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TOTAL
MARKS

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INTERNATIONAL SECONDARY CERTIFICATE EXAMINATION
MAY 2025

COMPUTER STUDIES: PAPER II

EXAMINATION NUMBER

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Time: 3 hours

150 marks

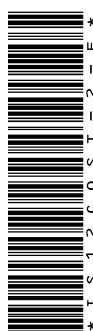
PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 32 pages. Please check that your question paper is complete.
2. The paper is divided into Section A (25 marks), Section B (75 marks) and Section C (50 marks).
3. **Answer ALL the questions on the question paper and hand it in at the end of the examination. Remember to write your examination number in the space provided.**
4. Non-programmable calculators may be used.
5. It is in your interest to write legibly and to present your work neatly.
6. Read the questions carefully. Note the action verbs in some questions, e.g., explain, name, select, discuss, identify, etc. and then answer accordingly.
7. Give your answers in general terms, e.g. use 'word processor' rather than 'Microsoft Word' or 'WordPerfect'. Use brand names only when asked.
8. In general, a mark is allocated per fact. Therefore, a two-mark question would require two facts, and so on. You will need more than one-word answers to get the mark. Writing in complete sentences is required.
9. DO NOT USE CORRECTING FLUID.
10. One blank page (page 32) is included at the end of the question paper. Use this page if you run out of space for a question. Clearly indicate the number of the question you are answering should you use this additional space.

FOR OFFICIAL USE ONLY:

MARKER TO ENTER MARKS BELOW

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	TOTAL
10	15	24	15	10	11	15	25	25	/150
MARKER/MODERATOR TO INITIAL BELOW									



SECTION A**QUESTION 1**

Select the **MOST** appropriate answer to each question. Write down **ONLY** the letter of your choice next to each question number in the space provided.

- 1.1 Which **ONE** of the following is an example of a popular open-source operating system?

- A Android
- B iOS
- C macOS
- D Windows

1.1	
-----	--

(1)

- 1.2 Which **ONE** of the following is **NOT** an environmental reason for using computers?

- A To consume less power.
- B To reduce paper consumption.
- C To automate processes.
- D To work from home.

1.2	
-----	--

(1)

- 1.3 All of the following are good website design principles **EXCEPT** ...

- A consistent themes.
- B fast loading speed.
- C complex design.
- D easy navigation.

1.3	
-----	--

(1)

- 1.4 Which **ONE** of the following would you recommend as the first step to troubleshooting a computer that is not switching on?

- A Check if the device driver has not been corrupted.
- B Check the power connection cord and power plug.
- C Check if the computer is connected to the network.
- D Check that all operating system updates are installed.

1.4	
-----	--

(1)

1.5 Which Excel function would you use to check whether multiple conditions are met simultaneously (at the same time)?

- A IF()
- B OR()
- C MATCH()
- D AND()

1.5	
-----	--

(1)

1.6 Which **ONE** of the following is the **main** reason for keeping only relevant data for data privacy purposes?

- A Prevent unauthorised access to personal information.
- B Reducing the risk of running into data breaches.
- C Compliance with data protection regulations.
- D Improving the speed of data processing.

1.6	
-----	--

(1)

1.7 What is **bandwidth** in the context of the Internet?

- A A high-speed connection to the Internet over time.
- B Maximum data transmission over the Internet in a set time.
- C Intentional Internet speed manipulation during peak times.
- D Restrictions of specific Internet activities during peak times.

1.7	
-----	--

(1)

1.8 Application software ...

- A performs requested tasks for users.
- B enables hardware-operating system communication.
- C optimises the performance of a computer.
- D controls the operation of a computer.

1.8	
-----	--

(1)

1.9 Which **ONE** of the following will **NOT** be the result of the database wildcard query 'd*t'?

- A dt
- B doughnut
- C dot
- D data

1.9	
-----	--

(1)

1.10 Which feature in Word allows a user to edit a document electronically and review the revisions?

- A Track Changes
- B Proofing
- C Accessibility
- D Compare

1.10	
------	--

(1)

[10]

MARKER'S USE ONLY:	Total mark Q1	
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QUESTION 2

2.1 Choose the **MOST** appropriate term (underlined and given in brackets) for each of the following statements. Write down **ONLY** the term of your choice next to each question number in the space provided.

2.1.1 The (Currency/AutoNumber) data type in Access stores a unique value for each new record.

2.1.1		(1)
-------	--	-----

2.1.2 A (bookmark/footnote) is a feature in Word that allows a user to name and identify a specific word, section or location for future reference.

2.1.2		(1)
-------	--	-----

2.1.3 The (<h1>/<h6>) HTML tag defines the most important heading.

2.1.3		(1)
-------	--	-----

2.1.4 All devices are connected to a central switch in a (bus/star) network topology.

2.1.4		(1)
-------	--	-----

2.1.5 (Absolute/Relative) cell referencing in Excel is when column and row coordinates stay constant while copying a formula from one cell to another.

2.1.5		(1)
-------	--	-----

- 2.2 Choose the acronym in Column B that **BEST** matches the definition in Column A. Write down **ONLY** the letter of your choice next to each question number in the space provided, for example, 2.2.6 X.

	Column A	Column B	
2.2.1	A system of interactive visual components for software.	A	PDF
2.2.2	A standard communication protocol for transferring files between devices over a network.	B	DoS
2.2.3	A file format that displays documents electronically, independent of the hardware or software on which they are viewed.	C	TCP
2.2.4	A cyber attack that occurs when many compromised devices cause a website to crash by flooding it with fake traffic.	D	GIF
2.2.5	An electronic banking device, usually public, that allows users to perform financial transactions.	E	SMTP
		F	BYOD
		G	ATM
		H	TIFF
		I	FTP
		J	DDoS
		K	GUI
		L	EFT

WRITE YOUR ANSWERS HERE:

2.2.1		(1)
2.2.2		(1)
2.2.3		(1)
2.2.4		(1)
2.2.5		(1)

2.3 Write down the definition for each of the following terms.

2.3.1 Input Mask: _____

(1)

2.3.2 Optical Character Recognition (OCR): _____

(1)

2.3.3 Fibre-optic cable: _____

(1)

2.3.4 Metadata: _____

(1)

2.3.5 Convergence: _____

(1)
[15]

MARKER'S USE ONLY:	Total mark Q2	
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25 marks

MARKER'S
USE ONLY

SECTION B**QUESTION 3 SYSTEM TECHNOLOGIES**

3.1 The Central Processing Unit (CPU), Random Access Memory (RAM), graphics card and secondary storage affect the performance of a computer.

3.1.1 Name **TWO** factors that affect the performance of the **CPU**.

Factor 1: _____

Factor 2: _____

(2)

3.1.2 How does adding a **graphics card** affect the performance of a computer?

Fact 1: _____

Fact 2: _____

(2)

3.1.3 What is the function of **RAM**?

(1)

3.1.4 Secondary storage significantly affects the performance of a computer.

(a) Why would upgrading a **Hard Disk Drive (HDD)** to a **Solid-State Drive (SSD)** increase the performance of a computer?

Reason 1: _____

Reason 2: _____

(2)

- (b) The measuring capacity of secondary storage can be in the range between KB and EB. Expand the acronyms **KB** and **EB**.

KB: _____

EB: _____

(2)

- 3.2 The ports and sockets vary from computer to computer; however, most computers come standard with specific ports.

Letter	A	B	C	D	E
Port					

Match the following cables with the respective ports on the back of the computer, as shown above. Give the cable/port name **AND** write down **ONLY** the letter where the cable connects to the port next to each question number.

Cable	Name of cable/port	Port (letter)
3.2.1  [< https://www.freepik.com/ >]		
3.2.2  [< https://www.freepik.com/ >]		
3.2.3  [< https://www.freepik.com/ >]		
3.2.4  [< https://stock.adobe.com/ >]		

(2)

(2)

(2)

(2)

- 3.3 Notepad++ is a free, downloadable text and source code editor.

- 3.3.1 The current version of Notepad++ is v8.7.9. Why is the software **version** useful to users?

(1)

3.3.2 The webpage gives users two versions to download, **32-bit** and **64-bit**.

(a) Compare **32-bit** to **64-bit** software.

(2)

(b) How would the user know which option to choose, **32-bit** or **64-bit**?

(1)

3.3.3 After downloading the current version of Notepad++ and running the executable file, the user is guided through the installation by a series of questions.

What is this software feature called?

(1)

3.3.4 Compare **freeware** and **proprietary** software.

(2)
[24]

MARKER'S USE ONLY:	Total mark Q3	
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QUESTION 4 INTERNET AND NETWORK TECHNOLOGIES

Read the following extract from an article about music streaming and answer the following questions.

'Sub-Saharan Africa's music revenue surged past R1.84 billion for the first time in 2024. Music streaming services are a major driving force behind the year-on-year revenue increases, internationally and locally.'

[Source: <<https://mybroadband.co.za/news/smartphones/589102-south-african-music-streaming-explosion.html>>]

4.1 Name **ONE** music streaming platform other than Spotify and Apple Music.

(1)

4.2 How does **broadcasting music** differ from **streaming music** in terms of **distribution method** and **user experience**?

Distribution method: _____

User experience: _____

(4)

4.3 Spotify, Apple Music and other music streaming platforms use cloud computing technologies. Discuss **TWO** advantages of using cloud computing for music streaming.

Advantage 1: _____

Advantage 2: _____

(2)

4.4 On your way to school in the morning, you like to connect your smartphone to the car sound system and listen to your favourite music and podcasts on the car speakers.

4.4.1 Name **ONE** connection method of connecting your smartphone to the car speakers.

(1)

4.4.2 In **THREE** steps, explain how you would connect your smartphone to the car speakers to play music from your music streaming platform.

Step 1: _____

Step 2: _____

Step 3: _____

(3)

4.5 Apple Music claims to be 100% advertisement-free, but this comes at a cost. Users often complain that other music streaming platforms have far too many advertisements.

Name **TWO** methods for users to prevent advertisements from interrupting their favourite music.

Method 1: _____

Method 2: _____

(2)

4.6 Some users use 'incognito mode' when using music streaming platforms.

4.6.1 What is 'incognito mode'?

(1)

4.6.2 How would 'incognito mode' benefit users when listening to music?

(1)
[15]

MARKER'S USE ONLY:	Total mark Q4	
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QUESTION 5 INFORMATION MANAGEMENT

Read the following scenario on using an app (application) to report water leakages and answer the following questions.

Water is our most precious resource, vital for individual and environmental needs. You decide to make a difference and save water, as leaking taps and pipes cause a huge water loss. You choose to use the app your municipality has designed, allowing citizens to report water leakages in your area.

5.1 The app uses multi-step verification to gain access to the account.

5.1.1 What is **multi-step verification**?

(2)

5.1.2 Name **ONE** commonly used method in **multi-step authentication** besides passwords.

(1)

5.2 Give **TWO** valuable data items that could be entered into the app when reporting a water leak.

Data item 1:

Data item 2:

(2)

5.3 How will the data be processed in the app?

(1)

5.4 What output would be helpful to the municipality?

Output 1: _____

Output 2: _____

(2)

5.5 How could the following applications manipulate the data to provide useful information to the municipality?

Spreadsheet: _____

Database: _____

(2)
[10]

MARKER'S USE ONLY:	Total mark Q5	
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QUESTION 6 SOCIAL IMPLICATIONS

Read the following extract from an article dealing with cybercrime and answer the following questions.

Africa faces a huge cybercrime threat as the pace of digitalisation increases

African governments and corporations face the prospect of investing hugely in digital security. Cyberattacks are becoming a greater threat to the region, and Internet traffic doubles every 18 months.

[Adapted from: <<https://www.investmentmonitor.ai/features/africa-cyber-crime-threat-digitalisation/>>]

- 6.1 'The biggest cyber threats in Africa include online scams (such as phishing), digital extortion, business email compromise, ransomware and botnets.' Define the following cybercrimes.

Phishing: _____

Ransomware: _____

Botnets: _____

(3)

- 6.2 Several government agencies have been victims of cyberattacks, resulting in the disruption of services or the leakage of sensitive information.

- 6.2.1 Name **TWO** types of government services that a cyberattack could disrupt.

Service 1: _____

Service 2: _____

(2)

6.2.2 Discuss **TWO** ways that governments could protect their citizens against cyberattacks.

Method 1: _____

Method 2: _____

_____ (2)

6.2.3 The leakage of sensitive information could result in the misuse of the citizens' personal information, which means that the data is used for a different purpose than the original reason it was collected.

Differentiate between the **right to privacy** to the **right to access** of citizens.

Right to privacy: _____

Right to access: _____

_____ (2)

6.3 The cyber challenge will only get bigger in Africa with new subsea fibre-optic cables bringing over 300 Tbps of bandwidth to African countries by 2024. In addition, the Internet of Things (IoT) will be a massive market in the region, and up to ten billion devices will be connected to the Internet.

Name **TWO** IoT devices that will be connected to the Internet.

Device 1: _____

Device 2: _____

(2)
[11]

MARKER'S USE ONLY:	Total mark Q6	
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QUESTION 7 SOLUTION DEVELOPMENT

7.1 You have started preparing a webpage to make people more aware of wildlife. You are unsure of some of the HTML concepts.

7.1.1 What does **HTML** stand for?

(1)

7.1.2 HTML **tags** and **attributes** often need clarification.

(a) What is the purpose of the **href** attribute in the **<a>** tag?

(1)

(b) What is the role of the **<head>** tag?

(1)

(c) Compare the purpose of the **rowspan** and the **colspan** attributes in an HTML table.

(2)

- (d) What is the difference in function between the **<tr>** and the **<td>** tags?

<tr>: _____

<td>: _____

(2)

- 7.2 Page and paragraph features work together to create a well-formatted and visually appealing word-processing document; however, their functions have several key differences.

Identify whether the following features relate to a **page** or a **paragraph** of a word-processing document by placing a tick (✓) in the correct space in the table below.

Feature	Page	Paragraph
Watermark		
Hyphenation		
Indentation		
Orientation		

(4)

- 7.3 The full name was incorrectly captured in column A of the spreadsheet below. To complete a sort based on the surname or first name, you must divide the surname and first name into separate columns.

	A	B	C
1	Full Name	First Name	Surname
2	Lerato Singh	Lerato	Singh
3	Thabo Molefe	Thabo	Molefe
4	Neil van der Merwe	Neil	van der Merwe
5	Andile Gumede	Andile	Gumede
6	Sarah Abrams	Sarah	Abrams
7	Fadila Kader	Fadila	Kader
8	Naledi Molebatsi	Naledi	Molebatsi
9	Rachel Smith	Rachel	Smith
10	Emma Thompson	Emma	Thompson

Columns B and C show how the full name should be split into first name and surname.

- 7.3.1 What feature of Excel would you use to split the full name into first name and surname?

(1)

- 7.3.2 Several built-in text functions in Excel could split the full name into first name and surname. Using these functions, write a formula that would appear in cell B2 to split the first name from the full name. *You may use scaffolding to create your formula, i.e., if you do not know how to write the complete formula, break it down into multiple steps or columns.*

(3)
[15]

MARKER'S USE ONLY:	Total mark Q7	
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75 marks

SECTION C

When answering the rest of the examination paper, consider the following scenario unless otherwise stated or the questions are general.

SCENARIO**High-Tech Battle Against Poachers**

Illegal wildlife trafficking is the fourth largest criminal activity in the world, after narcotics, counterfeiting and human trafficking. It is a highly profitable activity (estimated to be worth \$23 billion annually) fuelled by poaching. Pangolins, rhinos, elephants and tigers are some of the most at-risk animals, but many other species are also targeted due to the high value of their body parts.

Poachers use sophisticated and rapidly changing techniques to avoid detection. As a result, conservationists are increasingly turning to high-tech as the last line of defence to protect animals that are hunted for their tusks, horns, shells, meat, skins or scales or captured to become exotic pets.

[Source: <<https://www.bbvaopenmind.com/en/technology/innovation/high-tech-battle-against-poachers>>]

QUESTION 8 INTEGRATED SCENARIO

Game rangers, NGOs (non-governmental organisations), veterinarians, anti-poaching patrols, law enforcement, and researchers increasingly use technology to fight poaching at every level.

- 8.1 Everyone in the community needs to be involved in fighting poaching. This can be done through community outreach programs, where everyone involved should benefit from using technology to share information.

Study the specifications of the Lenovo IdeaPad below and answer the following questions.

Lenovo IdeaPad 3 Celeron N4020 4GB RAM 256GB SSD 15.6" Laptop	Processor: Intel® Celeron® N4020, 2.8 GHz Operating System: Windows 11 Home Screen: FHD 15.6" (39.6 cm), 1920 × 1080 pixels, 60 Hz Memory: 4 GB DDR4-SDRAM Storage: 256 GB M.2 PCIe NVMe SSD Graphics: onboard graphics Intel® UHD Graphics 600 Weight: 1.7 kg Battery: 48 Wh Webcam: 720p Wireless adapter: Wi-Fi 5 Ports: 2 × USB-A, 1 × USB-C, 1 × HDMI 1.4, SD card reader, 1 × 3.5 mm headphone jack
 [Source: <https://www.lenovo-online.co.za/> (31 January 2023)]	Features: • Entry-level laptop with a speedy performance and easy multitasking. • Numeric keypad to speed up productivity. • Webcam designed with a physical shutter. • CPU can swap between Max Mode (quickest performance) and Stealth Mode (quietest user experience). • Dual speakers with Dolby Audio™ optimise sound. • Battery life is 9 hours.

8.1.1 The laptop has a webcam with a 720p resolution and a physical shutter.

- (a) The webcam resolution is measured in pixels. Explain what the word **pixel** means.

(1)

- (b) Why is the webcam resolution important?

(1)

- (c) Give **TWO** reasons why the webcam would come with a physical shutter.

Reason 1: _____

Reason 2: _____

(2)

- (d) Give **TWO** examples of how community members could use webcams for anti-poaching.

Example 1: _____

Example 2: _____

(2)

8.1.2 The laptop is advertised as entry-level with speedy performance and effortless multitasking.

- (a) What is meant by the term **multitasking**?

(1)

- (b) Name **THREE** reasons why this entry-level laptop would be the ideal choice for community members when fighting poaching.

Reason 1: _____

Reason 2: _____

Reason 3: _____

(3)

8.2 Drones are essential for NGOs and the government in fighting poaching.

8.2.1 Explain how drones can help stop poaching within the reserves.

(2)

8.2.2 Discuss **TWO** disadvantages of using drones to fight poaching.

Disadvantage 1: _____

Disadvantage 2: _____

(4)

8.3 GPS collars and GPS microchips can be used to collect data and monitor animals.



[Source: <<https://wildlifeact.com/wp-content/uploads/2014/03/Anti-snare-collar.jpg>>]

8.3.1 What type of data could be collected from a GPS collar to help combat poaching?

Data type 1: _____

Data type 2: _____

(2)

8.3.2 Provide **TWO** ways this data would help the anti-poaching team combat poaching.

Method 1: _____

Method 2: _____

(2)

8.3.3 Geotagging is when information about the location of digital media is embedded in the media.

- (a) Name **TWO** types of media to which geotags could be applied.

Media type 1: _____

Media type 2: _____

(2)

- (b) How could geotagging benefit poachers?

(2)

- (c) What other function could geotagging have besides fighting poaching?

(1)

[25]

MARKER'S USE ONLY:	Total mark Q8	
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QUESTION 9 INTEGRATED SCENARIO (continued)

Southern African Tracker Company (SATC) has been designing anti-poaching solutions for over 25 years.

9.1 One of SATC's anti-poaching solutions is to fit rhinos with radio-frequency identification (RFID) tags.

9.1.1 How does an **RFID tag** work?

(3)

9.1.2 Near-field communication (NFC) is a subset of RFID technology.

Provide **THREE** reasons why NFC would **NOT** be suitable as an anti-poaching technology.

Reason 1: _____

Reason 2: _____

Reason 3: _____

(3)

9.2 One way of ensuring that the data reaches the SATC servers is through a Wide Area Network (WAN).

9.2.1 What is the difference between a **WAN** and a **LAN** (Local Area Network)?

(2)

9.2.2 A router is required to connect a LAN to a WAN. Both the router and the server will require an IP address.

- (a) What is an **IP address**? Provide a suitable example of an IP address in your answer.

Definition: _____

Example: _____

(2)

- (b) How does a **server** differ from a **workstation** in a network?

Server: _____

Workstation: _____

(2)

9.3 SATC provides web-based, mobile-based, installed and cloud-based applications for users to access the tracking data.

- 9.3.1 Name **ONE** cloud-based application that would be useful for SATC as a plug-in to provide users with the latest 3D maps.

(1)

- 9.3.2 Discuss **ONE** difference between mobile-based and web-based applications.

(2)

9.3.3 Data can be downloaded from the servers using the applications in various file formats. Explain the use of the following file formats.

(a) CSV: _____

(1)

(b) ZIP: _____

(1)

9.3.4 SATC would like to ensure a positive user experience and accessibility for their software users.

(a) Name **TWO** key design features that must be incorporated into their software for visually impaired users.

Feature 1: _____

Feature 2: _____

(2)

(b) Choose **ONE** of the features in Question 9.3.4 (a) by placing a tick in one of the boxes below. Explain how this could be implemented.

Feature 1 ☐ Feature 2 ☐

Explain: _____

(2)

- 9.4 Pivot tables are one of the most powerful features of spreadsheet software. The following spreadsheet shows the record of rhino and elephant poaching in Namibia and South Africa from 2017 to 2021.

	A	B	C	D
1	Year	Country	Animals	Numbers Poached
2	2017	Namibia	Elephant	50
3	2018	Namibia	Elephant	27
4	2019	Namibia	Elephant	13
5	2020	Namibia	Elephant	12
6	2021	Namibia	Elephant	10
7	2017	Namibia	Rhino	55
8	2018	Namibia	Rhino	84
9	2019	Namibia	Rhino	61
10	2020	Namibia	Rhino	43
11	2021	Namibia	Rhino	45
12	2017	South Africa	Rhino	1028
13	2018	South Africa	Rhino	769
14	2019	South Africa	Rhino	594
15	2020	South Africa	Rhino	394
16	2021	South Africa	Rhino	451
17	2017	South Africa	Elephant	68
18	2018	South Africa	Elephant	72
19	2019	South Africa	Elephant	31
20	2020	South Africa	Elephant	16
21	2021	South Africa	Elephant	10

[Source: <<https://www.poachingfacts.com/>>]

- 9.4.1 Give **TWO** examples of questions you could answer by creating a pivot table of this data.

Question 1: _____

Question 2: _____

(2)

- 9.4.2 Name **TWO** tasks that you could perform using a pivot table.

Task 1: _____

Task 2: _____

(2)

[25]

MARKER'S USE ONLY:	Total mark Q9	
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50 marks

Total: 150 marks

ADDITIONAL SPACE (ALL QUESTIONS)

REMEMBER TO CLEARLY INDICATE AT THE QUESTION THAT YOU HAVE USED THE ADDITIONAL SPACE TO ENSURE THAT ALL ANSWERS ARE MARKED.

[illegible]

MARKER'S
USE ONLY