



Province of the
EASTERN CAPE
EDUCATION

Iphondo leMpuma Kapa: Isebe leMfundo
Provinsie van die Oos Kaap: Departement van Onderwys
Porafensie Ya Kapa Botjhabela: Lefapha la Thuto

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2024

COMPUTER APPLICATIONS TECHNOLOGY P2

MARKS: 150

TIME: 3 hours

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of:

SECTION A (25 marks)
SECTION B (75 marks)
SECTION C (50 marks)
2. Answer ALL the questions.
3. Number the answers correctly according to the numbering system used in this question paper.
4. Start EACH question on a NEW page.
5. Do NOT write in the right-hand margin of the ANSWER BOOK.
6. Leave a line after EACH sub-question.
7. Generally, one mark is allocated per fact; therefore, a 2-mark question would require TWO facts, etc.
8. Read the questions carefully. DO NOT give more than the question requires as this will NOT be marked.
9. All answers MUST be related to Computer Applications Technology.
10. Unless otherwise specified, answers such as 'cheaper', 'slower/faster', etc. will NOT be accepted.
11. Do NOT use brand names in your answers, unless specifically required.
12. Write neatly and legibly.

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

Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question numbers (1.1 to 1.10) in the ANSWER BOOK, for example 1.11 D.

- 1.1 Which ONE of the following application software would be the most suitable for creating a library management system?
- A Word processor
 - B Presentation software
 - C Spreadsheet
 - D Database
- (1)
- 1.2 The URL of a website refers to ...
- A the relative ranking of the website by a search engine.
 - B the password needed to access the website.
 - C the e-mail address of the webmaster of the website.
 - D an address that identifies a website on the internet.
- (1)
- 1.3 Which ONE of the following hardware components will probably improve the performance of a PC the most?
- A Monitor
 - B DVD drive
 - C RAM
 - D Graphics card
- (1)
- 1.4 Safe mode is ...
- A used to prevent unauthorised users from gaining access to confidential files.
 - B the mode the computer is set to after a full virus scan.
 - C a method of loading an operating system with basic drivers and settings.
 - D activated when you press Ctrl+Alt+Delete.
- (1)
- 1.5 While viewing a page on Facebook, you were asked to install an add-on. Which ONE of the following refers to the function of an add-on in this context?
- An add-on ...
- A adds more support and functions for multimedia effects on the page.
 - B creates a new virtual port to plug in a flash drive.
 - C automatically upgrades the drivers for your graphics card.
 - D enables the plug-and-play capabilities of your operating system.
- (1)

- 1.6 A component that forms an integral part of the motherboard.
- A DVD ROM
 - B DIMM slots
 - C USB drivers
 - D HDD
- (1)
- 1.7 ... is a wild card character that can be used when searching for a file using an operating system utility.
- A %
 - B #
 - C *
 - D \$
- (1)
- 1.8 This is a work arrangement where employees work away from their offices and communicate with the office via the Internet.
- A Telecommuting
 - B Green computing
 - C Groupware computing
 - D Virtual computing
- (1)
- 1.9 ... may NOT be used as a data source in a mail merge.
- A A worksheet in a spreadsheet
 - B A report in a database
 - C A table in a word processing document
 - D A query in a database
- (1)
- 1.10 The ... application would be the most suitable for viewing a YouTube video.
- A Media Player
 - B MP3 player
 - C Paint
 - D Sound Recorder
- (1)

[10]

QUESTION 2: MATCHING ITEMS

Choose a term/concept from COLUMN B that matches the description in COLUMN A. Write only the letter (A–T) next to the question numbers (2.1 to 2.10) in the ANSWER BOOK, for example 2.11 U.

COLUMN A		COLUMN B	
2.1	A feature of a word processing program that can be used to show amendments to a document made by an editor or a reviewer	A	Template
		B	Macro
2.2	A document that contains a specific layout and formatting necessary to create other similar documents	C	Firewire
		D	Pharming
2.3	A system used to monitor and control access to and from the Internet on a computer	E	Operating system
		F	Phishing
2.4	A program that can be used to set a backup program to run every night at midnight	G	GIGO
		H	Timer
2.5	A program that manages and controls all the activities in a computer	I	Convergence
2.6	A device that can be used as a temporary source of power for computers if there is a power failure	J	Show/Hide
2.7	The small pictures on the desktop which represent programs or places on the computer	K	Track changes
		L	GUI
2.8	Incorrect input or invalid data into a computer system that will produce incorrect or meaningless results	M	Spooler
		N	Firewall
2.9	A trend where different technological systems and other functions or systems are combined into one computer or computing device	O	E-waste
		P	Icons
2.10	Attempts to trick users into giving out confidential data, such as passwords	Q	Theme
		R	UPS
		S	Scheduler
		T	CPU

(10 x 1) **[10]**

QUESTION 3: TRUE/FALSE ITEMS

Indicate whether the following statements are TRUE or FALSE. Write 'true' or 'false' next to the question numbers (3.1 to 3.5) in the ANSWER BOOK. If the statement is true, write 'TRUE'. If the statement is false, write 'FALSE' and change the underlined word(s) to make the statement TRUE. (Do NOT simply use the word "NOT" to change the statement.)

NO mark will be awarded if FALSE is written without a correct answer.

EXAMPLES:

QUESTION	ANSWER
A keyboard is an <u>input</u> device.	True
<u>Social engineering</u> is the study of the design of equipment for the comfort and the safety of people in a work environment.	False, Ergonomics

- 3.1 Companies often release the shareware versions of their software for testing purposes before the software is released for sale.
- 3.2 Section breaks make it possible to have different page orientations within the same word processing document.
- 3.3 Grid computing refers to the sharing of resources such as programs and data storage offered as a service over the Internet.
- 3.4 The snipping tool is a software that allows the user to capture or copy a section of what appears on the screen.
- 3.5 The spreadsheet functions LEFT and RIGHT can be replaced by the CONCATENATE function to get the same result.

[5]**TOTAL SECTION A: 25**

SECTION B**QUESTION 4: SYSTEM TECHNOLOGIES**

- 4.1 The principal established an ICT committee to buy new computers for the school's new ICT centre.
- 4.1.1 Give ONE motivation why the committee should buy wireless devices for the new ICT centre. (1)
- 4.1.2 Give TWO troubleshooting steps you can take to try and get a wireless (Bluetooth) keyboard that has suddenly stopped working to work again. (2)
- 4.2 The new ICT centre should be equipped with printers and a scanner.
- 4.2.1 Recommend a type of printer that will be suitable for high volumes of printing. (1)
- 4.2.2 3D printers have become very popular in the world of design and production.
Describe the function of a 3D printer and explain how it works. (2)
- 4.2.3 Discuss TWO advantages of buying a scanner to use in the new ICT centre. (2)
- 4.3 For a computer to function properly, it needs an operating system as well as an application software.
- 4.3.1 Most operating systems need to be updated from time to time.
State TWO possible advantages of such updates. (2)
- 4.3.2 Discuss TWO software related problems that could reduce the processing speed of a computer. (2)
- 4.4 The committee must consider ways in which physically challenged learners can access the computers in the ICT centre.
- 4.4.1 Name ONE hardware device to assist the visually impaired (blind) learners in the ICT centre. (1)
- 4.4.2 Explain how a speech recognition program may be used to assist learners who are physically challenged. (1)
- 4.5 Explain the difference between *a site license* and *a creative commons license*. (2)

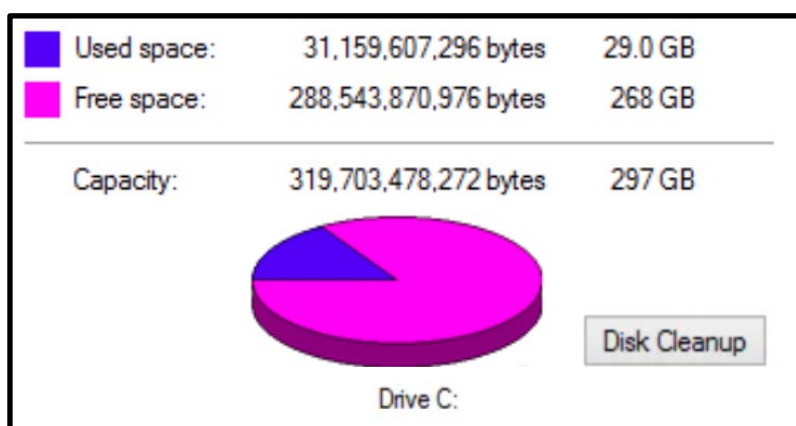
4.6 The committee wishes to buy a digital camera for the new ICT centre. In an advertisement, they saw that the resolution of the camera was incorrectly listed as 12 *dpi*.

4.6.1 Name the correct unit to measure the resolution of images taken with a digital camera. (1)

4.6.2 Give an example of where *dpi* is used as a specification. (1)

4.6.3 What effect does low resolution have on a digital image? (1)

4.7 The principal has an older computer at home. He opened the disk properties and the window below appeared.



4.7.1 What does the window above show you about the state of the hard drive? (1)

4.7.2 How would the amount of storage space available be affected if the principal performed a disk defragmentation on this hard drive?

Motivate your answer. (2)

4.7.3 Other than using the Disk Cleanup utility and performing a disk defragmentation, give THREE tips to the principal in order for him to keep his computer in a good running order. (3)

[25]

QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES

- 5.1 The community centre will provide facilities for people to play LAN games.
- 5.1.1 Explain what LAN games are. (1)
- 5.1.2 What is the difference between *online gaming* and *LAN gaming*? (2)
- 5.2 The people who will use the community centre have asked the committee to provide internet access.
- 5.2.1 Name the type of software they would need to read pages from the Internet. Do NOT give brand names. (1)
- 5.2.2 Discuss THREE issues to consider when deciding on an ISP. (3)
- 5.2.3 Other than cost, state TWO advantages of a broadband connection. (2)
- 5.3 The principal heard that some websites offer live streaming.
- Briefly explain what *live streaming* means. (1)
- 5.4 What is the purpose of the digital certificate found on some websites? (1)
- 5.5 When you use the internet, the web server stores small files known as cookies on a computer.
- Give TWO reasons why e-commerce and other web applications use cookies. (2)
- 5.6 The principal visited a website and a pop-up window appeared telling him that he had won a new iPad.
- Explain how he could stop this from happening again. (1)
- 5.7 Give the term used to outline the rules and restricts the ways in which the community centre may be used. (1)

[15]

QUESTION 6: INFORMATION MANAGEMENT

- 6.1 Information management is important especially when learners conduct online research. With reference to URL shortening:
- 6.1.1 Explain what a URL shortening service does. (1)
 - 6.1.2 Motivate how a user can benefit from the use of a URL shortening service. (2)
- 6.2 Mention TWO criteria that you would use when evaluating information in a website. (2)
- 6.3 State TWO general features of a spreadsheet program that make it suitable for data analysis. (2)
- 6.4 Explain why it is necessary to add a bibliography at the end of a formal document/report. (1)
- 6.5 Explain the difference between a *citation* and a *caption*. (2)
- [10]**

QUESTION 7: SOCIAL IMPLICATIONS

- 7.1 Big data is very large structured and unstructured data sets that are analysed using computers to reveal trends and patterns especially relating to human behaviour and interaction.
- 7.1.1 Discuss TWO skills required by people who wish to follow a career in big data analysis. (2)
 - 7.1.2 Briefly explain the term *crowd funding*. (2)
- 7.2 When you buy and/or install new software, there is an agreement to be accepted.
- Explain the purpose of the EULA agreement. (2)
- 7.3 Briefly explain what *geotagging* is. (2)
- 7.4 Explain by means of an example how the Internet of Things (*IoT*) can be used in a smart home. (2)
- [10]**

QUESTION 8: SOLUTION DEVELOPMENT

8.1 Explain the purpose of the Accessibility Checker. (2)

8.2 You set up a database of all the books in the library. The **Book_Table** contains the fields below.

Field name	Description
Barcode number	Bar code number to identify each book
Author	Author's name
Title	Title of the book
Year	Year published
Fiction	Fiction or non-fiction
No_of_Copies	Number of copies in stock

8.2.1 Name the field that is the most appropriate to use as the primary key **and** state why you have chosen this field. (2)

8.2.2 State the most appropriate data type (besides text) for the **Fiction** field that indicates whether the book is fiction or not. (1)

8.2.3 State the most appropriate data type for the **No_of_Copies** field. (1)

8.2.4 Which feature of a database report would you use to generate a list to separate the fiction from the non-fiction books? (1)

8.2.5 Which feature of a word processing program would you use to generate personalised letters to send to each learner with outstanding books? (1)

8.3 Which feature of a spreadsheet would you use to copy a function down to cells below without using the “copy and paste” method? (1)

8.4 Study the spreadsheet screenshot below and answer the questions that follow.

	A	B	C	D	E	F	G	H
	Supplier code	Equipment	Item Price		Department	Equipment needed	Units	Total Cost
1								
2	FGHD	Mouse	R129,990		CAT	Keyboard	30	#N/A
3	JKD	Keyboard	R295,360		IT	Keyboard	12	#N/A
4	PL	500 GB SSD	R999,990		Accounting	3 in 1 Printer	1	#N/A
5	WUJD	3 in 1 Printer	#####		Library	Keyboard	5	#N/A
6					Mathematics	500 GB SSD	2	#N/A
7					EGD	3 in 1 Printer	3	#N/A
8					Admin	500 GB SSD	1	#N/A

8.4.1 Explain what is the cause of the error found in **cell C5** and explain how to correct this error. (2)

8.4.2 A VLOOKUP function was used in **cell H2** to calculate the total cost of equipment per department. The following formula found in **cell H2** is copied down to **cell H8**:

=VLOOKUP(F2;\$A\$1:\$C\$5;3;FALSE)*G2

Correct the function OR explain why the function does not work. (2)

8.5 Give TWO possible reasons for hyperlinks not working on a saved HTML page. (2)
[15]

TOTAL SECTION B: 75

SECTION C**QUESTION 9: INTEGRATED SCENARIO**

Bitcoin miners receive Bitcoin as a reward for creating new “blocks” which are added to the blockchain. The school plans on investing in cryptocurrency (digital currency).

9.1 Study the advertisement below and answer the questions that follow:

ALTCOIN MINING RIGS – R69 999,00



- ✓ Motherboard (6 card support)
- ✓ Intel G3900 @ 3,15 Ghz
- ✓ 16 GB RAM
- ✓ Kingston 240 GB A400 SSD
- ✓ 6 x NVIDIA 8 GB 1070 GPU
- ✓ 6 x powered riser
- ✓ 1 x mining rig frame
- ✓ 1600 Watt PSU
- ✓ Includes motherboard assembly, SSD installation and a free 18” full HD screen

9.1.1 What kind of computer user will most likely use a computer with these specifications? (1)

9.1.2 Name the manufacturer of the graphics processor. (1)

9.1.3 How is the size of monitors normally measured? Give the name of the unit in which the size is measured. (2)

9.1.4 Mining rigs (computer systems) are used to mine bitcoins by completing complex mathematical processes.

Briefly explain what a *bitcoin* is. (2)

9.1.5 Discuss TWO limitations of bitcoin. (2)

9.1.6 Discuss THREE advantages of using a solid state drive (SSD). (3)

9.1.7 Explain the function of a power supply unit (PSU). (2)

9.2 The school decided to use a chatbot to deal with enquiries from parents and to communicate with parents in the chat function on their website.

9.2.1 A chatbot is a form of artificial intelligence (AI).

Define *artificial intelligence* (AI). (2)

9.2.2 State ONE advantage of using a chatbot to deal with user enquiries in this scenario. (1)

- 9.2.3 Give TWO reasons why it would be more appropriate to use a real person rather than a chatbot to handle user chats. (2)
- 9.3 There are some concerns with the Internet connection at the school as well as about malware.
- 9.3.1 Briefly explain what *pharming* is. (2)
- 9.3.2 Briefly explain the term *e-mail spoofing* and state who typically uses spoofing. (2)
- 9.3.3 List THREE social consequences of malware. (3)
- [25]**

QUESTION 10: INTEGRATED SCENARIO

- 10.1 Digital communication is very much part of an e-learning initiative.
- 10.1.1 List TWO limitations or weaknesses of digital communications. (2)
- 10.1.2 Give TWO good practices that you should follow when using digital communications. (2)
- 10.2 Differentiate between *e-learning* and *m-learning*. (2)
- 10.3 Ergonomics needs to be considered when using computing devices.
- 10.3.1 Briefly explain the term *ergonomics*. (2)
- 10.3.2 Why is it advisable to buy an ergonomically designed keyboard and mouse? (1)
- 10.4 There is a growing trend in using augmented reality (AR) technology when learning.
- Explain what *augmented reality* (AR) is by giving a relevant learning example. (1)
- 10.5 More and more people are suffering from information overload.
- 10.5.1 Briefly explain what *information overload* is. (2)
- 10.5.2 Besides learning to read, more quickly and accurately, give THREE strategies that can help you to prevent becoming a victim of information overload. (3)
- 10.6 Briefly explain the difference between a *driver* and *firmware*. (2)
- 10.7 In a document the author has used the Enter key repeatedly to move headings to the top of each page.
- 10.7.1 Why is this not a good choice to move the headings in this way? (1)
- 10.7.2 Propose a way to do this correctly. (1)
- 10.8 Explain what each of the following error messages in a spreadsheet would indicate and outline the solution to each.
- 10.8.1 #VALUE! (2)
- 10.8.2 #DIV/0! (2)
- 10.9 Explain when you will make use of absolute cell referencing in a spreadsheet. (2)

[25]

TOTAL SECTION C: 50
GRAND TOTAL: 150



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SUGGESTIONS AND RECOMMENDATIONS TO MARKERS

- Revisit the questions and the marking guideline frequently during the marking session.
- It is advisable to read (and re-read) the question frequently together with the candidate's response to check that it correlates, so that you are not misled by the candidate's statements/answers.
- Be careful not to focus on keywords or general statements, but rather read the entire answer. If in doubt, read the entire answer and then the question paper and the marking guidelines.
- Ask yourself if the response could 'fit' into the marking guidelines before allocating the correct marks to the candidate.
- Accept correct answers that are expressed differently, e.g. the marking guidelines states 'slow' and the candidate responds with 'not fast'.
- Beware of overlapping answers to a specific question. In general, ONE mark is awarded per fact.
- Do not choose answers on the candidate's behalf. Where a question requires a candidate to LIST or NAME: mark the first number of answers/facts required, e.g. the first TWO facts if the candidate presents a list of FIVE facts and only TWO facts were required, even if presented in paragraph format.
- Questions requiring longer answers must be regarded as a single unit. Marks can be awarded if correct statements are found anywhere in the paragraph.

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

1.1	D	✓	1
1.2	D	✓	1
1.3	C	✓	1
1.4	C	✓	1
1.5	A	✓	1
1.6	B	✓	1
1.7	C	✓	1
1.8	A	✓	1
1.9	B	✓	1
1.10	A	✓	1
Total: [10]			

QUESTION 2: MATCHING ITEMS

2.1	K	✓	track changes	1
2.2	A	✓	template	1
2.3	N	✓	firewall	1
2.4	S	✓	scheduler	1
2.5	E	✓	operating system	1
2.6	R	✓	UPS	1
2.7	P	✓	Icons	1
2.8	G	✓	GIGO	1
2.9	I	✓	convergence	1
2.10	F	✓	phishing	1
Total: [10]				

QUESTION 3: TRUE/FALSE ITEMS

(Note to marker:

- In Question 3.1, 3.3 and 3.5, candidates need to provide the correct term, e.g. Motherboard, in order to get the mark
- Award the mark if the correct answer is given without the word FALSE
- Do NOT award the mark if only the word FALSE is given without the correct answer)

3.1	False – beta ✓	1
3.2	True ✓	1
3.3	False – cloud computing ✓	1
3.4	True ✓	1
3.5	False – mid ✓	1
Total: [5]		

TOTAL SECTION A: 25

SECTION B

QUESTION 4: SYSTEM TECHNOLOGIES

4.1.1	ONE motivation why the committee should buy wireless devices - Prevents clutter on the desk or work surface as there are no cables - You have a wider range of movement (mobility) ✓ (Any ONE)	1	
4.1.2	TWO troubleshooting steps to get a wireless (Bluetooth) keyboard to work again - Check/replace the batteries in the keyboard - Check connections/Shut down and reboot the computer - Try another keyboard to see whether is not the keyboard itself ✓✓ (Any TWO)	2	3
4.2.1	Type of printer suitable for high volumes of printing Laser printer ✓	1	
4.2.2	Function of a 3D printer AND how it works 3D printers can create three-dimensional (3D) solid objects from a digital model of the item. ✓ by adding successive layers of material on top of one another ✓ (3D printing is also known as additive manufacturing (AM))	2	
4.2.3	TWO advantages of buying a scanner to use in the new ICT centre - Older documents can be scanned and archived. - Large documents that consist of many pages can be scanned and collated into a single digital file - Making it easy to convert documents into a digital format for storage - Scanning documents that contain text as an image and then using OCR software to convert the image into an editable document - Making it easy to convert old film photos into digital format, as well as preserving older documents for generations to come - Being able to store documents digitally also means that less paper and ink are used and it does not take up office space as paper files do - Scanned copies can be e-mailed directly instead of having to be faxed or posted ✓✓ (Any TWO)	2	5

4.3.1	<i>TWO possible advantages of updating operating system</i> • Better security/'Bugs' will be fixed/Errors are fixed • Modifications to device drivers are made • Access to new expanded functions is given • Allow new functionality to some programs • Solves problems that occurred in the program, etc. ✓✓ (Any TWO)	2	
4.3.2	<i>TWO software related problems that could reduce the processing speed of a computer</i> • Too many background programs / Too many programs open at the same time • Computer may be infected by malware/virus • Software updates being automatically downloaded • Defective application ✓✓ (Any TWO)	2	4
4.4.1	<i>ONE hardware device to assist the visually impaired (blind) learners</i> • Braille keyboards/braille 'display' • Magnification devices • Large-key keyboards • Braille printers ✓ (Any ONE)	1	
4.4.2	<i>How speech recognition program assists physically challenged learners</i> • Learners who cannot use their hand(s) properly can use the speech recognition program to convert speech to text • Visually impaired learners can use speech recognition program to give commands/instructions to the computer • Visually impaired learners can use speech recognition program to convert speech to text ✓ (Any ONE)	1	2
4.5	<i>Difference between site license and creative commons license</i> Site license allows a company or school to install software an unlimited number of times within the company or school ✓ Creative commons license is a copyright agreement that allows any person to use and share content under certain conditions from the owner of the copyright ✓	2	2

4.6.1	Unit to measure the resolution of images Megapixel (MP)/pixels per inch ✓	1	3
4.6.2	Where dpi is used as a specification • Printer • Monitor ✓ (Any ONE)	1	
4.6.3	Effect of low resolution on digital image • Pixellated/Unclear/Fuzzy/Not sharp/Poorly defined • Smaller storage size, etc. ✓ (Any ONE)	1	
4.7.1	Screenshot: State of the hard drive It is not full/there is a lot of free space/very little is stored on the hard drive ✓	1	6
4.7.2	Storage space available affected by disk defragmentation • There will be no significant difference in free space on the disk ✓ • Defragmenting reorganises/rearranges files ✓	2	
4.7.3	THREE tips to keep computer in good running order • Run Scan Disk • Run regular anti-virus updates • Make backups of data • Delete unnecessary files • Download software updates/'patches' regularly • Update security software • Physical cleaning/wiping keyboard/protect against dust • Update drivers, etc. ✓✓✓ (Any THREE)	3	
			[25]

QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES

5.1.1	Explain LAN games Playing computer games on a network ✓	1							
5.1.2	Difference between online gaming and LAN gaming <table border="1"><tr><td>Online gaming involves playing against people around the world ✓</td><td>LAN gaming involves playing with people in the same physical location ✓</td></tr><tr><td colspan="2">OR</td></tr><tr><td>Online gaming involves playing through the internet ✓</td><td>LAN gaming involves playing while connected to a local network ✓</td></tr></table> <i>(Note to marker: Accept any one of the above differences for two marks)</i>	Online gaming involves playing against people around the world ✓		LAN gaming involves playing with people in the same physical location ✓	OR		Online gaming involves playing through the internet ✓	LAN gaming involves playing while connected to a local network ✓	2
Online gaming involves playing against people around the world ✓	LAN gaming involves playing with people in the same physical location ✓								
OR									
Online gaming involves playing through the internet ✓	LAN gaming involves playing while connected to a local network ✓								
5.2.1	Type of software to read pages from the Internet – NOT brand names Web browser ✓	1							
5.2.2	THREE issues when deciding on an ISP • What the costs are • What the cap is on the amount of data that can be downloaded • Shaped or unshaped connection • Bandwidth/speed of connection or line (download and upload speed) • Whether it controls standard viruses • Whether it hosts websites for clients • What the different types of connections to the ISP are (wired, wireless, fibre) • What type/hours of support can be expected • Network coverage and availability, for example 3G, etc. • Reputation and reliability ✓✓✓ (Any THREE)	3	6						
5.2.3	TWO advantages of broadband connection, other than cost • High speed/Faster download • Permanent connection • One can watch video clips/movies and listen to music over the Internet • Can use telephone and surf Internet at same time if using a fixed line, etc. ✓✓ (Any TWO)	2							
5.3	Meaning of live streaming • Do not have to complete a download before viewing the video/listening to the audio • Watch a video live/on the internet • Can listen to music in real time, etc. ✓ (Any ONE)	1							
5.4	Purpose of the digital certificate To indicate that the website is legitimate ✓	1	1						

5.5	<i>TWO reasons why e-commerce and other web applications use cookies</i> E-commerce – to identify users ✓ (data such as user names are available) Web applications – to record and store user preferences ✓ (registers viewing preferences)	2	2
5.6	<i>How can pop-up window be prevented?</i> Use a filtering program such as a pop-up blocker ✓	1	1
5.7	<i>General term to outline rules in which community centre may be used</i> AUP – Acceptable Usage Policy ✓	1	1
			[15]

QUESTION 6: INFORMATION MANAGEMENT

6.1.1	URL shortening service function URL shortening service converts a long URL to a shorter version ✓	1	3
6.1.2	Benefits of a URL shortening service This shorter version of the URL will take a user to the same web address, ✓ but is easier to remember and/or type out ✓	2	
6.2	TWO criteria when evaluating information in a website • Accuracy • Affiliation • Authority • Accessibility • Objectivity • Coverage • Currency • Usability ✓✓ (Any TWO)	2	2
6.3	TWO features of a spreadsheet to make it suitable for data analysis • Graphs • Range of Functions / Formulae • Sorting • Pivot tables • Conditional formatting • Filtering • Validation features ✓✓ (Any TWO)	2	2
6.4	Reason for bibliography at the end of report • To prevent plagiarism • One must acknowledge sources • For future reference ✓ (Any ONE)	1	1
6.5	Difference between a citation and a caption Citation – Reference information of a source ✓ Caption – Numbered label you apply to objects, images, equations, etc. ✓	2	2
			[10]

QUESTION 7: SOCIAL IMPLICATIONS

7.1.1	TWO skills required by people who wish to follow a career in big data analysis • Analytical skills: Analytical problem-solving abilities to determine which data is relevant to a particular solution. • Creativity: Ability to create new methods to gather, interpret, and analyse a data strategy. • Mathematics and statistical skills • Computer science: Programmers need to come up with algorithms/systems/steps to process data into insights. • Business skills: Understand what drives the growth of a business as well as its profit. ✓✓ (Any TWO)	2	
7.1.2	Explain the term crowd funding. A process where a single idea or business practice is funded by multiple small donations ✓ from volunteer contributors usually before the business adventure is started ✓	2	4
7.2	Purpose of the EULA agreement • Document is a legal contract between user and software company ✓ that describes what you may or may not do with the software ✓ • This document is an end-user license agreement that states on how many computers ✓ you can load the software ✓ • What the program can be used for, ✓ liabilities of user and distributor in case of damage caused by the program ✓ (Note to marker: Accept any ONE for two marks)	2	2
7.3	Explain geotagging A process where a geographical position where a photograph was taken ✓ is added to the metadata of a file ✓ (Note to marker: Also accept: Reference to latitude and longitude.)	2	2

7.4	Example of Internet of Things (IoT) in a smart home Any suitable example ✓✓ Example 1: The alarm clock and the kettle are both connected to an app over the internet. When the alarm goes off, the kettle is switched on. Example 2: The app that manages the swimming pool is connected to a sensor in the pool as well as to other devices such as the pool pump. The sensor communicates the need for chemicals. The app then switches on the pump. <i>(Note to marker: Also accept:</i> • Different IoT enabled devices that are connected • Communication/control between the devices)	2	2
		[10]	

QUESTION 8: SOLUTION DEVELOPMENT

8.1	Purpose of an Accessibility Checker A user would use the Accessibility Checker to check for content that people with disabilities ✓ may find difficult to read ✓	2	2
8.2.1	Primary key AND state why Barcode ✓ Motivation: Only one book can have the barcode number / unique ✓	2	6
8.2.2	Data type for the Fiction field Yes/No ✓	1	
8.2.3	Data type for No_of_Copies field Number ✓	1	
8.2.4	Feature of a database report to separate the fiction from the non-fiction books Grouping ✓	1	
8.2.5	Feature of a word processing program to generate letters Mail merge ✓	1	
8.3	Feature of a spreadsheet to copy a function down to cells below Autofill ✓	1	1
8.4.1	Cause of the error found in cell C5 <u>AND</u> explain how to correct this error The cell is too narrow ✓ Adjust the width of the column ✓	2	4
8.4.2	Correct the function OR explain why the function does not work =VLOOKUP(F2;\$B\$1:\$C\$5;2;FALSE)*G2 OR The <i>table array</i> range must be \$B\$1:\$C\$5 ✓ The lookup column is 2 and not 3 ✓	2	

8.5	<i>TWO possible reasons for hyperlinks not working</i> • Tag has spelling errors/syntax errors/no closing tag • Reference resource or file being referred to does not exist anymore • Hyperlinks of a saved page do not reference online resource/page/document anymore • No internet access ✓✓ (Any TWO) <i>(Note to marker: Allow only one mark per bulleted option.)</i>	2	2
			[15]

TOTAL SECTION B: 75

SECTION C

QUESTION 9: INTEGRATED SCENARIO

9.1.1	Computer user Power user ✓	1	
9.1.2	Manufacturer of the graphics processor NVIDIA ✓	1	
9.1.3	How is the size of monitors measured AND name the unit Diagonally ✓ Inches ✓	2	
9.1.4	Definition of a bitcoin Bitcoins (BTC) are a form of virtual money/digital currency ✓ /means of payment Bitcoins can be exchanged for other currencies, products, and services ✓	2	
9.1.5	TWO limitations of cryptocurrencies • Not widely accepted • Bitcoin wallets can be lost • Volatility and price fluctuations • No buyer protection, no safety net or recourses if something goes wrong • Security and hacking risks • Transaction speed slow when more users join the network ✓✓ (Any TWO)	2	
9.1.6	THREE advantages of using an SSD • SSD is faster, has better performance and is very reliable • SSD is less likely to get damaged because of no moving parts • Durable and run quieter • Read/write speed (data access) of SSD is extremely fast • SSD uses 'flash memory' to store data and is not affected by magnetic interference • SSD has low power consumption (energy-efficient) • SSD is easier to carry around because of its physical size (2.5 inch) • SSD does not become fragmented therefore there is no need to defrag ✓✓✓ (Any THREE)	3	
9.1.7	Explain the function of a power supply unit (PSU) Power Supply Unit (PSU) checks that the power being supplied to a PC is constant ✓ and is of the correct voltage ✓	2	13

9.2.1	Define artificial intelligence (AI) Artificial intelligence is computer software/systems ✓ that simulates human intelligence / capable of performing complex tasks that only a human could do ✓	2	
9.2.2	ONE advantage of using a chatbot to deal with user enquiries - Facilitate seamless live communication - Make customer service available 24/7 - Improve response time - Saving on personnel costs - Automates tedious time-consuming tasks - Get constant improvement over time with machine learning ✓ (Any ONE)	1	
9.2.3	TWO reasons to use a real person - Can handle a wider variety of questions/answers - Provides employment to people - Unwillingness of people to use service because they know it is a machine - Negative perceptions of AI - Machines are not equipped to handle context/emotions ✓✓ (Any TWO)	2	5
9.3.1	Briefly explain pharming Pharming is a term used to describe a type of cyber-attack that redirects users to fraudulent websites ✓ or manipulates their computer systems to collect sensitive/personal information such as usernames and passwords ✓	2	
9.3.2	Explain e-mail spoofing <u>AND</u> who typically uses spoofing - Changing of an e-mail header so that the message appears to come from a different source ✓ - Distributors of spam/Spammers ✓	2	
9.3.3	List THREE social consequences of malware - Loss of money - Loss of personal or business information or data / corrupted files - Expenses incurred to fix problems and prevent future cybercrimes - Loss of reputation due to personal information that is revealed - Long-term debt created resulting in poor credit rating due to online identity theft - Cyber-attacks - Harassment ✓✓✓ (Any THREE) (Note to marker: Any other acceptable answer)	3	7
			[25]

QUESTION 10

10.1.1	<i>TWO limitations or weaknesses of digital communications</i> • Digital communications depend on Internet coverage • Their efficiency depends on Internet speed • They require other people to be connected digitally • They require expensive equipment • There are many different standards and both the sender and receiver need to be using the same applications • Hardware and software compatibility problems may occur • The effective use of digital communications depends on the skill and confidence of the user • Data can be lost when phones/tables etc. are lost, stolen or broken • Hackers, crackers, fraudsters and other cyber criminals can misuse digital communication ✓✓ (Any TWO) <i>(Note to marker: Accept any other limitations or weaknesses)</i>	2	
10.1.2	<i>TWO good practices when using digital communications</i> • Keep time differences in mind • Keep differences in bandwidth in mind • Remember that digital communications are largely impersonal and faceless, communication can be misinterpreted • Remember that you cannot undo something you have said or typed • The Internet is a very public place, be aware of posting personal details online ✓✓ (Any TWO)	2	4
10.2	<i>Differentiate between e-learning and m-learning</i> E-learning takes place through laptops and desktops via the internet ✓ while m-learning takes place through mobile devices like smartphones and tablets ✓	2	2
10.3.1	<i>Explain the term ergonomics</i> Study of the designing and arranging of components or equipment ✓ for most efficiently and safely optimal utilization by humans ✓	2	
10.3.2	<i>Why buy ergonomically designed keyboard and mouse?</i> They reduce the impact of RSI ✓	1	3

10.4	<i>Explain augmented reality (AR) by giving a learning example</i> • Learning geometry/shapes • Augmented reality children's books • Augmented reality newspapers where users can see images as videos • Human and physical geography • Sightseeing • Museum guidance • Building plans • Military to give soldiers better spatial awareness • Virtually see the furniture in your homes before making a purchasing decision ✓ (Any ONE) <i>(Note to marker: Accept any valid/reasonable response.)</i>	1	1
10.5.1	<i>Explain information overload</i> Information overload is what happens when people cannot cope ✓ with the amount of information they are exposed to every day ✓	2	
10.5.2	<i>THREE strategies to prevent becoming a victim of information overload, <u>besides reading more quickly and accurately</u></i> • Learn to analyse and compare sources ✓ • Take a disciplined and structured approach to deal with information e.g. filter your e-mails, use RSS feeds to structure news, etc. ✓ • Do not add to the problem by unnecessarily forwarding information to others ✓	3	5
10.6	<i>Difference between drivers and firmware</i> Drivers are software programs that enables the operating system to communicate with and control hardware devices ✓ Firmware is a set of instructions programmed directly into a hardware device and enables the device to perform functions ✓	2	2
10.7.1	<i>Why is the use of the Enter key not good choice to move headings to next page?</i> • The Enter key should only be used at the end of a paragraph otherwise you will create unnecessary hard spaces • You will create empty paragraphs if you use the Enter key to move headings to a next page • Does not contribute to good page layout ✓ (Any ONE)	1	
10.7.2	<i>Propose a way to do this correctly</i> Make use of a Page break ✓	1	2

10.8.1	Meaning of error message: #VALUE! and solution Reference is made to cells in the formula/function where the data type cannot be used in a calculation – text is multiplied by a number. ✓ SOLUTION: Ensure that all cell references and any other values used in the calculation are of a data type that can be used in calculations. ✓	2	
10.8.2	Meaning of error message: #DIV/0! And solution Division by zero or an empty cell is attempted ✓ SOLUTION: Change the divisor to another number, or key in a number if the cell is empty ✓	2	4
10.9	When to use absolute cell referencing When you want to prevent a column letter and/or row number in a formula or function from changing ✓ when the formula or function is copied to another cell. ✓	2	2
			[25]
TOTAL SECTION C:			50
GRAND TOTAL:			150