



education

Department:
Education
PROVINCE OF KWAZULU-NATAL

<SCHOOL NAME>

**NATIONAL
SENIOR CERTIFICATE**

COMPUTER APPLICATIONS TECHNOLOGY

GRADE 12

PAPER 2: THEORY

MARKING GUIDELINE/MEMORANDUM

18 SEPTEMBER 2014

MARKS: 150
TIME: 3 hours

This marking guideline/memorandum consists of 20 pages.

SECTION A**QUESTION 1: MULTIPLE CHOICE**

- 1.1 D ✓ (1)
- 1.2 B ✓ (1)
- 1.3 B ✓ (1)
- 1.4 D ✓ (1)
- 1.5 D ✓ (1)
- 1.6 A ✓ (1)
- 1.7 B ✓ (1)
- [7]**

QUESTION 2: MATCHING COLUMNS

- 2.1 M ✓ (1)
- 2.2 P ✓ (1)
- 2.3 N ✓ (1)
- 2.4 L ✓ (1)
- 2.5 J ✓ (1)
- 2.6 D ✓ (1)
- 2.7 E or B ✓ (1)
- 2.8 F ✓ (1)
- 2.9 A ✓ (1)
- 2.10 H ✓ (1)
- [10]**

QUESTION 3: MODIFIED TRUE/FALSE

- 3.1 True ✓
- 3.2 False ✓ – A **bug** ✓ is an error created by accident in the development of a program.
- 3.3 False ✓ – A **keylogger** ✓ is a spyware program that records your keystrokes to capture secure information like passwords.
- 3.4 False ✓ – Select **Reject Change** ✓ in the Tracking Changes option when you want to remove any proposed changes from another author/user.
- 3.5 True ✓

Sub-Total: [8]

SECTION B

QUESTION 4: SYSTEMS TECHNOLOGIES

4.1.1 GUI

A GUI allows the user to interact with the computer ✓ by using graphical elements ✓ instead of text commands to instruct the computer what to do. (2)

4.1.2 TWO items/features of a GUI

- icons
 - buttons
 - tabs
 - drop-down boxes
 - windows
 - menus
 - links
 - scrollbars
 - labels
 - checkboxes
 - radio buttons
 - sliders
 - spinners
- (Any TWO ✓✓ or other valid answer) (2)

4.2 TWO technologies used for daily data backups, other than optical media

- RAID technologies
 - Cloud computing technologies
 - External hard drive
- (Any TWO ✓✓) (2)
- (Do not accept Bluray as an answer as it is an optical medium)*

4.3 Archive

An archive is a collection of many files that have been packaged together for backup, ✓ so that they can be transported away from the computer to another location. ✓ (2)

4.4 How to find out what applications are currently running on your pc

- Access the Task Manager (Windows OS) by pressing CTRL+ALT+DELETE and then select the option Start Task Manager
 - Right click on the Task bar and then select the option Start Task Manager.
- (Any ONE ✓) (1)

4.5 Print spooler and buffer

- The print spooler is a program that controls the print jobs sent to the printer. ✓
- The buffer stores the print jobs in a temporary memory space. ✓

(The print jobs are stored in a temporary memory space called the buffer. A buffer is an area in RAM or on the hard drive in which items are placed while waiting to be transferred from an input device or to an output device. The process of sending documents to be printed to a buffer instead of directly to a printer is known as spooling. The print spooler is the program that controls the print jobs sent to the printer.)

(2)

4.6.1 TWO major differences between USB 2.0 and USB 3.0

- Speed: USB 3.0 offers increased transfer rates ✓ up to 4.8 Gbps/new connectors and cables that facilitate the higher transfer speeds
- Power: Increased maximum bus power ✓ /improved power management /additional power

(2)

4.6.2 Storage vs RAM

- Secondary memory (storage) is used for holding all programs & data, ✓ irrespective of whether they are currently being used or not – a lot of space is needed.
- Primary memory (RAM) is used for holding only those programs and data currently being used while the computer is switched on ✓ – less space needed.

(2)

4.6.3 Caching

Caching is a process where data that is used often ✓ is kept in a place where it is quicker to access. ✓

(2)

4.6.4 Web caching

Web caching ✓ saves websites that you visit often onto your computer. ✓ In this way, the website can be loaded from storage on your computer instead of downloaded from the website each time. ✓

(3)

4.6.5 TWO possible reasons for an early release of Windows 8.1

- To include new features of Windows/the operating system
- To make Windows more familiar and convenient for devices that use touch and mouse input
- To make Windows available on a wider variety of devices, so you have more to choose from
- Updates also include security and performance updates with the latest security protection
- To fix any software bugs that were detected in the previous version.

(Any TWO ✓✓)

(Accept any other correct answer) (2)

4.6.6 TWO advantages SSD

- Much faster than normal hard drives
- No moving parts and therefore can't be damaged if dropped or being moved while in use
- Much more energy efficient
- Durable
- Run quieter than mechanical hard drives

(Any TWO ✓✓)

ONE disadvantage SSD

- More expensive than traditional hard drives
- Smaller capacity than traditional hard drives

(Any ONE ✓) (3)

[25]

QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES

5.1 Internet - type of network

- WAN
- GAN

(Any ONE ✓) (1)

5.2 TWO communication methods to connect in a network

- Microwaves
- Radio waves
- Satellites

(Any TWO ✓✓)

(Accept any other correct response)

(Do not accept cables – was part of the question) (2)

5.3.1 Transfer of files over the Internet

File transfer protocol (FTP) ✓ sets the rules/standards for the way in which files will be transferred or exchanged over the Internet. (This includes uploading and downloading files.)

(1)

5.3.2 Transfer of a web page to a web server

Upload ✓ /uploading

(1)

5.3.3 Telephone calls over the Internet

Voice Over Internet Protocol ✓
(Do not accept the acronym VoIP)

(1)

5.4 TWO advantages of grid computing.

- Much more efficient use of idle computer resources.
- Organisations do not need to outlay large amounts of money to buy powerful servers to perform complex processing.
- Since tasks are distributed among various computers, there is no single point of failure.
- Jobs can be executed in parallel thereby improving performance.
- Upgrading can be done easily by staggering downtime.

(Any TWO ✓✓)

(Accept any other correct response) (2)

5.5 Cloud computing

Cloud computing uses the Internet ✓ to make use of applications and storage that is hosted on servers ✓ (2)

5.6 Web browser plug-in is and include ONE example

A web browser plug-in is an extra piece of software that is an add-on program ✓ that gives a web browser more functions ✓

For example: a Photoshop plug-in ✓ (such as Eye Candy) may add extra filters that you can use to manipulate images.

OR

A browser plug-in (such as Macromedia flash or Apple QuickTime) allows you to play certain multimedia files within your web browser.

(Accept any other correct response) (3)

5.7 ADSL and LTE (Long Term Evolution)

ADSL runs on a fixed line (such as the telephone line) and is not dependent on a signal for connectivity. ✓ The service is reliable and is an 'always on' connection.

LTE runs on mobile technology which is dependent on a signal for connectivity. ✓ (2)

[15]

QUESTION 6: INFORMATION MANAGEMENT

6.1 TWO requirements of the PAT in CAT

- A short description of the problem and the task
- A researchable focus question
- A set of *high quality* questions
- A list of appropriate information *sources*
- A questionnaire
- Sifting, evaluation and summary of *information*
- Management, processing and analysis of data and information (spreadsheet and database)
- A report regarding your investigation
- A simple website which conveys information about the topic you investigated

(Any TWO ✓✓)

(2)

6.2 ONE purpose for creating a list of research questions

A list of research questions:

- will provide a place to get started with your research/guide your research
- will allow you to efficiently locate and retrieve the most relevant knowledge possible to support your proposal.
- can help prevent you from getting off track as you sift through large quantities of information
- can help keep you get organized as you begin writing.

(Any ONE ✓)

(1)

6.3 Questionnaire explanation and purpose

- Questionnaire is a form containing a set of questions submitted to people ✓
- Purpose: to gain statistical information/to use for statistical analysis ✓

(2)

6.4 Spreadsheet problem – cause and solution

Cause:

One of the users sharing the spreadsheet made modifications to it by creating a new column and/or placed the columns in a new order. ✓

Solution

- Do not allow respondents to change the receiving sheet / Lock the spreadsheet / Make the whole file read-only/view-only
- Go to revision history and revert the spreadsheet/form to a previous version to at least save previous submissions.

(Any ONE ✓) (2)

6.5 Database vs Spreadsheet

- To provide users with a DB form to enter data
- Multiple users can edit the DB at the same time
- Easier to perform queries to find specific information
- To produce database reports
- DB are able to store more data than a spreadsheet
- When there is a need to relate or link data
- When it is not necessary to perform numerous calculations

(Any TWO ✓✓) (2)

6.6 ONE possible problem of relying only on the Internet for information

- Anyone can put anything they want on a Web site, there is no review or screening process, and there are no agreed-upon standard ways of identifying subjects and creating cross-references. / Printed resources you find in the Library have almost always been thoroughly evaluated by experts before they are published.
- Some articles may contain errors (*Wikipedia says, “We do not expect you to trust us.” It adds that it is “not a primary source” and “not use Wikipedia to make critical decisions.”*)

Wikipedia notes in its “About” section, “Users should be aware that not all articles are of encyclopaedic quality from the start: they may contain false or debatable information.”)

(Any ONE ✓) (1)

Sub-Total: [10]

QUESTION 7: SOCIAL IMPLICATIONS

7.1 TWO negative effects of technology on people's lives

- Dangers of online predators
- Social networks can be addictive
- Loss of productivity in the workplace/at school – may cause you to lose your job/may cause a decline in academic performance
- Mistake cyber/casual friends for real friends
- Exposure to cyber stalking/cyberbullying
- Lack of physical exercise may lead to poor health/obesity/RSI/CTS, etc.
- Lack of social skills/poor human relations/isolation
- Pollution/e-waste is not always disposed of properly
- Lack of privacy/the use of phishing, viruses and hacking helps to find any information

(Any TWO ✓✓) (2)

7.2 Purpose of using parental control software

- To restrict the exposure to inappropriate online content such as pornographic websites/videos, etc.
- To effectively monitor and regulate children's online activities
- To ensure children's online experience is safe and secure.

(Any ONE ✓) (1)

7.3 ONE reason for 'airplane mode' or 'flight mode'

- Mobile computing devices can potentially impact on aircraft avionics ✓ or interfere with ground mobile networks if the WiFi and Bluetooth capabilities are not de-activated
(After the selection of flight mode these mobile device can be used as normal. Receive-only technologies like FM radio and GPS still operate if the device is so equipped)

(1)

7.4 Updating anti-virus software and/or a firewall.

- Anti-virus software detects viruses based on the virus/signatures/definitions it has at its disposal, so it needs to be updated to fight new virus strains. ✓
- A firewall works on a set of rules that can be set to allow/prevent programs access to and from the Internet and therefore does not need updating. ✓

(2)

7.5.1 DoS or DDoS attack

- A Distributed Denial of Service attack uses computers to send millions of message requests to a server ✓
- Goal of a DDoS is to overwhelm and crash the server ✓ (A large DDoS attack can affect global Internet traffic.) (2)

7.5.2 TWO ways to fix the problem of a botnet application

- Reformat/complete system wipe ✓
- Backup restoration ✓ (2)

Sub-Total: [10]

QUESTION 8: SOLUTION DEVELOPMENT

8.1.1 Identify THREE errors in the HTML coding

- **Line 3**
Closing title tag should be </title>
- **Line 4**
Body colour specified as 'white' – should be another colour or do not specify a background colour as the background colour is white by default
- **Line 6**
Horizontal rule should be coded as <hr />
- **Line 8 & 9**
No closing/opening paragraph tags between the two sentences 'Make every drop ...' and 'No water, No life!'
- **Line 10**
Closing underline tag has no matching opening underline tag
- **Line 11**
Font size has not been specified/changed in this line
Closing head tag should be after title tag and before the opening body tag

(Any THREE ✓✓✓) (3)

8.1.2 TWO other types of programs or web-design tools

- Tag editor (that have a GUI)
- WSIWYG (what you see is what you get) programs
- Web authoring programs, e.g. Dreamweaver, FrontPage, etc.

(Any TWO ✓✓) (2)

8.2.1 Purpose of the DATE function

- The DATE function is often used to ensure that dates entered into other formulas are in the correct format so that they can be used in calculations.
- The DATE function can also be used to convert a given date into the computer's serial date.

(Any ONE ✓)

(The DATE function is used to add a date to a spreadsheet. The date added does not have to be the current date.) (1)

8.2.2 Suitable function for the current date in a SS

- =TODAY() ✓ returns the current date.

(Accept =NOW () which will return the current date and time) (1)

8.3.1 Problem with DB query

Problem: The required result, i.e. names and contact numbers that start with '083', will be not returned ✓ / wrong result will be returned

Reason: No criteria was used in the query ✓ (2)

8.3.2 Wildcards characters in DB criteria expressions.

- The question mark character (?) serves as a single-character placeholder ✓, e.g. Like "Sm?th"
- The asterisk (*) matches no character or any character or any block of characters in a specific position, ✓ e.g. "*Access*"
- The hash tag (#) matches the numeric digits 0 through 9 ✓

(Accept if learners have explained by means of an example) (3)

8.4.1 Widow/orphan control

- Both widows and orphans in your documents break up the flow of the text ✓ and tend to distract the reader (1)

8.4.2 Widow control

- A widow is the last line of a paragraph left by itself at the top of a page ✓ (1)

8.4.3 Orphan control

- An orphan is the first line of a paragraph left by itself at the bottom of a page ✓ (1)

Sub-Total: [15]

SECTION C**QUESTION 9: INTEGRATED SCENARIO****9.1 Specifications/requirements for photo/video editing**

- Higher processing power (CPU)
- High-end graphics cards
- More storage space

(Any TWO suited for the purpose ✓✓) (2)

9.2.1

WAY/ TOPIC	EXPLANATION	
	LINUX	WINDOWS
Price	The majority of Linux variants are available for free or at a much lower price than Microsoft Windows.	Have to purchase MS Windows license(s).
Ease	Although the majority Linux variants have improved dramatically in ease of use, Windows is still much easier to use for most computer users because of the familiarity of Windows and because it's more likely they are using a Windows computer at home, in school, or at the office.	Microsoft has made several advancements and changes that have made it a much easier operating system to use, and although arguably it may not be the easiest operating system, it is still easier than Linux.
Reliability	The majority of Linux variants and versions are notoriously reliable and can often run for months and years without needing to be rebooted.	Although Microsoft Windows has made great improvements in reliability over the last few versions of Windows, it still cannot match the reliability of Linux.
Software	Linux has a large variety of available software programs, utilities, and games. However, Windows has a much larger selection of available software.	Because of the large amount of Microsoft Windows users, there is a much larger selection of available software programs, utilities, and games for Windows.
Software Cost	Many of the available software programs, utilities, and games available on Linux are freeware or open source, e.g. OpenOffice.	Although Windows does have software programs, utilities, and games for free, the majority of the programs come at a price.
Hardware	Hardware manufacturers have made great advancements in supporting Linux but still will not support most hardware devices.	Windows has a much larger support for hardware devices and almost all hardware manufacturers will support their products in Microsoft Windows.
Security	Linux is and has always been a very secure operating system. Although it still can be attacked when compared to Windows, it is much more secure.	Microsoft Windows operating system continues to be the most vulnerable to viruses and other attacks.
Open Source	Many of the Linux variants and many Linux programs are open source and enable users to customize or modify the code however they want to.	Microsoft Windows is not open source and the majority of Windows programs are not open source.
Support	Although it may be more difficult to find users familiar with all Linux variants, there are vast amounts of available online documentation and help, available books, and support available for Linux.	Microsoft Windows includes its own help section, have vast amount of available online documentation and help, as well as books on each of the versions of Windows.

(Any TWO ways ✓✓ related to both OSS and proprietary software) (2)

9.2.2 Windows operating system utility to diagnose and 'fix' a flash disk

- Device Manager ✓ / System and Maintenance (in the Control Panel) (1)

9.2.3 EULA

EULA is a legally binding contract ✓ between the user and the software company. It describes what you may and may not do with the software. (1)

9.3.1 TWO reasons for wired technology for data transfer

- faster and more robust than wireless connections
- more secure than wireless connections
- easy to set up and troubleshoot
- no extra wireless equipment is needed

(Any TWO ✓✓) (2)

9.3.2 TWO problems with wireless technology for data transfer

- performance can be affected by walls, electrical interference, etc.
- slower than wired connections
- unauthorised users might try to use your connection (which is why security is so important)
- a wireless USB adapter may be needed and top speeds require the latest PC

(Any TWO ✓✓) (2)

9.4.1 TWO features of smartphones

- smartphones have more advanced computing capabilities and connectivity than basic cell phones / combine the features of a mobile phone with those of another computing devices such as: PDA, media player, digital camera, GPS, web browsing, WiFi, 3rd party apps, motion sensor and mobile payment
- they most often use a touch screen interface
- support wireless Internet use

(Any TWO ✓✓) (2)

9.4.2 Message thread

- A message thread/threaded discussion is a group of discussions or newsgroup articles ✓ consisting of the original discussion or articles and then all subsequent and related comments. ✓ (2)

9.5.1 The edges of the document did not get scanned

- Re-position the document and align it correctly on the scanner ✓ (1)

9.5.2 The OCR application cannot recognise any text in the scanned document

- Make sure that the document is clear
- Increase the scanning resolution (Any ONE ✓) (1)

9.5.3 TWO possible ways to store more photos on a digital camera

- Install a memory card with more storage space
- Lower the resolution of the photographs the camera takes, etc. (Any TWO ✓✓) (2)

9.5.4 Metadata

- ISO speed
- Aperture
- Whether the flash was used
- The GPS location the photograph was taken at
- Camera brand and model
- Shutter speed, etc. (Any ONE ✓) (1)

9.6.1 Word processing vs PowerPoint

- Word processing is used for text-based documents whereas PowerPoint is used for dynamic visuals/images/presentation
- In word processing full articles are written in paragraph form whereas in a presentation application information is given in point form – may not be easy to gauge what is being implied
- Presentation is used normally when a presenter wants to share the information with an audience in an interactive way whereas word processing is normally used for reporting in the form of a handout

(Accept TWO valid reasons for WP ✓✓)
(Accept any other correct response related to WP) (2)

9.6.2 TWO methods of solving printer problems

- Check to ensure that the printer is still connected, via USB or Ethernet cable or—if a wireless model—that the Wi-Fi is enabled and that you're connected to the right network
- Check that the printer driver is updated/the printer driver and software is installed on the computer that is to be printed from. (It's possible that the driver has become corrupted; it should be reinstalled; check the manufacturer's download page for the latest version.)
- Check that the printer cartridges still have ink in them/check that there is paper in the paper tray/check that there is not a paper jam.
- Consult the support section of your printer manufacturer's website for model-specific troubleshooting tips/Use the operating system's printer troubleshooter.

(Any TWO ✓✓) (2)

9.6.3 TWO page set-up options to print the report in multiple pages

- Two pages per sheet
- Booklet/Book fold
- Mirror margins

(Any TWO ✓✓) (2)

9.7.1 THREE design elements to be considered in designing a web page

- suitable for target audience
- colours must work well together
- suitable for colour-blind/visually impaired readers
- fonts at different screen resolutions
- logical flow of content/users can find information quickly
- content well laid out and not cluttered/attractive
- must have 'white' or empty space for easy reading
- no 'white' or empty space
- body of text limited to not more than 80 characters per line
- links direct users to more detail or other interesting sources/ease of navigation
- content updated regularly, etc.

(Any THREE ✓✓✓)

(Accept any other correct response)

(3)

9.7.2 Adding a report to a website

- Link✓ / hyperlink (1)

9.8 TWO possible advantages of using an e-reader

- more portable, i.e. easier to demonstrate to people while promoting the conservation club
- can use the inbuilt dictionary to look up words, make notes, have moving images
- e-reader has dedicated features – optimised for reading books onscreen
- rare books are easier to find
- can store hundreds of books on one device, etc.

(Any TWO ✓✓) (2)

9.9.1 THREE criteria to be considered when choosing a broadband package

- Mobility
- Speed of the line or connection
- Cap: shaped/unshaped
- ISP
- Area of coverage

(Any THREE ✓✓✓)

(Do not accept cost as answer) (3)

9.9.2 TWO advantages of using a 3G connection

- easy to install (plug into a USB port)
- don't need access to a telephone line/can get data anywhere, any time
- 3G network is fast/Downloading songs and games is much faster compared to older technologies
- small – take them with you and have Internet access on any computer
- Enables users to be updated on the latest news and headlines, the weather, sports and economic details, etc.

(Any TWO ✓✓) (2)

9.10 Crowd funding

Crowd funding is a process where a single idea or business practice is funded by multiple small donations from volunteer contributors, ✓
usually before the business venture is started

The contributors will then receive a small gift when the project is initiated ✓ (2)

9.11.1 Geo-tagging

Geo-tagging is a process where the geographical location of an item ✓ is added to the metadata of the file using its longitude and latitude ✓ (2)

9.11.2 Device associated with Geo-tagging

- Modern/digital cameras ✓ (1)

9.12.1 People who access a computer illegally

Hackers ✓ (1)

9.12.2 Purpose of an online forum

- An Internet forum, or message board, is an online discussion site ✓ where people can hold conversations in the form of posted messages ✓ (2)

9.12.3 Name for this kind of cyber-attack

- Phishing ✓ (1)

9.12.4 Advice for Gmail account holders

- change their current Gmail password ✓
(and use a two-step verification method) (1)

9.13.1 Input devices for those with poor eyesight

- Braille keyboard
- Magnification devices
- Large-key keyboards

(Any ONE ✓)

(Accept only INPUT devices - Do not accept screen magnification devices, etc.) (1)

9.13.2 Input devices for the physically challenged

- Eye tracking devices
- Head movement devices
- Large-key keyboards
- Large trackballs
- Joysticks
- Foot pedal control devices
- Sip-and-puff devices, etc.

(Any ONE ✓)

(Accept only INPUT devices - Do not accept screen magnification devices, etc.)

(1)

9.13.3 Skype

Skype requires a lot of bandwidth, which could become expensive if the club exceeds their monthly cap. ✓

(1)

9.13.4 Sharing of photographs

- Dropbox/SkyDrive/Google Drive, etc.
- E-mail attachments
- Social networking sites
- FTP programs, etc.

(Any ONE ✓)

(Accept any other valid response)

(1)

Sub-Total: [50]