Winner ← arrNames[Counter]**
- 5.3.2 *Mark allocation:* (2x2)
- One mark for line number ✓ and one mark for pseudocode ✓
- NOTE:** Line numbers might differ according to learner solution
Insert inside IF-statement (lines 4–6)/ (before or after line 5):
- Name of winner ← arrNames[Counter]**
- Change line 9/10 to:
- Display the name of winner** (4)
- 5.4 5.4.1 *Any THREE DESIGN aspects of the system design document:*
✓✓✓
- A problem statement
 - Did research on input/output
 - The functions and properties of the software
 - Any restrictions/limitation
 - Type of interfaces that will be used, e.g. GUI or text
 - Requirements for data input/output
 - The amount of data the system will need to process
 - Data structures that will be used
 - Requirements regarding security and privacy
 - Any log in requirements
- Also accept any other relevant and sensible answer in respect of designing a software project* (3)

5.4.2 Any **THREE** aspects of a **TEST PLAN** ✓✓✓

- A control list of the programs specifications – make sure the program does what it is supposed to be doing
- Installation test – make sure the program installs correctly on the stated platforms, i.e. Windows/Mac/Linux
- Test input data: Make sure the program handles all data input/validation of data correctly
- Procedure to check the storing of data/the import and export of data
- Procedure to check requirements of printing against printing the system delivers
- Procedure to make sure the program works on various hardware and software configurations

Also accept any other relevant and sensible answer in respect of testing the software project (3)

5.4.3 Hardware and software requirements are required so that prospective clients may view the requirements before buying the software. ✓

Also accept any alternative correct motivation (1)

5.5 5.5.1 (a) *Parameters* are variables/constants/values ✓ that **are passed** to the function/procedure/method to process. ✓ (2)

- (b) *Data type*: Integer/number ✓ (accept all variations of Integer)
Calculations have to done/Do not have to convert string into numbers to do the calculations/Easier to do calculations directly with numbers/Makes provision for the expected range of values ✓

OR

Data type: String ✓
String values can be converted in the coding of the function/method. ✓

NOTE: Do not accept: Real or variations (2)

Structure: DELPHI	JAVA
TRY EXCEPT/FINALLY END	try catch final {optional section}

Explanation of each part:

- Try → code to be executed with possible errors occurring
- Except/Catch → when an error is encountered this code will be executed/handling the exceptions
- Finally/Final → the code is executed irrespective of the error occurring

Mark allocation:

- ONE mark for structure
- TWO marks for explanation of any TWO sections. (3)

5.5.3 NOT(validTime) OR NOT(validPass)
OR
(validTime = False) OR (validPass = False)
OR
NOT ((validTime = True) AND (validPass=True))
OR
NOT (validTime AND validPass)

TWO marks✓✓ or nothing

NOTE:

- Do not penalise for syntax
- Accept any other CORRECT logical condition (2)

5.5.4 (a) The loop tries to read data from the log text file which is closed inside the loop. ✓ (1)

(b) *Correction* ✓

- Move the "close log file" (line 10) to after the end of the while loop, i.e. after line 11.

OR

- Swap line 10 and line 11 (1)

TOTAL SECTION D: 48

SECTION E:**QUESTION 6: INTEGRATED SCENARIO**

- 6.1 6.1.1 **NOTE:**
- Any ONE correct motivation ✓✓
- If answered Yes:**
- Bluetooth has a range of 100 m if signal amplifiers are used.
 - Line of sight is not required
- If answered No:**
- Bluetooth has a limited range (around 10 metres) (the votes of many audience members will not be received by the server) (2)
- 6.1.2 3 Mbps ✓ (1)
- 6.1.3 *Any TWO of ✓✓:*
- The device needs to be paired with the server
 - The controller is not discoverable to the server
 - A password may need to be supplied to pair the two devices
 - The batteries need to be replaced
 - The device/server must be switched on
 - Reset the device/server
 - Bluetooth needs to be activated on both pairing devices (2)
- 6.2 6.2.1 *A relational database is a database with multiple tables✓ with relationships defined between tables✓ using keys. (2)*
- 6.2.2 *Any ONE of: ✓*
- MySQL
 - Microsoft SQL Server (MS SQL)
 - Postgres
 - Oracle
 - Microsoft Access
 - Paradox
- Also accept any other correct relational database software (1)*
- 6.2.3 *Any TWO responsibilities of database administrator: ✓✓*
- Make backups of databases
 - Ensure integrity of data
 - Do queries on data from database
 - Create and maintain user profiles
- Also accept any other correct answers (2)*

- 6.3 6.3.1 *Any ONE of (streamed):*
- Watching a video online✓ while it downloads in the background✓
- OR**
- Media content/video delivered continuously✓ over the Internet✓
- OR**
- Streaming is using a high bandwidth connection✓ to make continuous flow of data possible✓
- OR**
- Transmitted in continuous stream while earlier parts are being used, e.g. watching a live game while it is being played. (2)
- 6.3.2
- (Broadband) Internet connection✓
 - Digital video camera/computer/devices✓ (2)
- 6.3.3 *Any discussion on ONE issue (issue & motivation) OR TWO valid reasons: ✓✓*
- It's illegal to sell pirated copies
 - Bootlegging
 - The person doesn't have permission/rights to download the video from the Internet and then sell the video for personal gain
- Also accept any other correct answers* (2)
- 6.4 6.4.1 *Any TWO advantages of a wireless network over a cabled network: ✓✓*
- Less expensive to install/easy to setup
 - No need to use cables
 - More convenient as clients do not need to be at a network point to access the network
 - Easy to add another access point/computer/device
 - Mobility of devices (2)
- 6.4.2
- Wireless access point/Wireless router with access point ✓
 - WiFi adapter/WiFi network card✓ (2)
- 6.4.3 WiMAX✓
- NOTE: Do not accept: WiFi** (1)

- 6.5 6.5.1 *Any TWO of: ✓✓*
- Trojan horse
 - Key logger
 - Malware
 - Spyware
 - Rootkit
- NOTE:** Do not accept virus/worm (2)
- 6.5.2 *Scan the computer with any ONE of:✓*
- anti-virus
 - anti-malware software
 - anti-spyware
 - using task manager
 - (using the log of the) firewall (1)
- 6.5.3 *Any TWO of ✓✓:*
- (Have an up to date) anti-virus software installed
 - (Have an up to date) anti-spyware software installed
 - (Have an up to date) anti-malware software installed
 - Do not open any suspicious attachments in e-mails
 - Firewalls
 - Scan computer/removable media at regular intervals
 - Passwords
 - Encryptions
- Also accept any other correct alternative response to protect the computer from **software** access* (2)
- 6.6 6.6.1 *Any THREE functions of an operating system: ✓✓✓*
- Supply the users with a standard user interface
 - Manage computer resources such as memory, processor time and storage.
 - Supply the software developer with standard methods for aspects such as file handling, memory management, etc.
 - Process management - manage the execution of programs in memory
 - File management - by allowing users to create, save, delete, move and copy files onto secondary storage
 - Security of computer system
 - Networking capabilities (3)

- 6.6.2 *Any TWO advantages of proprietary OS over open source OS: ✓✓*
- More reliable
 - Is more widely tested
 - More user friendly/customer oriented
 - Better support available for anti-virus, firewall, anti-spam and anti-spyware
 - Is protected against changing the source code – open source changes may corrupt OS.
 - More software/applications is available for use
- (2)

- 6.6.3 *Mark allocation: ✓(not compatible) ✓(motivation)*
- Mac and Windows operating systems use different file systems and are built and operate very differently.
 - Not compatible/the various operating systems do not support software from different platforms
 - Different instruction sets
- (2)

- 6.7 6.7.1 RAID is a group of hard drives✓ with a special controller that manages multiple hard drives as one (large logical) drive.✓
- (2)

- 6.7.2
- With RAID 1 the data is mirrored✓ (on another disk whereas RAID 0 uses striping)
 - RAID 1 has high fault tolerance✓ (if access to one disk fails, the data is available on the other disk whereas with RAID 0 if any disk fails all the data is lost)

NOTE: Also accept an explanation why RAID 0 is not suitable

(2)

- 6.7.3 *Mark allocation:*
✓(example/fact) ✓(explanation/motivation of example/fact)

OR

Any TWO facts of why 'cloud' computing is beneficial for green solutions in terms of hardware:

- reduce the use of electricity as fewer hardware devices is required for onsite storage
- less resource intensive hard drives is required as the storage is taking place on the cloud
- by making use of cloud software the need for hard drives at user's station is not required
- the use of e-printing reducing the use of a printer at both nodes/it is no longer required to print documents as it is available in the cloud.

Also accept any other correct alternative answer

(2)

- 6.8 6.8.1 *Systems analyst*: analyses the requirements✓ of the client and designs a system/software✓ accordingly (2)
- 6.8.2 *Any TWO of: ✓✓*
- Network administrator/specialist
 - IT Technician
 - Webmaster/web designer
 - Computer programmer/software engineer
 - Security specialist/white-hat hacker
- NOTE: DO NOT ACCEPT:**
- database administrator
 - data capturer
 - system analyst (2)
- 6.9 *Any TWO aspects: ✓✓*
- Faster and improved data processing: (ANY ONE aspect)*
- counting of votes – faster electronically by clickers opposed to manual
 - more accurate – prevent human errors during counting process
 - using ICT as opposed to snail mail
- Improved data storage: (ANY ONE aspect)*
- large amounts of data can be stored in a small space/CD/DVD's as opposed to storage space/rooms required for storing paper votes/reports, etc.
 - duplicates (backups) can be created immediately – time consuming with paper votes
- Data communication (ANY ONE aspect)*
- Speed – information such as entry forms and results/reports can be sent much faster via the Internet using e-mails for example.
 - Professional reports can be compiled faster than handwritten reports.
 - Possible for the television audience to vote and process their votes as part of the event - not possible without ICT
- Accept any other correct and sensible answers (2)*
- 6.10 6.10.1 *Any ONE of ✓:*
- Google
 - Yahoo
 - Bing
 - Webcrawler
 - Aardvark
- Also accept any other correct/known Internet search engine (1)*

6.10.2 Any **TWO hints**✓✓ and two corresponding examples ✓✓
Mark allocation for each hint:

- Hint for search – one mark per hint
- Example applicable **to this scenario** – one mark per example

Hint	Example – accept any correct alternative examples
Use keywords related to the competition	talent competition
Make use of Boolean operators	talent AND competition
Do not use too specific search criteria - no results may be produced	Entry level for talent amongst young people
If no results were obtained - check the spelling of the words used	Talent comp <u>a</u> rtition { <i>spelling mistake made</i> }
Use advanced search features/options	Use a date range
Use synonyms	Talent contest instead of talent competition
Specific search phrase in quotes/be more specific	"talent competition"

(4)

TOTAL SECTION E: 50
GRAND TOTAL: 180