



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2024

COMPUTER APPLICATIONS TECHNOLOGY: PAPER II

MARKING GUIDELINES

Time: 3 hours

150 marks

These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines. It is also recognised that, without the benefit of attendance at a standardisation meeting, there may be different interpretations of the application of the marking guidelines.

SECTION A

QUESTION 1

1.1 1.1.1 B

1.1.2 A

1.1.3 C

1.1.4 D

1.1.5 B

1.1.6 C

1.1.7 D

1.1.8 D

1.2 1.2.1 A personal digital assistant, also known as a handheld PC, is a multi-purpose mobile device which functions as a personal information manager.

OR

A handheld computer that serves as a tool for reading and conveying documents, electronic mail, and other electronic media over a communications link, as well as for organising personal information, such as a name-and-address database, a to-do list, and an appointment calendar.

1.2.2 A small business that is often run out of small office spaces, homes, or even virtually.

OR

A small office, especially one in someone's home

1.2.3 A humorous image, video, piece of text, or GIF that is spread across the Internet, typically on social media, and often with slight variations

1.2.4 NIC is a hardware component, installed on a computer so it can connect to a network.

OR

It is a computer hardware component that connects a computer to a computer network.

1.2.5 An address on the Web which is a reference to a resource that specifies its location on a computer network and a mechanism for retrieving it.

OR

The address of a given unique resource on the Web.

QUESTION 2

- 2.1
 - 2.1.1 F
 - 2.1.2 C
 - 2.1.3 I
 - 2.1.4 G
 - 2.1.5 D
 - 2.1.6 P
 - 2.1.7 L
- 2.2
 - 2.2.1 Virtual reality
 - 2.2.2 Digital Camera/Smartphone
 - 2.2.3 Read only
 - 2.2.4 Ctrl + X
 - 2.2.5 Backward compatibility

SECTION B

QUESTION 3 SYSTEM TECHNOLOGIES

3.1

Question number	
3.1.1	Power supply unit OR PSU
3.1.2	Wireless Headset Microphone
3.1.3	Microsoft Paint OR Paint App
3.1.4	Acts as a temporary storage location for files and folders that have been deleted from the computer. (Any suitable answer that indicates that it is used to keep deleted files.)
3.1.5	It provides sound as output from the computer and can be connected wirelessly. OR via Bluetooth to a device.

3.2 3.2.1 Code assigned to software which users need to enter to install and use the software.

OR

A unique alphanumeric code or series of characters, typically required during the installation process of software or a digital product.

OR

It serves as a form of authentication or activation, granting the user access to the software and confirming that it has been legally obtained.

3.2.2 Prevents (software) piracy or ensures that users pay for the program

- 3.3
- They have been replaced by other (more efficient) portable devices such as flash drives and external hard drives.
 - Software and entertainment (games, music, video, etc.) are now distributed/downloaded via the Internet.
 - Saves physical space and weight in portable computers/portable computers can be designed to be thinner and lighter.
 - Optical drives consume power when in use, contributing to reduced battery life. By eliminating the optical drive, manufacturers can optimise battery performance and extend the time between charges, which is a crucial factor for portable devices.
- 3.4
- Newer hard drives often have faster read/write speeds, reducing loading times for applications and files.
 - Upgrading to a solid-state drive (SSD) from a traditional hard disk drive (HDD) can significantly improve overall system responsiveness and boot times due to SSDs' faster data access speeds.
 - Additionally, a larger capacity drive could alleviate storage constraints, preventing slowdowns due to insufficient disk space.
- 3.5 More accurate when capturing code.
Efficient with stock (inventory) control.
- 3.6
- Computer is more than eight years old.
 - There are only a few compatible components / no components available anymore.
 - Price of the components is close to or more than new components/ computer.
 - Investing in a newer model ensures compatibility with upcoming software updates and emerging technologies, reducing the need for frequent upgrades in the long run.
 - Upgrading a computer requires time and effort to research compatible components, perform the installation process, and troubleshoot any issues that may arise.
- (Any **TWO** of the above)
- 3.7 3.7.1 Inkjet Printer: 1, 4
- Laser Printer: 1, 2, 3
- 3.7.2 Laser
- 3.7.3 The process works by laying down thin layers of material in the form of liquid or powdered plastic, metal or cement, and then fusing the layers together.

OR

Materials are dispensed through a hot nozzle or precision tool and then laid layer by layer to produce a 3D object.

3.8 3.8.1 System software/Operating system

3.8.2

Linux	Windows
Open-source and free	Paid operating system
Linux has machine-friendly features, and the user must learn to use Linux.	Windows uses Graphical User Interface, and any non-technical user can use it without getting into tech-knowledge.
Linux leads in server and supercomputing markets.	Windows dominates in personal and enterprise computing.
Linux has a vast array of open-source software.	Windows has a broader range of commercial software.

QUESTION 4 INTERNET AND NETWORK TECHNOLOGIES

- 4.1 4.1.1 Malicious software that enters a user's computer, gathers data from the device and user, and sends it to third parties without their consent.
- 4.1.2 **Spyware** can track user behaviour, gather personal information (such as login credentials, financial data, and browsing habits), and even record keystrokes (keylogging).
The main goal of **phishing** is to deceive victims into providing confidential information that can be used for fraudulent activities.
- 4.2 4.2.1
- Drop-down boxes / onscreen / virtual keyboard.
 - Only requires part of the password.
 - Two-step verification/Two-factor authentication.
 - Use a biometric device.
- 4.2.2
- Drop-down boxes / onscreen / virtual keyboard:
 - Means key logger cannot collect data.
 - Only requires part of the password:
 - Hacker doesn't get the full password.
 - Two-step verification/Two-factor authentication:
 - Extra data is sent to device making it more difficult for hacker to obtain it.
 - Data has to be entered into the same system/if attempted from a remote location, it will not be accepted.
 - Use a biometric device:
 - The person's biological data (e.g. their fingerprint) is also required.

4.3

Term	Description
HTML	The language used to create a web page.
Browser	The type of software application used to display a web page.
IP address	An address given to a computer, by a network, to allow the computer to be uniquely identified.
Cookie	A text file sent by a web server to collect data about a user's browsing habits.
ISP	The company that provides a connection to the Internet.

- 4.4 4.4.1 Caching is memory that stores frequently used data, instructions or webpages so that they display more quickly when they are opened again.

4.4.2 Reduces bandwidth usage

Allow previous visited pages or data used to load quicker.

- 4.5
- Get a faster (higher bandwidth) connection / switch to fibre / 4G.
 - Connect when less Internet traffic.
 - Make sure VoIP software/Skype is updated to the latest version.
 - Don't overload your Internet with other tasks (e.g. while video conferencing) – close other tasks on the internet.
- 4.6 Grid computing refers to the use of multiple computers / servers for processing / solving problems / as if it is one computer / pooling resources

QUESTION 5 INFORMATION MANAGEMENT

- 5.1
 - Check the information against more than one source and cross-reference them to see whether the information can be substantiated.
 - Check the bibliography or other references where you can access other sources that support the information.
 - What is possibly missing from the source?
 - Check that the information is free of errors – sources that have spelling and grammar mistakes might be inaccurate in other ways as well.
 - Check whether the source ties in with what you already know.
 - How often has the information been used?

5.2 5.2.1 Copyright – Legal restrictions on copying and distribution of intellectual material.

5.2.2 Plagiarism – Passing off someone else's work as your own.

5.3 5.3.1 The impact on the head during physical encounters.

OR

The force of which the player is biting down on the mouthguard.

5.3.2 The data received from the mouthguard will be processed to determine the seriousness of the impact/force of the physical aspects of the game.

OR

Capture data related to the player's movements during acceleration or deceleration, and rotational forces experienced by the head and body.

5.3.3 The result will determine whether the player should leave the field to go for a head injury test.

OR

If the player should be rested for the next few games.

- 5.4
 - Add a Chart title
 - Use Legends
 - Use Axes/series labels
 - Use Gridlines
 - Add data labels
 - Add Colours
 - Use trend lines
 - Select the correct chart type

QUESTION 6 SOCIAL IMPLICATIONS

6.1 Saving paper:

- Use electronic documents instead of printing
- Preview documents before printing
- Print on both sides

Saving on communication cost:

- Using email to communicate
- Using social media to send messages
- Using VoIP instead of telephone calls

Saving time:

- Typing letters is faster than writing
- Calculations of marks on Excel is faster than using a calculator
- Email is faster than traditional mail

6.2 6.2.1 Social engineering is a tactic used by attackers to manipulate individuals into divulging sensitive information, in order to commit some sort of computer fraud.

6.2.2 Examples of scenarios where reverse social engineering could occur include:

- A phone call from someone claiming to be a vendor, persuading an employee to disclose account details.
- An attacker posing as a job applicant, gaining access to confidential information during an interview.
- The attacker, posing as a legitimate employee, sabotages a company's internal network or systems, causing connectivity issues or software malfunctions and then offering the solution.

Note to marker: Any suitable example may be accepted, whereby reverse social engineering leverages the victim's trust and initiative to seek help, making it a potent method for gaining unauthorized access or information that will be given. may be accepted.

6.3 - Power related problems - Poor maintenance - Overheat - General poor care for device (Any **TWO** of the above)

6.4 Advantages:

- Quick access to information and the amount of information available.
- Communication is almost instant and breaks the distance.
- Sharing of text, images, videos etc. is easier.
- Virtual communities are set up for people with similar interest.
- Providing entertainment.
- Increased productivity and efficiency.
- Creating jobs.
- Shopping and online banking has contributed to an easier lifestyle.

Disadvantages:

- Available information leads to information overload.
- Loss of face-to-face interaction.
- Cyber-bullying, cyber-crime, cyber-stalking.
- Computers/AI replacing employees.
- Difficulty to protect your information/identity theft.
- Loss of money.
- The effect on the environment.
- Leads to addiction.

(Any **TWO** of the above)

6.5 Software

Network

Accept or reject **OR** Reject or accept

Hacking

QUESTION 7 SOLUTION DEVELOPMENT

- 7.1
- Save in an earlier/lower version.
 - Open on a PC that has the correct software installed.
 - Download and install a patch.
 - Try opening in another program e.g. Open Office.
- 7.2
- Captions are always consistently positioned.
 - The format of the captions is always consistent.
 - Captions will update when any relevant change is made in document.
 - Will show in any table of figures / graphs / tables.
 - Captions are automatically numbered consecutively.
- 7.3 A function is built-in to the application.
A formula is a calculation using a combination of cell references, operators, etc.
- 7.4 7.4.1 A validation rule can be added to specific field that restricts values of more than 100.
- 7.4.2 Validation rule: ≥ 0 and ≤ 100
OR
Between 0 and 100

SECTION C

QUESTION 8 INTEGRATED SCENARIO

8.1 Bluetooth **OR** NFC

8.2 8.2.1 Radio Frequency Identification

8.2.2 RFID uses a system of tags, readers, and computer servers to allow door access via radio waves to registered residents who present the correct credentials.

OR

Uses radio waves sent via an RFID antenna to RFID tags in the surrounding area.

8.3 8.3.1 Biometrics

8.3.2 Any example given describing the following:

- Access control
- Security purposes
- Identification purposes

8.4 8.4.1 • Touch screen
 • Keyboard
 • Microphone
 • Mouse

8.4.2 • Headphones
 • Speakers
 • Printer
 • Light/LED

8.4.3 • Reliability: Fibre-optic cables are less susceptible to interference and degradation over distance compared to copper cables used in ADSL. This means fibre connections tend to be more reliable with consistent performance, especially over long distances.
 • Higher bandwidth capacity: Fibre-optic cables have a much higher bandwidth capacity compared to copper cables used in ADSL. This means fibre connections can handle more data simultaneously without experiencing congestion or slowdowns, making them suitable for households or businesses with high data usage requirements.
 • Futureproofing: Fibre-optic technology is considered more future-proof compared to copper-based technologies like ADSL. As internet usage continues to grow and demand for higher speeds increases, fibre-optic connections can easily accommodate these changes without needing significant upgrades.
 • Security: Fibre-optic connections are more secure than traditional copper-based connections because they don't radiate electromagnetic signals that can be intercepted. Additionally, tapping into a fibre-optic cable to intercept data is much more difficult compared to copper cables.

- Environmental Factors: Fibre-optic cables are immune to environmental factors such as electromagnetic interference, lightning, and moisture, which can degrade the performance of ADSL connections.
- Long-Term Cost Savings: While the initial setup costs for fibre-optic infrastructure may be higher than ADSL, in the long run, Fibre connections can provide cost savings due to their reliability, scalability, and lower maintenance requirements.

- 8.4.4
- QR code is scanned using a camera/App on a mobile device.
 - Read/decoded using an application/software.
 - Opens document with information or directs to website with information.
 - QR code can be saved for future reference.

8.5 8.5.1 A primary key is a unique value that identifies a record.

8.5.2 ID number or booking number

- 8.6 8.6.1
- Faster than collecting by manual means.
 - Cheaper – you can save on research costs.
 - More accurate as responses go directly into the system.
 - Quick to analyse.
 - Easier for researchers to manipulate data.
 - More honest responses.
 - More flexible as the order of the questions can easily be changed.

8.6.2 Drop-down form field/checkbox

- 8.7 8.7.1
- SD card
 - USB flash memory drive
 - Random access memory or RAM

- 8.7.2
- It is small in size or compact or lightweight or portable.
 - It has low power consumption.
 - It runs quietly.
 - It runs at a cool temperature.
 - It is robust when dropped or durable.
 - Fast access / read / write speed.
 - High capacity.
 - Not affected by magnets.

- 8.7.3
- Data can be accessed from anywhere as long as there is an internet connection.
 - No need to buy additional hardware should they run out of storage space.
 - Data is backed-up by the service provider.
 - Data is kept secure.
 - File extensions are not blocked.
 - It can be used to synchronise your files.

- 8.7.4
- It cannot be inserted incorrectly.
 - Supports different transmission speeds.
 - High speed transmission.
 - Automatically detected (not connected) or automatically downloads drivers.
 - Powers the device (for data transfer).
 - Backward compatible.

QUESTION 9 INTEGRATED SCENARIO (continued)

- 9.1
 - Save as PDF
 - Save as rtf
 - Save as text file plain text like Notepad/WordPad
- 9.2 Section breaks allow for the splitting of a document so that each part can have its own formatting and page numbering
- 9.3
 - Open Footnotes grouping
 - Click Convert Note
 - Click Convert Endnote to Footnote

OR

- Right click on footnote
 - Click on Convert to Endnote
- 9.4 9.4.1 As a document is created/edited the headings will have to be moved continually (manually) to keep them at the top of each page.
- 9.4.2 Make use of page breaks.
- 9.5 9.5.1 Sort or filter according to Room number.
- 9.5.2 Import from (Get external data).
- 9.5.3 Because SUMIF will ADD information together.

OR

A COUNTIF is needed to determine the number of guests on the 2nd floor.

- 9.6 ROUNDDOWN(4.87,1) will round down to the nearest number chosen e.g. 4.8
ROUNDUP(2.3,0) will round up to the nearest whole e.g. 3
- 9.7 9.7.1 Wildcard
- 9.7.2 To do a search / result / get an answer / give back based on a partial match

OR

To return every record that starts with 'Smi...' no matter the characters that follows

9.8 9.8.1 Fourth Industrial Revolution

- 9.8.2
- Internet of Things
 - Data or Big data
 - Connectivity
 - Analytics and intelligible
 - Advanced engineering

- .9 9.9.1
- Fixing problems / bugs / flaws in software.
 - Improve the security features of the software.
 - Improve the efficiency of the software.

- 9.9.2
- Data use could increase dramatically.
 - Downloading updates will have an impact on the speed at which a user can browse the Internet.
 - A drop in computer performance while the update is running may occur.
 - Drop in performance after updates installed.
 - Decrease in storage space.
 - Features may be unnecessarily updated as they are not used

- 9.10
- (a) CPU/Processor
 - (b) RAM
 - (c) Wi-Fi connectivity standard

9.11 Piggybacking

Total: 150 marks