Province of the
EASTERN CAPE
EDUCATION

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NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2026

INFORMATION TECHNOLOGY P2 MARKING GUIDELINE

MARKS: 150

This marking guideline consists of 14 pages.

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SECTION A: SHORT QUESTIONS

QUESTION 1

1.1	1.1.1	Cap ✓	(1)
	1.1.2	Disk clean-up ✓	(1)
	1.1.3	Information ✓	(1)
	1.1.4	HAN/Home Area Network ✓	(1)
	1.1.5	Patch ✓	(1)
	1.1.6	Redundancy ✓	(1)
	1.1.7	Home page ✓	(1)
	1.1.8	Bus ✓	(1)
	1.1.9	Application software ✓	(1)
	1.1.10	Augmented Reality/AR ✓	(1)
1.2	1.2.1	B – (7) ✓	(1)
	1.2.2	B – (Integer) ✓	(1)
	1.2.3	C – (Power-on self-test) ✓	(1)
	1.2.4	D – (Archiving) ✓	(1)
	1.2.5	B – (Hexadecimal) ✓	(1)

TOTAL SECTION A: 15

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SECTION B: SYSTEMS TECHNOLOGIES

QUESTION 2

2.1 2.1.1
- The operating system moves inactive data (named a page file) from RAM to virtual memory on storage. ✓
- When the data is needed again, the page file is swapped back to RAM. ✓ (2)

2.1.2 Thrashing occurs when the computer spends most of its time swapping data between RAM and virtual memory instead of processing tasks. ✓ (1)

2.1.3
- Close any unnecessary programs to free up memory/Close programs that are open and not needed at that time. ✓
- Buy and install more RAM, if there is a need to have so many programs open at the same time. ✓ (2)

2.2 2.2.1 A QR code is a two-dimensional grid of black and white blocks which can be scanned using a smartphone. ✓ (1)

2.2.2 **Any TWO ✓✓**
- Provides a link to a webpage URL.
- Link to an App.
- Scan to make payments.
- Advertise in newspapers and magazines.
- Warehouses to track their stock and deliveries instead of using bar codes.
- Used as tickets to sport or cultural events.
- People have QR codes on their business card to link their contact details, company website or CV.

(Or any other acceptable answer) (2)

2.3
- You have access to the source code to make changes to suit your needs. ✓
- Software is free of charge. ✓ (2)

2.4
- *Plug-and-play* is a technology that allows the operating system to identify a device that is plugged into the computer and automatically configures the devices / installs the driver for the device. ✓
- *Hot swappable* means a device can be connected and disconnected while the computer is switched on. ✓ (2)

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2.5 **Any TWO ✓✓**

RAM	ROM
• Found in larger capacities than ROM • Faster than ROM • Volatile • Managed by the operating system • Easy to upgrade	• Found in smaller capacities than RAM • Slower than RAM • Non-volatile • Works independently of any operating system • Not upgradable

(2)

2.6 2.6.1 **Any ONE ✓**
- DIMM slot
- Dual Inline Memory Module slot (1)

2.6.2
- Core is a single complete working CPU circuit. ✓
- Octa-core ✓ (2)

2.6.3 A bus is a set of electrical pathways used to transfer data, instructions, and signals between computer components. ✓ (1)

2.7 2.7.1
- RAM ✓
- CPU ✓ (2)

2.7.2
- Temporarily stores image data to be processed by the GPU. ✓
- Acts as a buffer between the CPU and the graphics card, allowing for quicker access to graphics data instead of waiting for slower RAM. ✓ (2)

2.8 2.8.1 Complementary Metal Oxide Semiconductor. ✓ (1)

2.8.2 CMOS battery. ✓ (1)

2.8.3 **ANY TWO ✓✓**
- Boot order
- System date and time
- CPU settings
- RAM settings
- Power management settings
- Security settings / BIOS password
- Hardware monitoring settings
- Enable/disable boot devices (2)

TOTAL SECTION B: 26

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SECTION C: COMMUNICATION AND NETWORK TECHNOLOGIES

QUESTION 3

3.1 3.1.1 **Any TWO ✓✓**

- Helps locate nearby services e.g. shops, hospitals.
- Provides accurate navigation and directions.
- Allows tracking of lost or stolen devices.
- Enables delivery tracking.
- Gives location-based alerts or reminders.
- Helps find locations of people.
- Receive special deals according to your location.

(Or any other acceptable answer) (2)

3.1.2 **Any TWO ✓✓**

- Loss of privacy due to constant tracking.
- Increased risk of stalking or harassment.
- Location data can be misused or sold.
- Users may become overly dependent on technology.
- Risk of identity theft using location data.
- Increased cybercrime targeting location data.
- Social pressure to share location information.
- Reduced personal safety if location leaks.
- Possible discrimination based on location data.

(Or any other acceptable answer) (2)

3.2 3.2.1 BitTorrent is a peer-to-peer file-sharing protocol ✓ that allows users to download and upload files from multiple computers simultaneously over the internet. ✓ (2)

3.2.2 **Any TWO ✓✓**

- Users need to have internet connection.
- The files being downloaded could be infected with malware.
- The user's IP addresses are visible to all other peers, which could expose them to security threats.
- Pirated and copyrighted content could be illegally downloaded.

(Or any other acceptable answer) (2)

3.2.3 **Any TWO ✓✓**

- Block BitTorrent ports on the firewall.
- Use network monitoring software.
- Restrict user permissions on computers.
- Implement bandwidth throttling.
- Install content filtering systems.
- Create and enforce acceptable-use policies.
- Disable installation of torrent software.

(Or any other acceptable answer) (2)

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3.3 3.3.1 **Any ONE ✓**

- Metadata is additional information about a file or data that is saved with a file or data.
- Metadata provides additional information about a file such as the date the file was created, which program was used to create the file, when it was last changed, who the author of the file is, etc. (1)

3.3.2 **Any TWO ✓✓**

- Search by author name ✓ – Find documents created by a specific employee. ✓
- Search by title – Use document titles stored in metadata to quickly identify files.
- Search by date created – Locate documents created on a specific day or period.
- Search by date modified – Find recently updated files.
- Search by file type – Filter results by formats like PDF, Word, or Excel.
- Search by keywords/tags – Use assigned tags or keywords to narrow results.
- Search by subject/category – Find documents grouped under a topic or department.
- Search by document ID – Use unique identifiers assigned to files.
- Search by department/project name – Locate documents linked to a specific team or project.
- Search by file size – Filter documents based on size when searching for large or small files.
  (Or any other acceptable answer) (2)

3.4 **Any TWO ✓✓**

- Certificate holder's name
- Public key
- Certificate authority (CA) name
- Expiry date
- Serial number
- Digital signature
- Issuer information (2)

3.5

- VPN provides the user with access to resources on the remote network. ✓
- Remote desktop access gives the user access to and control over a specific computer. ✓ (2)

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3.6 3.6.1 **Any TWO** ✓✓
- Attenuation
- Crosstalk
- EMI/Electromagnetic Interference
- Eavesdropping (2)

3.6.2 **Any TWO** ✓✓
- Less prone to interference such as EMI.
- UTP cables have a higher bandwidth compared to Wi-Fi.
- Better security because data transfer is not as easily intercepted as Wi-Fi.
- Less influenced by objects such as buildings and trees. (2)

3.7 3.7.1 Piggybacking is when an unauthorised person gains access to a network ✓ by using someone else's authorised connection, often without permission. ✓ (2)

3.7.2 **Any TWO** ✓✓
- Setup a strong password to access the Wi-Fi
- Change the password for access to Wi-Fi often
- Enable network encryption
- Change default router passwords
- Monitor connected devices regularly
- Use firewall security
- Install access control systems
- Monitor network logs regularly
- Implement strong authentication systems
- Educate employees about security risks
- Use guest networks for visitors
(Or any other acceptable answer) (2)

TOTAL SECTION C: 25

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SECTION D: DATA AND INFORMATION MANAGEMENT

QUESTION 4

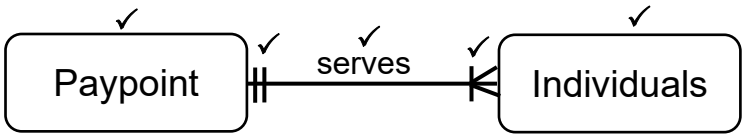
4.1 4.1.1
- TblIndividual ✓
- PayPoint ✓ (2)

4.1.2 (a) Yes/No OR Boolean ✓ (1)

(b) Date/Time ✓ (1)

(c) Currency ✓ (1)

4.1.3



- Paypoint entity in rounded rectangle
- Individuals entity in rounded rectangle
- Verb to describe relationship
- one to
- many (5)

4.2 4.2.1 False. Record ✓ (1)

4.2.2 False. Alternate ✓ (1)

4.2.3 True ✓ (1)

4.2.4 True ✓ (1)

4.3 4.3.1 A relational database is a database that contains multiple tables ✓ that are linked together through a relationship using common keys / fields. ✓ (2)

4.3.2
- Records linked through a relationship cannot be deleted without first deleing its related records in another table. ✓
- No record in the child table can exist without being related to a record in the parent table. ✓ (2)

4.4 4.4.1 Synchronisation is when data is changed in one copy of the database, ✓ all other copies are updated with these changes. ✓

OR

Data synchronisation refers to ensuring that data stored across multiple database locations or systems is kept consistent and updated so that all users access the same current version of the data. (2)

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4.4.2 A distributed database is when sections of a database ✓ are spread over multiple servers in different physical locations. ✓ (2)

4.4.3 **Any TWO ✓✓**

- Congestion to a single server is reduced.
- Faster access to data since data can be stored closer to users.
- Large numbers of users can access the data at the same time because it is not all in one place.
- Less downtime since other sites can continue if one server fails.
- Less data is transferred between different locations because there is a local copy of the data, which reduces communication costs.
- Better performance since parallel processing improves speed.
- Local autonomy since each site can manage its own data needs.

(Or any other acceptable answer) (2)

TOTAL SECTION D: 24

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SECTION E: SOLUTION DEVELOPMENT

QUESTION 5

5.1 5.1.1 Creates a new empty file with the same name, ✓ so any previous data in the text file is permanently lost unless it was backed up. ✓ (2)

5.1.2 AssignFile. ✓ (1)

5.1.2 Reset opens an existing file ✓ and sets the file pointer at the beginning of the file ✓ so that text can be read from the beginning of the text file. (2)

5.2 Ceil(10.2) = 11
Floor(18.5) = 18

iAnswer = 29 ✓ (1)

5.3 5.3.1 The MOD function returns the remainder after integer division ✓ (1)

5.3.2 SQRT returns a real value ✓ but MOD only works with integers ✓ (2)

5.3.3 Use Trunc ✓ or Round to change from real to integer before using MOD (1)

5.4 5.4.1 Var objAlbum : TAlbum; ✓ (1)

5.4.2 updatePoints ✓ (1)

5.4.3 Result ✓ := fPoints; ✓

OR

getPoints := fPoints; (2)

5.4.4 Constructor create ✓(sAlbumTitle, sArtist : String); ✓ (2)

5.4.5 ObjAlbum ✓ := TAlbum.Create ✓(sAlbumTitle, sArtist); ✓ (3)

5.5 5.5.1

Line no	iNum	cLetter	sNum	iVal
	9	**F**		
1			F9	
2				18
3	8			
4	3			
5		H		
	✓	✓	✓	✓

(4)

5.5.2 iNum := iNum – 5; ✓ (1)

5.5.3 + ✓ (1)

TOTAL SECTION D: 25

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SECTION F: INTEGRATED SCENARIO

QUESTION 6

6.1 6.1.1 Online platforms or websites that allow users to create, share and communicate content with others. ✓ (1)

6.1.2 **Any TWO** ✓✓
- Security risk as their personal information is exposed.
- Privacy risk if confidential information is shared
- Can become victims of social engineering of other scams.
- Reduces productivity when employees spend time browsing instead of working.
- Can be exposed to unsuitable content and online predators.
- Information about the user is collected by social media companies and they sell the user's data to other companies to use for advertising.
- Can cause mental health caused by e.g. cyber-bullying.

(Or any other suitable answer) (2)

6.1.3 Fear Of Missing Out. ✓ (1)

6.2 6.2.1 Information overload is when a person receives more information than they can process effectively. ✓ (1)

6.2.2 **Any TWO** ✓✓
- Turn notifications off for unimportant apps.
- Prevent FOMO by switching device off while doing important work.
- Reduce multitasking by focusing on one task at a time.

(Or any other suitable answer) (2)

6.3
- Intranet: A private internal network used only by employees within a company. ✓
- Extranet: A private network that allows external users (such as clients or suppliers) limited access to the company network. ✓ (2)

6.4 6.4.1 A hotspot is a location or device that provides wireless Internet access (Wi-Fi) to other devices. ✓ (1)

6.4.2 **Any TWO** ✓✓
- Devices may be exposed to malware since many users connect to the hotspot.
- Since the network is wireless, personal information may be hacked or exposed.
- Files that are not encrypted can be intercepted by cyber criminals.

(Or any other suitable answer) (2)

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6.5 6.5.1 Appification is the process of converting software or services into mobile apps. ✓ (1)

6.5.2 **Any TWO ✓✓**
- The interface is designed in such a way to make input and navigation easier on the smaller touch screen.
- Push notifications can be received to alert the user when there is a message.
- Employees can access systems anywhere using mobile devices.
- The user will have access to the content faster since they will not have to remember the URL or login every time.

(Or any other suitable answer) (2)

6.6 6.6.1 E-learning is learning that takes place using electronic devices and the internet. ✓ (1)

6.6.2 **Any TWO ✓✓**
- Students can access the course material at anytime from anywhere in the world as long as they have internet connection and a device.
- Students can complete the course at their own pace (Self-paced studies).
- Many of the quizzes give immediate feedback.
- Affordable education/ more cost effective.
- Supports individual learning styles and needs/Personalised learning.
- Continuous education for vulnerable groups/ offers a safer learning environment.
- Environmentally friendly/reduced carbon footprint.
- Promotes collaboration/Global interaction.
- Reduces the need for textbooks.
- Reduces travel costs and saves time.
- Could solve teacher scarcity.

(Or any other suitable answer) (2)

6.7 6.7.1 Globalisation is the process of businesses operating and interacting around the world / on a worldwide scale. ✓ (1)

6.7.2 **Any TWO ✓✓**
- Communication is faster and does not depend on time and place.
- There is the ability to process large amounts of data on a global scale.
- People can work for a company anywhere in the world from their own country.
- Employees can work from the comfort of their home.
- A huge amount of information and data is available to improve a product or service.
- The convenience of online transactions such as online banking and online shopping from anywhere in the world.
- Higher revenue flow/Increased income.
- Access to new cultures and markets/Cultural exchange (2)

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- Finding better product and market fit.
- Evading talent pool and workforce/Global hiring.
- Economic growth/Wealth increase.
- Collaboration in knowledge and technology/Share innovation.
- Competitive advantage/Enriched competition
- Developing universal standards/Global consistency.
- Can collaborate with global partners
  (Or any other suitable answer)

6.7.3 **Any TWO** ✓✓

- Large storage capacity is needed for the huge amount of data.
- Processing of the data cannot be done through traditional measures.
- Powerful computing devices are required to perform the processing.
- The data often contains personal information and therefore security is important.
- Since there is so much data, sharing the data is difficult.
- Difficult to analyse and manage large volumes of data
  (Or any other suitable answer) (2)

6.8 6.8.1 Video On Demand ✓ (1)

6.8.2 **Any TWO** ✓✓

- Requires fast and stable Internet
- Content Licensing Costs – rights to stream movies and shows can be very expensive
- Copyright and Piracy Issues
- Storage Requirements – VOD platforms need large storage systems to keep vast libraries of video content.
- Network Congestion – Heavy user traffic during peak times can slow down streaming speeds
- Device Compatibility Issues across many devices (phones, tablets, TVs, computers) can be complex.
- Users may struggle to find content they want without effective search and recommendation systems.
- Delays in video playback can frustrate users and reduce satisfaction.
- Security Risks (hacking / unauthorised access / user data protection)
- High Infrastructure Costs
  (Or any other suitable answer) (2)

6.9 Encoding converts data into a format suitable for transmission between devices. ✓ (1)

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6.10 6.10.1 GUID is a hexadecimal code used to uniquely identify entities/information in computer systems. ✓ (1)

6.10.2 Global Unique Identifier. ✓ (1)

6.10.3 GUID is used by Windows operating ✓ system to identify hardware, software, documents, database records and users. ✓ (2)

6.10.4 User's privacy can be compromised since the user can be identified by a linked GUID even if all metadata has been removed. ✓ (1)

6.10.5 Online anonymity is hiding your identity or personal information while using the Internet. ✓ (1)

6.10.6 **Any TWO** ✓✓

- Freedom of Expression – People can share opinions and ideas more openly without fear of judgment, social pressure, or backlash.
- Privacy / Protection of Personal Identity – Anonymity helps keep personal details (such as name, address, or workplace) private and safe from misuse.
- Safety from harassment or retaliation – Individuals can discuss sensitive or controversial topics without risking harassment, discrimination, or retaliation.
- Support for vulnerable individuals – Victims of abuse, mental health struggles, or discrimination can seek help and advice anonymously.
- Reduces social bias – Ideas can be judged based on their content rather than the speaker's gender, race, age, or status.
- Encourages participation in discussions – Shy or introverted individuals may feel more comfortable joining conversations or communities.
- Limiting identifiable information online reduces the chances of criminals stealing personal data.

(Or any other suitable answer) (2)

TOTAL SECTION F: 35
GRAND TOTAL: 150

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