



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

COMPUTER APPLICATIONS TECHNOLOGY P2

2023

MARKS: 150

TIME: 3 hours

This question paper consists of 17 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of:

SECTION A (25)
SECTION B (75)
SECTION C (50)
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 subquestion.
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 answers than the question requires as it 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, e.g. 1.11 D.

- 1.1 A router is categorised as a/an ... device.
- A storage
 - B input
 - C communication
 - D output
- (1)
- 1.2 ... is the unit of measurement used for the speed of an internet connection.
- A KB
 - B Mbps
 - C GHz
 - D MHz
- (1)
- 1.3 A firewall is used to stop ... from accessing a computer.
- A approved programs
 - B Trojans and worms
 - C unauthorised programs
 - D wireless fidelity (Wi-Fi)
- (1)
- 1.4 A user entered the following search string in a search engine:
"OS"–windows
- This search engine will return a list of websites that refer to ...
- A the word 'OS' but not the word 'windows'.
 - B both the word 'OS' and the word 'windows'.
 - C the word 'windows' but not the word 'OS'.
 - D neither the word 'windows' nor the word 'OS'.
- (1)
- 1.5 OCR may fail to recognise alphabetical characters in a scanned document because ...
- A the electronic files are too large.
 - B a poor quality scanner was used.
 - C the scanner malfunctioned.
 - D a Wi-Fi scanner was used.
- (1)

- 1.6 ... is a concept which refers to technology that can learn and make decisions.
- A Augmented reality
 - B Internet protocol
 - C Virtual reality
 - D Artificial intelligence (1)
- 1.7 Which ONE of the following spreadsheet functions will identify the middle number in an ordered list?
- A MEDIAN
 - B MID
 - C AVERAGE
 - D MODE (1)
- 1.8 A type of internet attack that crashes a website by flooding it with requests:
- A Spoofing
 - B Denial of service
 - C Click-jacking
 - D Social engineering (1)
- 1.9 ... is a disadvantage of having electronic access to the personal information of people.
- A Copyright infringement
 - B Limited freedom of expression
 - C Encrypted communications
 - D Invasion of privacy (1)
- 1.10 A system utility that can be used to check the performance of a CPU:
- A Task Manager
 - B System Restore
 - C Disk Management
 - D Disk Cleanup (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, e.g. 2.11 U.

COLUMN A		COLUMN B	
2.1	Text, numbers and images in a format suitable for use by computers	A	asterisk (*)
		B	currency
2.2	Software used to remove malware from a computer system	C	VPN
2.3	A wild card used in database queries	D	hashtag (#)
2.4	A type of printer that uses plastic to print	E	data
2.5	A file format that can be used to share data between applications	F	antivirus
		G	PDF
2.6	A word processing option that allows you to apply different footers in the same document	H	spyware
		I	authority
2.7	A type of network with a very high level of security, that can be accessed over the internet	J	3D
		K	service pack
2.8	The evaluation of information that focuses on whether that information is still applicable	L	information
		M	laser
2.9	An update that corrects a single error found in software	N	adware
2.10	A type of program that infects a computer and tracks the user's internet activities	O	next (header/footer)
		P	WAN
		Q	ad blocker
		R	patch
		S	section break
		T	CSV

(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
The initial start-up instructions are stored in the <u>ROM</u> .	True
An <u>NIC</u> has slots for hardware components, such as the CPU.	False, Motherboard

- 3.1 Orphan is the last line of a paragraph that appears by itself at the top of a word processing page. (1)
- 3.2 Checking for objectivity is a method used by researchers to recognise bias or prejudice. (1)
- 3.3 Absolute cell referencing is when the cell references in a spreadsheet formula change every time the formula is copied to another cell. (1)
- 3.4 Phishing occurs when a user is redirected to a fake website even though the correct URL for a legitimate website is entered. (1)
- 3.5 The NOW function returns both the current date and time in a spreadsheet. (1)

[5]

TOTAL SECTION A: 25

SECTION B**QUESTION 4: SYSTEMS TECHNOLOGIES**

- 4.1 Name TWO input devices that can be used on a point of sale system. (2)
- 4.2 Define the concept *convergence*. (2)
- 4.3 Why are USB ports commonly used to connect peripheral devices? (2)
- 4.4 Name TWO specifications you would consider when buying a monitor. (2)
- 4.5 Give TWO reasons why your monitor does not display anything even though both the computer and the monitor are switched on.
- NOTE:** Assume the monitor is in perfect working order. (2)
- 4.6 Explain TWO limitations of using web-based applications. (2)
- 4.7 You receive an error message about insufficient disk space while you are installing a specific program.
- Suggest TWO ways to solve the problem so that you can complete the installation. (2)
- 4.8 Why would you distribute educational resources on an optical disk rather than over the internet? (1)
- 4.9 NFC can be used to transfer photographs from one device to another by holding them close together, without using the internet or any cables.
- 4.9.1 Give ONE disadvantage of using NFC in this situation. (1)
- 4.9.2 Give TWO uses of NFC, other than transferring photographs. (2)
- 4.10 Name TWO software technologies to assist physically disabled users who cannot use their hands to work on a computer. (2)
- 4.11 Which application would a network administrator use so that all the computers in a computer centre are switched off at a certain time in the afternoon? (1)
- 4.12 State TWO risks associated with using flawed software. (2)
- 4.13 Give TWO advantages of using the Snipping Tool to make a screenshot rather than using the Print Screen option. (2)
- [25]**

QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES

- 5.1 Define the concept *grid computing*. (2)
- 5.2 Name ONE communication technology that uses light to transfer data. (1)
- 5.3 Many people and organisations use video conferencing for meetings or events, e.g. Zoom, Skype or Google Meet.
 - 5.3.1 Suggest TWO good practices an organiser can implement to manage a video conference. (2)
 - 5.3.2 Explain TWO disadvantages of video conferencing. (2)
- 5.4 Give TWO reasons why users cannot access a file on a network. (2)
- 5.5 People in your household share the internet connection in your home.

Give TWO ways to prevent problems, such as buffering and delays, while using the internet without having to close applications or restricting the number of users. (2)
- 5.6 Give TWO reasons why instant messaging is widely used. (2)
- 5.7 An internet service provider (ISP) offers the following internet connectivity options:

SERVICE	ACCOUNT OPTIONS	
	OPTION 1	OPTION 2
Connection type	Fibre	Fibre
Speed	30 'meg'	30 'meg'
...	Yes	No
Shaped	Yes	No
...	Yes	No
Price	R299.00	R599.00

Complete the table above by giving the TWO aspects of the service offered by the ISP, taking the price of each option into consideration. (2)

[15]

QUESTION 6: INFORMATION MANAGEMENT

- 6.1 Give TWO aspects that you must include in a task definition for a research project, such as the PAT. (2)
- 6.2 In the PAT you are required to develop questions on different levels.
 - 6.2.1 The table below gives examples of how the four levels of questions may start. The purpose of a level 3 question appears in the table.

QUESTIONS STARTING WITH ...	LEVEL	PURPOSE OF QUESTION
Who, What, When, Where, How many	1	(a) ...
Why, How	2	(b) ...
If, What if	3	(c) Adjust, alter or predict
Would it be better if ... How can I determine ... What would be the best way ...	4	(d) ...

Complete the table by giving the purpose of the following:

- (a) A level 1 question
 - (b) A level 2 question
 - (c) A level 4 question (3)
- 6.2.2 Give ONE reason for using questions on different levels when doing research. (1)
- 6.3 Explain how you can avoid being guilty of plagiarism when doing research. (2)
 - 6.4 Study the survey below and discuss TWO reasons why this survey is NOT useful.

Survey

What is your name? _____

What do you spend your pocket money on?

How much pocket money do you get?

Why don't you save your pocket money?

Place your favourite movie on a scale of 1 – 50.

5			28		50
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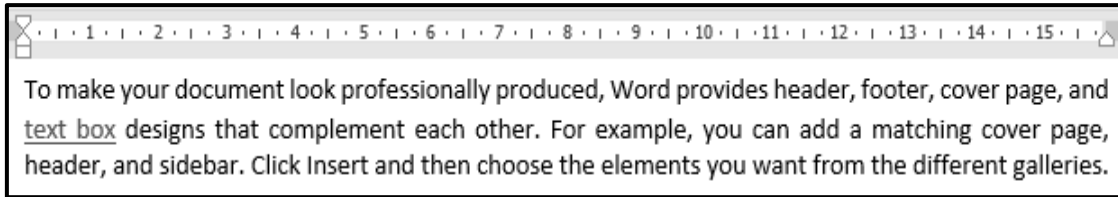
(2)
[10]

QUESTION 7: SOCIAL IMPLICATIONS

- 7.1 Give TWO ways of reducing the possible negative impact of ICTs on the environment. (2)
- 7.2 Explain TWO dangers of sharing your location online. (2)
- 7.3 What can you do to prevent the spread of fake news when using social media? (1)
- 7.4 Discuss TWO consequences for victims of identity theft. (2)
- 7.5 Why is a screen lock pattern on a computing device generally considered less secure than a strong password? (1)
- 7.6 Give TWO recommendations to prevent ransomware attacks. (2)
- [10]**

QUESTION 8: SOLUTION DEVELOPMENT

8.1 Consider the screenshot of a word processing document below.



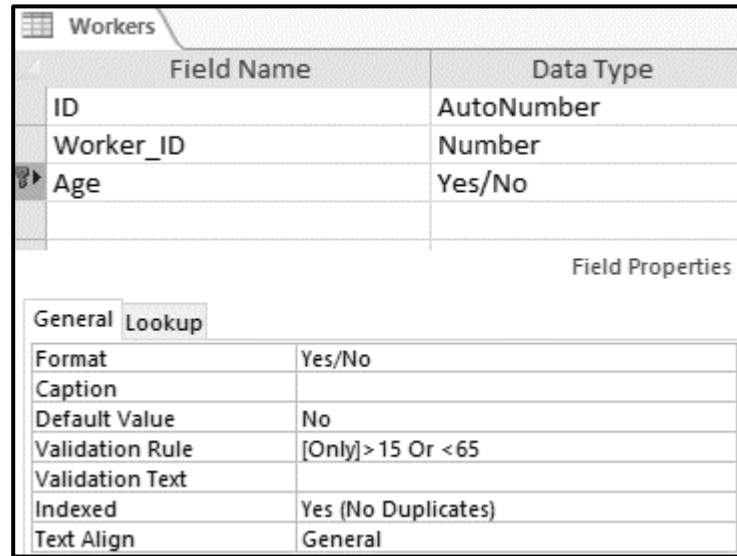
- 8.1.1 What is the purpose of using a ruler bar when working in a word processing document? (2)
- 8.1.2 What type of text alignment was applied to the paragraph above AND what is the benefit of aligning text in this way? (2)
- 8.1.3 Give ONE way of seeing the address referenced in the hyperlink in the paragraph above. (1)

8.2 Study the screenshot of a spreadsheet below.

	A	B	C	D
1	MONTHLY COSTS OF GROCERIES			
2	Month	Cost	VAT	Total Price = Cost + VAT
3	Jan	6000	900	5100
4	Feb	7231	1084.65	6146.35
5		5890	883.5	5006.5
6		5681	852.15	4828.85
7		4831	724.65	4106.35
8		4200	630	3570
9		5342	801.3	4540.7
10	Total			

- 8.2.1 Which spreadsheet feature would you use to complete the list of months in column A without having to type them in? (1)
- 8.2.2 Give TWO ways of formatting the number values in columns B to D in a more meaningful way. (2)
- 8.2.3 Why are the values (not the formatting) in the cell range D3:D9 NOT correct? (1)
- 8.2.4 Name ONE function to determine the total of the values in columns B, C and D. (1)

8.3 Study the screenshot of a database table in Design View below.



Field Name	Data Type
ID	AutoNumber
Worker_ID	Number
Age	Yes/No

Field Properties

Property	Value
Format	Yes/No
Caption	
Default Value	No
Validation Rule	[Only]>15 Or <65
Validation Text	
Indexed	Yes (No Duplicates)
Text Align	General

- 8.3.1 Why would an input mask on the *Worker_ID* field be helpful? (1)
- 8.3.2 Suggest THREE corrections to the validation rule so that it will accept only ages between 15 and 65 (including both 15 and 65) in the *Age* field. (3)
- 8.3.3 Give ONE reason, other than the validation rule, why the current design of the *Age* field may cause errors. (1)

[15]

TOTAL SECTION B: 75

SECTION C**QUESTION 9: INTEGRATED SCENARIO**

Your school wishes to organise a Youth Day event. CAT learners will use their ICT knowledge to assist the organising committee.

- 9.1 A local business donated a fully functional computer to be used for the event. Study the specifications of this computer.

COMPUTER SPECIFICATIONS

Windows 7
1 GHz Celeron
120 GB HDD
1 GB RAM
14" LCD monitor

- 9.1.1 Give TWO reasons why the latest Windows operating system cannot be installed on this computer. (2)
- 9.1.2 Suggest an operating system that can be installed on this computer instead of proprietary software such as Windows. (1)
- 9.1.3 Give ONE reason why it would not be advisable to upgrade this computer. (1)
- 9.2 Details of the event were posted on social media.

Give TWO advantages of using social media platforms to communicate with the public. (2)
- 9.3 An invitation with a shortened URL was e-mailed to guests so that they could register to attend the event.
- 9.3.1 The URL **www.bit.ly/AgwzA1** was e-mailed.

Give TWO reasons why the guests may not trust this shortened URL. (2)
- 9.3.2 Give THREE benefits of using online forms instead of using pen-and-paper based forms to register for the event. (3)

- 9.4 The data from the online forms is stored in a spreadsheet.
- 9.4.1 Which mail merge option will you use to create name tags only for selected guests stored in the spreadsheet? (1)
- 9.4.2 Name a spreadsheet function that can be used to select a winner in a lucky draw. (1)
- 9.5 Your school considers providing free internet access to the public during the event.
- 9.5.1 Give TWO possible reasons why your school should NOT offer free access to the internet. (2)
- 9.5.2 Suggest TWO precautions you can take when you use free internet access. (2)
- 9.6 Your school received various donations through crowdfunding.
- 9.6.1 Explain the concept *crowdfunding*. (2)
- 9.6.2 Name ONE crowdfunding platform. (1)
- 9.6.3 Name TWO spreadsheet features (not functions) that can be used to determine the top ten amounts that were received through crowdfunding. (2)
- 9.7 A past learner donated half a Bitcoin to the school for the event.
- 9.7.1 What form of currency does Bitcoin belong to? (1)
- 9.7.2 Give TWO benefits of making donations in Bitcoin. (2)
- [25]**

QUESTION 10: INTEGRATED SCENARIO

The school wishes to promote healthy living. They host a club for walking and running which is open to the whole community.

- 10.1 The school uses e-mail communication to invite the community to participate in the club activities and also to keep them updated on activities.
- 10.1.1 Which e-mail feature would the club secretary use to send an e-mail to many people at the same time? (1)
- 10.1.2 How can the club secretary ensure that parents do not see each other's e-mail addresses when an e-mail is sent to many parents at the same time? (1)
- 10.1.3 Parents complain that e-mails are going directly to their spam folder.
Give ONE way in which parents can ensure that future e-mails from the school do not go into their spam folder. (1)
- 10.1.4 The club secretary tried to send out a video via e-mail. An error message alerted the club secretary that the video attachment was too large.
Suggest TWO ways in which the secretary can share the video electronically. Do NOT refer to storage media. (2)
- 10.2 The club offers lockers with biometric locks for members to store their valuables in, while they are running or walking.
- 10.2.1 Explain the concept *biometric security*. (2)
- 10.2.2 Give TWO disadvantages of using biometric locks. (2)
- 10.3 The club secretary set up the following database table to store the details of the members:
- | FIELD NAME | DESCRIPTION (OPTIONAL) |
|-------------------|---|
| Surname | Surname of the member/Lid se van |
| FirstName | First name of the member/Lid se voornaam |
| CellNumber | Cellphone number of the member/Lid se selfoonnommer |
| DOB | Date of birth/Geboortedatum |
| ChronicConditions | ? |
- 10.3.1 Which database feature must be applied to a new or an existing field to uniquely identify each record? (1)
- 10.3.2 Suggest a data type, together with a motivation, for the field *ChronicConditions*, other than 'Yes/No'. (2)

10.4 The chairperson of the club suggested that it would be more effective to create a website that would give information about the club activities and events.

10.4.1 Give TWO user-centred design (UCD) guidelines a web designer should use to create a website. (2)

10.4.2 The club's website should display the following table:

Distance	
1	Marathon
2	Half Marathon

The HTML code for this table is as follows:

```
<table border="1">
<tr>
  <td rowspan=2>Distance</td>
</tr>
<tr>
  <td>1</td>
  <td>Marathon</td>
</tr>
  <td>2</td>
  <td>Half marathon</td>
</table>
```

Suggest TWO corrections to the HTML code so that this table will display correctly. (2)

10.5 The club uses a drone for various activities.

10.5.1 Which technology allows a drone to create a map of the route that the runners will use? (1)

10.5.2 Give TWO benefits of equipping a drone with a camera to follow the runners or walkers. (2)

10.5.3 The drone pilot finds that there is not enough space on the SD card of the camera after recording the first race.

How can this problem be solved without moving data or changing the SD card? (1)

- 10.6 What category of user would want to use a computer with sophisticated hardware to edit videos? (1)
- 10.7 The club members can exercise on equipment connected to AR (augmented reality) technology in the gym.
- 10.7.1 Give the definition of *AR technology*. (3)
- 10.7.2 Give ONE example of where AR can be used. (1)
- [25]**
- TOTAL SECTION C: 50**
GRAND TOTAL: 150



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2023

MARKING GUIDELINES

MARKS: 150

These marking guidelines consist of 20 pages.

SUGGESTIONS AND RECOMMENDATIONS TO MARKERS

- Revisit the questions and the marking guidelines 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 or your senior marker 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 state '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 instances 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	C	✓	1
1.2	B	✓	1
1.3	C	✓	1
1.4	A	✓	1
1.5	B	✓	1
1.6	D	✓	1
1.7	A	✓	1
1.8	B	✓	1
1.9	D	✓	1
1.10	A	✓	1
Total: [10]			

QUESTION 2: MATCHING ITEMS

2.1	E	✓	1
2.2	F	✓	1
2.3	A / D	✓	1
2.4	J	✓	1
2.5	T	✓	1
2.6	S	✓	1
2.7	C	✓	1
2.8	B	✓	1
2.9	R	✓	1
2.10	H	✓	1
Total: [10]			

QUESTION 3: TRUE/FALSE ITEMS

(Note to marker: In Question 3.1, 3.3, and 3.4:

- 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, Widow ✓	1
3.2	True ✓	1
3.3	False, Relative (cell referencing) ✓	1
3.4	False, Pharming ✓	1
3.5	True ✓	1
		[5]

TOTAL SECTION A: 25

SECTION B**QUESTION 4: SYSTEMS TECHNOLOGIES**

4.1	<p><i>TWO input devices than can be used on a Point of Sales system</i></p> <p>(1) Keyboard/Keypad/Touchscreen (2) Barcode scanner (3) Speed point/Bank card facility machine (4) Scale for measuring weight (of items) (5) NFC reader/QR code scanner</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
4.2	<p><i>Definition of convergence</i></p> <p>Convergence is where the functionality of two or more devices ✓ are combined in one device ✓</p>		2
4.3	<p><i>TWO reasons why USB ports are commonly used to connect peripheral devices</i></p> <p>(1) High speed data transfer (2) Provides power to devices (3) Computers/Laptops compatible with most external devices (4) Hot swappable (<i>Accept Plug & Play</i>)</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
4.4	<p><i>TWO specifications to consider when buying a monitor</i></p> <p>(1) Resolution/Pixel density (2) Physical size (3) Contrast ratio/Colour depth (4) Aspect ratio (5) Panel type (curved/flat)/LED/LCD/QLED (6) Refresh rate/Response time (7) Connectivity options</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
4.5	<p><i>TWO reasons why a monitor does not display anything even though both the computer and monitor are switched on</i></p> <p>(1) Cables/Signal cable not connected properly/faulty (2) Faulty graphics card (3) Display is set to a secondary monitor (4) Sleep mode is active</p> <p style="text-align: right;">✓✓ (Any two)</p>		2

4.6	<p>TWO limitations of using web-based applications</p> <p>(1) Requires reliable internet connection (2) Requires additional data and sufficient speed (3) Possibility of security risks while online (4) Applications may not be compatible with all web browsers (5) Applications can be much slower than installed ones (6) Applications may not have all the functionality/features of installed ones/may cause formatting changes</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
4.7	<p>TWO ways to complete the installation when a program reports an error message that there is insufficient disk space</p> <p>(1) Delete/Move unwanted programs/data onto an external drive or the cloud (2) Use Disk Cleanup (3) Replace/Add a larger storage device/drive (4) Compress data/folders not frequently used</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
4.8	<p>ONE reason to distribute educational resources on an optical disk</p> <p>(1) Users may not have data/sufficient cap (2) Connectivity issues/slow internet (3) Control the spread of viruses and other malware</p> <p style="text-align: right;">✓ (Any one)</p>		1
4.9.1	<p>ONE disadvantage of using NFC</p> <p>NFC has a low transfer speed ✓ / Will take a long time to transfer photographs or videos</p>	1	
4.9.2	<p>TWO uses of NFC other than the transfer of photos</p> <p>(1) Making payments (2) Open/Launch an app on other devices (3) Pair/Trigger accessories with device (4) Security purposes, e.g. Unlocking doors/Access control (5) Transfer other kinds of media, e.g. video/documents (6) Printing via NFC</p> <p style="text-align: right;">✓✓ (Any two)</p>	2	3

4.10	<p>TWO software technologies to assist physically disabled users, who cannot use their hands, to work on a computer</p> <p>(1) Voice recognition software (2) Speech-to-text software (3) Eye tracking/Gesture recognition software (4) Virtual assistant</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
4.11	<p>Application to switch off all computers at a certain time in the afternoon</p> <p>(1) Task Scheduler (2) LanSchool/EyeSpy/Classroom Spy, etc. (Accept Classroom Management Software)</p> <p style="text-align: right;">✓ (Any one)</p>		1
4.12	<p>TWO risks of using flawed software</p> <p>(1) Corrupted data/loss of data/loss of productivity (2) Invalid/Unexpected results (3) Security issues (4) Malware infection (5) Unusual behaviour of computer-controlled devices/temporarily malfunction</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
4.13	<p>TWO advantages of using the Snipping Tool compared to the Print Screen option</p> <p>(1) Specific area can be selected (2) The screenshot can be saved directly in different file formats (3) Can edit within the Snipping Tool application (4) The screenshot can be directly attached to an e-mail or added to another application (5) Can print from within the Snipping Tool application</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
			[25]

QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES

5.1	<p>Concept of grid computing</p> <p>Processing power ✓ of many computers are combined in order to complete a single task/solve a problem ✓</p>		2
5.2	<p>Communication technology that uses light for data transfer</p> <p>(1) Fibre optic (2) Li-Fi (Light fidelity) (3) IR (Infrared)</p> <p style="text-align: right;">✓ (Any one)</p>		1
5.3.1	<p>TWO good practices for managing video conferencing</p> <p>(1) Ensure all participants hear/see the speaker and/or other participants/presentations (2) Have participants mute their microphones if they are not speaking/Mute the participants (3) Give all participants an opportunity to participate, e.g. chat box, hands-up, voice and sharing their screen (4) Enable setting for filtering out background noises/Disallow distracting backgrounds (5) Enable transcripts (6) Record the proceedings of the meeting (7) Add security measures for joining, e.g. waiting room</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
5.3.2	<p>TWO disadvantages of video conferencing</p> <p>(1) Less in-person contact (2) Possible network instability and time lag/Intermittent software issues (3) Lack of full participation/engagement (4) Participants' inability to use the technology adequately (5) Requires specific hardware, e.g. webcam (6) Data intensive</p> <p style="text-align: right;">✓✓ (Any two)</p>	2	4
5.4	<p>TWO reasons why users cannot access a file on a network</p> <p>(1) Access rights may prevent users from opening the file (2) Problem with the connection to the server (3) Server is offline (4) The file is corrupt</p> <p style="text-align: right;">✓✓ (Any two)</p> <p>(Note to marker: Do NOT accept password)</p>		2

5.5	<p>TWO ways to prevent buffering and delays without having to close applications</p> <p>(1) Disable automatic updates/Enable data saver (2) Stream at a lower resolution (3) Reduce use of multimedia/Disable automatic video play in certain apps (4) Reduce distance/obstacles between router and user</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
5.6	<p>TWO reasons why instant messaging is widely used</p> <p>(1) Easy access to IM apps via smartphones/multiple platforms (2) Real-time communication (3) Easy to create and manage groups (4) Messages are usually secure/End-to-end encryption (5) Additional functionality, e.g. voice call/group call/voice note</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
5.7	<p>TWO reasons for price differences between fibre connections with the same speed</p> <p>Throttled ✓ Capped ✓</p>		2
			[15]

QUESTION 6: INFORMATION MANAGEMENT

6.1	<p>TWO aspects to be included in a task definition</p> <p>(1) Problem stated/current situation/Why it is a problem (2) Focus/purpose of the investigation (3) How to go about doing the research (4) Where to look for information/How information will be used (5) Target audience (6) How the information will be presented</p> <p style="text-align: right;">✓✓ (Any two)</p>		2															
6.2.1	<p>Purpose of questions</p> <table border="1"> <thead> <tr> <th>Questions starting with...</th> <th>Level</th> <th>Purpose of question</th> </tr> </thead> <tbody> <tr> <td>Who, what, when, where, how many</td> <td>1</td> <td>a) Gather facts ✓</td> </tr> <tr> <td>Why, How</td> <td>2</td> <td>b) Explore ✓ / Examine</td> </tr> <tr> <td>If, What if</td> <td>3</td> <td>c) <i>Adjust, alter or predict</i></td> </tr> <tr> <td>Would it be better if ... How can I determine ... What would be the best way ...</td> <td>4</td> <td>d) /c) Reach a conclusion ✓</td> </tr> </tbody> </table>	Questions starting with...	Level	Purpose of question	Who, what, when, where, how many	1	a) Gather facts ✓	Why, How	2	b) Explore ✓ / Examine	If, What if	3	c) <i>Adjust, alter or predict</i>	Would it be better if ... How can I determine ... What would be the best way ...	4	d) /c) Reach a conclusion ✓	3	
Questions starting with...	Level	Purpose of question																
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Why, How	2	b) Explore ✓ / Examine																
If, What if	3	c) <i>Adjust, alter or predict</i>																
Would it be better if ... How can I determine ... What would be the best way ...	4	d) /c) Reach a conclusion ✓																
6.2.2	<p>ONE reason for using different level questions when doing research</p> <p>(1) To gather enough/varied information (2) To guide your research (3) To add depth to your research (4) To help you order the content when you write your report</p> <p style="text-align: right;">✓ (Any one)</p>	1	4															
6.3	<p>How to avoid being guilty of plagiarism</p> <p>(1) Acknowledge sources, (e.g. bibliography and citations) (2) Write in your own words/use a paraphrasing tool (3) Do not copy and paste text (4) Use a similarity checker (e.g. Turnitin)</p> <p style="text-align: right;">✓✓ (Any two)</p>		2															
6.4	<p>TWO reasons why the survey is NOT useful</p> <p>(1) Do not know what this survey is about/No introduction (2) No focus, questions do not all relate to the same context/No guidance for the respondent to answer the questions (3) Difficult to process, e.g. Open-ended questions/Questions are not numbered/Name is irrelevant/should not be asked according to POPIA (4) Clarity of questions not ideal, e.g. Check box used for space where text should be entered/No descriptor for checkbox/Rating scale is illogical/No space to answer question</p> <p style="text-align: right;">✓✓ (Any two)</p>		2															
			[10]															

QUESTION 7: SOCIAL IMPLICATIONS

7.1	<p><i>TWO ways to reduce the possible negative impact of ICTs on the environment</i></p> <p>(1) Recycle/Reuse old computers/devices/parts (2) Buy energy efficient hardware (3) Switch off computers when not in use (4) Proofread before printing/Print on both sides of the paper/Print 2 pages per sheet/Print in draft/eco-mode (5) Adjust device settings to use less energy, etc.</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
7.2	<p><i>TWO dangers of sharing your location online</i></p> <p>(1) You could be spammed with location-based advertising (2) You could be stalked and harassed (3) Criminals could target your premises while you are away</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
7.3	<p><i>ONE way to reduce the spread of fake news when using social media</i></p> <p>(1) Verify the authority of the source/content/Check the facts (2) Do not forward messages that are emotionally charged/not confirmed/seems too good to be true (3) Educate people about fake news (4) Report fake news</p> <p style="text-align: right;">✓ (Any one)</p>		1
7.4	<p><i>TWO consequences for victims of identity theft</i></p> <p>(1) Others will have access to bank accounts and steal your funds (2) Financial implications, e.g. others are able to take out loans in your name that you will have to repay/You may be blacklisted (3) Reputational damage/Emotional distress as a result of being a victim of identity theft (4) Others can impersonate you so that they can commit fraud/to commit criminal activity</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
7.5	<p><i>Reason for a screen lock pattern being less secure than a strong password</i></p> <p>(1) Easier to trace the pattern by following the marks (residue) that your fingers have left on the screen (2) Easy for someone to see if they are looking over your shoulder (3) There are a limited number of patterns available/Strong passwords require alphabetical characters, digits and other characters (symbols) offering more combinations</p> <p style="text-align: right;">✓ (Any one)</p>		1

7.6	TWO recommendations to prevent ransomware attacks (1) Update all software (2) Install and update antivirus/anti-ransomware software (3) Do not click on links in pop-up windows or phishing e-mails/Spam filtering for less exposure to adware (4) Implement advanced security measures on the network ✓✓ (Any two)		2
			[10]

QUESTION 8: SOLUTION DEVELOPMENT

8.1.1	<p>Purpose of using the ruler bar in a word processing document</p> <p>(1) You can see and set tab stops (2) You can see and adjust the margin settings/alignment (3) You can move table borders (4) You can line up objects/set indentations in a document (5) You can measure the width of columns, objects, etc.</p> <p style="text-align: right;">✓✓ (Any two)</p>	2	
8.1.2	<p>Type of alignment AND its benefit</p> <p>Justify ✓</p> <p>AND</p> <p>Uniform layout of text on both sides/Give text clean, crisp edges/Looks more professional ✓</p>	2	
8.1.3	<p>ONE way to see the address of the hyperlink in a document</p> <p>(1) Hover the mouse over the hyperlink (2) Right click on the hyperlink and click on Edit Hyperlink (3) Alt+F9 (4) Click on the link and check the address in the address bar of the browser</p> <p style="text-align: right;">✓ (Any one)</p>	1	5
8.2.1	<p>Spreadsheet feature that completes the list of months in a column</p> <p>Auto Fill ✓</p>	1	
8.2.2	<p>TWO ways to format the number values in a more meaningful way</p> <p>(1) Apply the Currency/Accounting/Custom number format (2) Format all the cells to 2 decimal places (3) Apply a 1000 separator</p> <p style="text-align: right;">✓✓ (Any two)</p>	2	
8.2.3	<p>Reason for incorrect values in D3:D9</p> <p>VAT was subtracted ✓ instead of added</p>	1	
8.2.4	<p>Function to determine the total of the values in columns B, C and D</p> <p>Use the SUM ✓ function for each column</p>	1	5

8.3.1	<p>Reason for input mask of Worker_ID field</p> <p>(1) To enforce a specific format/length (2) Reduce the possibility of input errors</p> <p style="text-align: right;">✓ (Any one)</p>	1	
8.3.2	<p>THREE corrections to the validation rule</p> <p>>=15 and <=65 Remove 'Only', ✓ / The text 'Only' does NOT appear Insert = signs, ✓ / >= <= Change 'Or' to 'And' ✓ / And</p>	3	
8.3.3	<p>ONE reason why the design of the Age field may cause errors</p> <p>(1) Data type is incorrect/Data type of the Age field must be set on Number/Data type of the Age field cannot be a Boolean/ Yes/No value (2) Age field is set as a primary key which will not accept duplicates/is not unique</p> <p style="text-align: right;">✓ (Any one)</p>	1	5
			[15]

TOTAL SECTION B: 75

SECTION C

QUESTION 9: INTEGRATED SCENARIO

9.1.1	<p>TWO reasons why the latest Windows OS cannot be installed</p> <p>Processor is too slow/not compatible ✓ Insufficient RAM ✓</p>	2	
9.1.2	<p>ONE alternative operating system instead of propriety OS</p> <p>A Free Open Source Software (FOSS) operating system ✓/Open Source Software (OSS) operating system</p> <p>(Note to Marker: Accept examples such as Linux, Ubuntu, etc.)</p>	1	
9.1.3	<p>ONE reason why it is NOT advisable to upgrade this computer</p> <p>(1) Computer is too old/Components are too old (2) Compatibility issues between old and new components (3) May be impossible to add more RAM (4) Faster processor may be incompatible with the motherboard ✓ (Any one)</p>	1	4
9.2	<p>TWO advantages of using social media platforms when communicating with the public</p> <p>(1) The message can be widely distributed/Easily accessible to a large audience (2) Instant communication/Real-time newsfeeds (3) Free exposure/advertising for the donors of the event (4) Can use multimedia (5) Public can give feedback ✓✓ (Any two)</p>		2

9.3.1	<p>TWO reasons why people may not trust a shortened URL</p> <p>(1) There is no indication whether the website is secure (2) The URL could be flagged as spam in the recipient's inbox (3) The URL gives no logical indication of the website they are being directed to</p> <p style="text-align: right;">✓✓ (Any two)</p>	2	
9.3.2	<p>THREE benefits of using online forms instead of pen-and-paper based forms</p> <p>(1) Ensures accuracy/Prevents spelling and other input issues (2) Quicker to complete/More efficient as a result of lists to select from (3) Save on paper/ink /More environmentally-friendly method (4) Easy management and analysis of data</p> <p style="text-align: right;">✓✓✓ (Any three)</p>	3	5
9.4.1	<p>Mail merge option for select name tags</p> <p>Edit Recipient List ✓ (Accept Filter)</p>	1	
9.4.2	<p>A spreadsheet function to select a lucky winner</p> <p>(1) RANDBETWEEN (2) RAND</p> <p style="text-align: right;">✓ (Any one)</p>	1	2

9.5.1	<p>TWO possible reasons for NOT offering free internet access during the event</p> <p>(1) The school does not have sufficient bandwidth for the event (2) The data costs for the event may be too high/Data cap may be used up too quickly during the event (3) Possibility of security issues</p> <p style="text-align: right;">✓✓ (Any two)</p>	2	
9.5.2	<p>TWO precautions you can take when using free internet access</p> <p>(1) Do not access personal bank accounts or sensitive personal data (2) Only visit secure sites (HTTPS) (3) Log out of accounts when you have finished using them (4) Disable file sharing (5) Use a VPN when connecting to the internet (6) Update your antivirus after logging on and before continuing to surf the internet</p> <p style="text-align: right;">✓✓ (Any two)</p>	2	4
9.6.1	<p>Concept of crowdfunding</p> <p>Crowdfunding is a process where a business idea/event ✓ is funded by (online) multiple small donations ✓ from volunteer contributors</p>	2	
9.6.2	<p>ONE crowdfunding platform</p> <p>(1) Indiegogo (2) Kickstarter (3) BackaBuddy (4) GoFundMe (5) Crowdcube (6) SeedInvest (7) Patreon (8) StartEngine (9) Mightycause (10) Twitch TV, etc.</p> <p style="text-align: right;">✓ (Any one)</p>	1	
9.6.3	<p>TWO spreadsheet features (not functions) to determine the top 10 donations</p> <p>(1) Sort (2) Filter (3) Conditional formatting (4) Pivot tables</p> <p style="text-align: right;">✓✓ (Any two)</p>	2	5

9.7.1	Form of currency that Bitcoin belongs to Crypto (currency) ✓/Digital (currency)/Virtual (currency)	1	
9.7.2	TWO benefits of making donations in Bitcoin (1) Donations can be made anonymously (2) Very secure method of payment (3) Very low transaction fees ✓✓ (Any two)	2	3
			[25]

QUESTION 10: INTEGRATED SCENARIO

10.1.1	E-mail feature to efficiently send an e-mail to many people at the same time Distribution list/Mailing list ✓	1	
10.1.2	E-mail field to hide multiple e-mail addresses from a recipient Use Bcc field for all e-mail addresses ✓	1	
10.1.3	ONE way to prevent future e-mails from going to the Spam folder (1) Mark as not Spam (2) Add to safe senders' list (3) Create a mailing rule to move the e-mail to a separate folder/inbox (4) Click on the allow message dialog ✓ (Any one)	1	
10.1.4	TWO ways to share a video that is too large (1) Share a link of the folder in the cloud/FTP (2) Compress the file to reduce file size (3) Share through a social media platform, e.g. YouTube, Facebook, etc (4) Use Peer-to-peer networking, e.g. Torrent ✓✓ (Any two)	2	5
10.2.1	Explanation of biometric security Technology that is used to identify a person ✓ based on their physical features, ✓ (e.g. fingerprint, iris, voice, etc.)	2	
10.2.2	TWO disadvantages of using biometric locks (1) Moisture/water affects accuracy of biometric scanning (2) Injury/illness could result in the physical feature not being recognised (3) Dust/dirt/grime can affect accuracy of sensors ✓✓ (Any two)	2	4

10.3.1	Database feature to uniquely identify uniquely identify a record Primary key ✓	1									
10.3.2	Data type for ChronicConditions field AND motivation <table border="1"> <thead> <tr> <th>Data type</th> <th>Motivation</th> </tr> </thead> <tbody> <tr> <td>Memo/Long text</td> <td>Brief description of the condition that a person has</td> </tr> <tr> <td colspan="2" style="text-align: center;">OR</td> </tr> <tr> <td>Lookup Wizard</td> <td>Select a condition from a list</td> </tr> </tbody> </table> One mark for the data type ✓ One mark for a matching motivation ✓	Data type	Motivation	Memo/Long text	Brief description of the condition that a person has	OR		Lookup Wizard	Select a condition from a list	2	3
Data type	Motivation										
Memo/Long text	Brief description of the condition that a person has										
OR											
Lookup Wizard	Select a condition from a list										
10.4.1	TWO user-centred design (UCD) guidelines for creating a website (1) Priority content should be suitably placed (2) Consistent themes and layout (3) Appropriate colour contrast (4) Appropriate font sizes (5) Navigation should be consistently placed (6) Clear/appropriate images ✓✓ (Any two)	2									
10.4.2	TWO corrections for the HTML table to display correctly (1) Change rowspan to colspan ✓ (2) Add <tr> tags for the third row ✓	2	4								
10.5.1	A technology that allows a drone to create a map of a running route (1) GPS (2) Drone mapping software (Using photos to create a map), e.g. Photogrammetry ✓ (Any one)	1									
10.5.2	TWO benefits of equipping a drone with a camera to follow runners or walkers (1) Livestream events (2) To monitor the safety of the runners or walkers (3) Analyse running and walking techniques (4) To alert emergency services if a runner or walker is injured (5) To ensure that nobody is left behind (6) To track cheating, foul play, etc. (7) Analyse the route (elevations/downhills) ✓✓ (Any two)	2	4								

10.5.3	<p>Solution to the problem of limited space on a SD card</p> <p>(1) Reduce the resolution/Use a lower image quality (2) Use monochrome settings for pictures (3) Different file formats</p> <p style="text-align: right;">✓ (Any one)</p>	1	
10.6	<p>Category of user that wants high-end hardware to edit videos</p> <p>Power user ✓</p>		1
10.7.1	<p>Definition of AR technology</p> <p>Real world images/videos ✓ are overlaid ✓ with computer-generated objects or graphics ✓</p>	3	
10.7.2	<p>ONE example of where AR can be used</p> <p>(1) Overlay to create interactive workouts/meditation/yoga, etc. (2) Virtual coaching and feedback in the gym (3) Overlay to create an interactive fitness group (4) Overlay to gamify exercise routines (5) Overlay used to display heart rate, calories burned, distance covered, etc. (6) Overlay used to provide real-time feedback and analysis during sports training sessions</p> <p><i>(Note to marker: Accept general AR solutions, e.g. Medical training / Military training / Entertainment / Marketing / Advertising / Engineering design / Consumer design / Robotics / Manufacturing, Maintenance and repairs / Hazard detection, etc.)</i></p> <p style="text-align: right;">✓ (Any one)</p>	1	4
			[25]

TOTAL SECTION C: 50

GRAND TOTAL: 150