



# basic education

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Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 12**

**COMPUTER APPLICATIONS TECHNOLOGY P2**

**FEBRUARY/MARCH 2017**

**MARKS: 150**

**TIME: 3 hours**

**This question paper consists of 21 pages.**

**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 subquestion.
7. In general, a mark is allocated per fact. A 2-mark question would therefore require TWO facts, et cetera.
8. Write neatly and legibly.

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

Various options are provided as possible answers to the following questions. Write down the question number (1.1.1–1.1.10), choose the answer and make a cross (X) over the letter (A–D) of your choice in the ANSWER BOOK.

**EXAMPLE:**

1.1.11  A  B  C  D

- 1.1 Which ONE of the following applications does NOT logically belong with the others (in other words, the odd one out)?
- A Mozilla Firefox  
B Adobe Reader  
C Google Chrome  
D Microsoft Edge (1)
- 1.2 Which ONE of the following is NOT a wireless Internet connection?
- A LTE  
B ADSL  
C 3G  
D WiMAX (1)
- 1.3 The downloading of large files has an impact on ...
- A ergonomics.  
B bandwidth.  
C resolution.  
D recycling. (1)
- 1.4 Which ONE of the following is NOT a security measure used with online banking?
- A Password  
B Pin code  
C OTP (one-time password)  
D Fingerprint recognition (1)
- 1.5 Which ONE of the following functions will calculate the number of cells in the range A1:A13 that has a value of 5 or more?
- A =COUNTIF(A1:A13, "<5")  
B =COUNTIF(A1:A13, ">5")  
C =COUNTIF(A1:A13, ">=5")  
D =COUNTIF(A1:A13, "<>5") (1)

- 1.6 Which ONE of the following is NOT an example of a multipurpose device/computer?
- A Webcam
  - B Phablet
  - C Netbook
  - D Tablet
- (1)
- 1.7 The ... tab on the Microsoft Word ribbon includes functions such as accepting or rejecting changes.
- A Insert
  - B Review
  - C References
  - D Mailings
- (1)
- 1.8 Which ONE of the following is the most likely to cause compatibility problems or to have compatibility problems when upgrading to a new version of an operating system?
- A Word processing files
  - B Firewall
  - C Drivers
  - D Browser
- (1)
- 1.9 Which of the following will always be TRUE regarding open-source software?
- (i) It is free of charge.
  - (ii) The source code is made available.
  - (iii) Changes can be made and distributed.
  - (iv) It is distributed only with new computers.
- A (i) and (ii)
  - B (iv) and (ii)
  - C (iv) and (iii)
  - D (ii) and (iii)
- (1)
- 1.10 Which ONE of the following specifications is the most likely to indicate that a computer is a notebook?
- A 1 TB HDD
  - B Touchpad
  - C Windows 10 Home (64 bit)
  - D USB 3.0
- (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–S) next to the question number (2.1–2.10) in the ANSWER BOOK, for example 2.11 T.

COLUMN A		COLUMN B	
2.1	An accessibility option that allows a user to press key combinations such as Ctrl+Alt+Delete, one key at a time	A	spyware
		B	OCR
2.2	A device that can be used to illustrate the concept of convergence	C	printer
		D	GB
2.3	A type of software that recognises characters in a scanned image	E	template
2.4	The type of temporary network that is, for example, formed when a user connects a smartphone to a laptop	F	WAN
		G	on-screen keyboard
2.5	An operating system feature designed to make the computer accessible for visually challenged users	H	wiki
		I	CPU
2.6	A document containing the formatting and layout suggestions for a specific type of document such as a fax or an agenda	J	smartphone
		K	sound card
		L	ransomware
2.7	Malware that encodes a user's data so that it cannot be accessed until money is sent to the criminals operating the malware	M	EFT
		N	PAN
2.8	A hardware component that one would most likely have to upgrade for video editing	O	grid computing
		P	sticky keys
2.9	The process of transferring money via the Internet	Q	screen reader
		R	ATM
2.10	Using the collective processing power of many computers to work on a single, common task	S	PDF

(10 x 1)

(10)

**QUESTION 3: TRUE/FALSE ITEMS**

Indicate whether the following statements are TRUE or FALSE. Choose the answer and write 'true' or 'false' next to the question number (3.1–3.5) in the ANSWER BOOK. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word 'NOT' to change the statement. NO mark will be awarded if only FALSE is written down.)

**EXAMPLES:**

QUESTION	ANSWER
<u>Google</u> is the world's most popular search engine.	True
An <u>NIC</u> has slots for hardware components such as the CPU.	False – motherboard

- 3.1 Distributed computing refers to the process where money is raised via numerous small donations using the Internet. (1)
- 3.2 The COUNTA spreadsheet function counts how many cells in a given range contain numerical values. (1)
- 3.3 SATA is a type of interface that connects computers to monitors/ data projectors. (1)
- 3.4 The contrast ratio of a display device is the relationship between the width and height of an image on the screen, such as 4 : 3. (1)
- 3.5 The correct spreadsheet function to determine the second fastest time run by a group of 100 metre sprinters is the SMALL function. (1)

**[5]**

**TOTAL SECTION A: 25**

**SECTION B****QUESTION 4: SYSTEMS TECHNOLOGIES**

- 4.1 Many new cars and taxis have GPS systems and webcams fitted to the dashboards of the vehicle. Data, including the video, is often saved to an SSD.
- 4.1.1 What is the main reason taxi drivers would use a GPS system? (1)
- 4.1.2 Give ONE reason why the GPS system should be updated regularly, *besides* removing bugs and improving the security of the software. (1)
- 4.1.3 Give THREE reasons why a company would install and use a webcam AND a GPS in a bus or taxi to record the journey. (3)
- 4.1.4 Why would the bus or taxi company install an SSD rather than an HDD (hard disk drive) to save the video and data within the vehicle? (1)
- 4.2 Explain why you can still use graphics on your computer even if you take out the graphics card you purchased. (1)
- 4.3 Study the following specifications of a smartphone:
- 5.5" LED touch screen
  - 18 MP camera
  - 4 GB on-board storage
  - Android 6.0.1
- 4.3.1 What is a possible disadvantage of the high MP value on the camera on this smartphone? (1)
- 4.3.2 Give ONE setting that can be changed to make the battery of the smartphone last longer. (1)
- 4.3.3 State TWO advantages of having a touch screen on a smartphone. (2)
- 4.4 State TWO potential disadvantages of file syncing. (2)
- 4.5 POS (point of sale) systems are used in most shops.
- 4.5.1 What other input device can be used by the cashier if the barcode scanner is broken? (1)
- 4.5.2 Where will the price need to be corrected if it is noted that the price of a product that has been scanned on a POS system is incorrect? (1)

- 4.6 What does a site licence allow a user to do? (2)
- 4.7 Why would a user open the Task Manager if his computer is 'running very slowly'? (2)
- 4.8 What does the term *volatile* mean when referring to RAM? (1)
- 4.9 State TWO ways in which user authentication can take place on a smartphone. (2)
- 4.10 Give TWO reasons why e-mail attachments are often not set to automatically download on mobile devices such as smartphones. (2)
- 4.11 What is the easiest way to make more USB ports available on a computer? (1)
- [25]**

**QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES**

- 5.1 State TWO advantages of purchasing from an online shop, *other than* potentially lower prices. (2)
- 5.2 Explain the significance of the text 'mobi' in the URL 'www.vicbayfm.mobi'. (1)
- 5.3 Consider the following advertisement:
- ADSL up to 10 Mbps
  - 5 free e-mail addresses
  - 10 GB free cloud storage
  - Free ADSL router
- 5.3.1 The advertisement indicates that the maximum speed is 'up to 10 Mbps'.  
  
Give TWO possible reasons for an ADSL line not performing at its maximum speed. (2)
- 5.3.2 What is the purpose of the router mentioned above? (1)
- 5.4 Why do you think cloud storage is not used as much in South Africa as in other countries? Give TWO reasons. (2)
- NOTE:** One-word answers will NOT be accepted. (2)
- 5.5 State TWO ways in which a user can convey emotions in an IM (instant messaging). (2)
- 5.6 Teachers at a local school post assignments on the intranet for learners to access.
- 5.6.1 What type of application would be used to access the assignments on the intranet? (1)
- 5.6.2 Explain how learners could still access their assignments on the intranet using their home computers AND motivate your answer. (2)
- 5.7 What are FTP servers and services used for? (1)
- 5.8 Which hardware or software technology is often used to control and monitor access between a network and the Internet? (1)
- [15]**

**QUESTION 6: INFORMATION MANAGEMENT**

6.1 Part of a form that was designed to capture data for a poll on the matric farewell is shown below.

**Matric Farewell Theme**

Final

Name\*  Class\* A ▼

Theme  Theme 2  Theme 3  Theme 4

6.1.1 Explain why the control(s) used to get the user's response for the theme was a poor choice. (1)

6.1.2 Give ONE reason why the button control ('Final') on this form may be confusing to a user. (1)

6.1.3 Explain why a list box would have been a better choice to select the class rather than the combo box in the example above. (3)

6.2 The caching of web pages can mean that previously accessed web pages might be displayed in a web browser.

Explain how this might affect the quality of information on the web page. What can one do if one suspects that he/she is viewing a cached web page? (2)

6.3 A teacher wishes to analyse the performance of the 27 learners in her class according to the levels that they achieved in the examination, using the data below.

	A	B	C
<b>1</b>	<b>Level</b>	<b>Number</b>	
<b>2</b>	1	2	
<b>3</b>	2	3	
<b>4</b>	3	4	
<b>5</b>	4	5	
<b>6</b>	5	6	
<b>7</b>	6	4	
<b>8</b>	7	3	
<b>9</b>	<b>Total</b>	<b>27</b>	

6.3.1 Give the name of the function cell **B2** that could have been used to determine the number of learners who performed on level 1. (1)

6.3.2 The teacher wants to use a graph to analyse the performances of the learners.

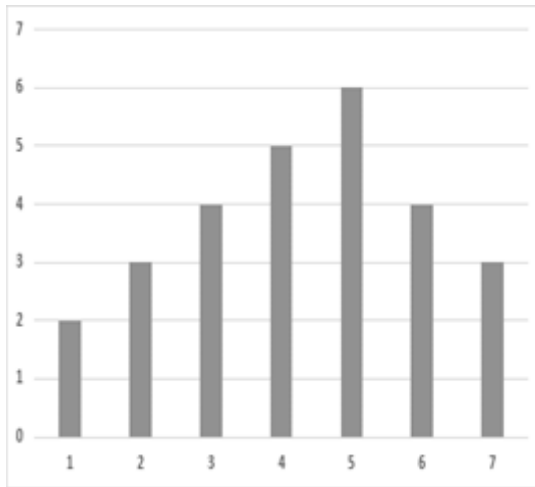


Chart 1

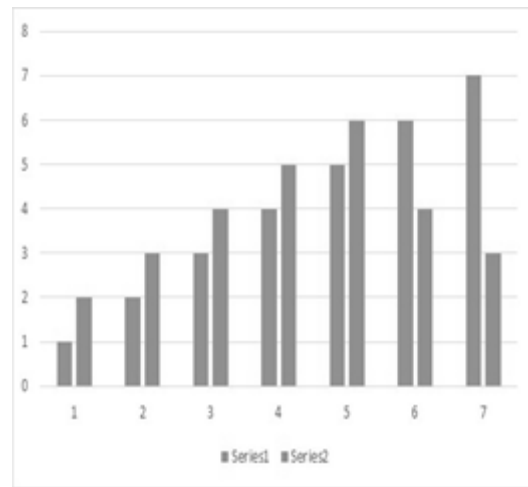


Chart 2

The teacher knows the graph should look like Chart 1 (on the left), but whenever she tries to draw it, it turns out like Chart 2 (on the right).

Explain what the likely problem is AND how to correct the problem.

(2)  
[10]

**QUESTION 7: SOCIAL IMPLICATIONS**

- 7.1 Why would keylogger software not have any harmful effects if it is installed on a computer that is never networked or connected to the Internet? (1)
- 7.2 Green computing is every user's concern.
- 7.2.1 What is meant by the term *green computing*? (1)
- 7.2.2 Give TWO reasons why unwanted or disused ICT devices should NOT be thrown into a rubbish bin. (2)
- 7.3 State TWO potential ways in which telecommuting can be of benefit to an employer (a business owner). (2)
- 7.4 Explain what *phishing* is AND why updating your antivirus program will not prevent you from becoming a victim of phishing. (2)
- 7.5 State TWO ethical considerations to keep in mind when connecting to someone else's Internet connection. (2)
- [10]**

**QUESTION 8: SOLUTION DEVELOPMENT**

- 8.1 The following error message appears when trying to insert an automatic table of contents in a word processing document, even though styles have been added to the headings:

**'No table of contents entries found'**

- Explain how you would fix this error. (1)
- 8.2 What is the best way to move a heading that appears in a column of text to the top of the next column in a word processing document? (1)
- 8.3 Name TWO word processing features that can be used to position text 'away from the margin', *other than* using the space bar. (2)
- 8.4 What is a bookmark AND how is it used in a word processing document? (2)
- 8.5 Study the extract from a spreadsheet below and answer the questions that follow.

	A	B	C	D	E
1	<b>Surname and Initials</b>	<b>Employee code</b>	<b>Date started</b>	<b>Date ended</b>	<b>Years</b>
2	Petersen JP	JP27	1-Jan-01	7-Feb-17	5881
3	Tlou KN	KN7	7-May-99	7-Feb-17	6486
4	Patel GT	GT19	19-Jun-09	7-Feb-17	2790
5	Louw BY	BY5	7-Sep-04	7-Feb-17	4536
6	Cabela LP	LP29	12-Nov-10	7-Feb-17	2279
7	Dlamini BQ	BQ23	6-Jun-08	7-Feb-17	3168

- 8.5.1 The employee code in **column B** is created by combining the initials of the employee with a random number smaller than 30.  
Name any TWO spreadsheet functions that could possibly have been used to create the employee codes. (2)
- 8.5.2 **Column E** should show the number of years that an employee has worked at the company.  
The following formula was used in cell **E2**, but it gives the wrong answer:  
**=D2-C2**  
Explain what the current values in **column E** represent AND state ONE way in which the correct answer could be displayed. (2)

- 8.6 Reports allow one to summarise and present data in a database.
- 8.6.1 Explain what the result of or answer to the following function in the report footer of a database report represents:
- =Count([Pay])**
- NOTE:** 'Pay' is a field in the database table that the report is based on. (2)
- 8.6.2 What would the function **=Now()** in the page footer of a database report display? (1)
- 8.7 In an HTML document the **<b>** tag was used to display the heading in bold.  
Give the most likely reason why the rest of the text below the heading also appears in bold. (1)
- 8.8 What is the most likely reason for a picture not to display in a browser, even if the correct HTML code was used? (1)
- [15]**
- TOTAL SECTION B: 75**

**SECTION C: INTEGRATED SCENARIO****QUESTION 9**

Your school is hosting a Science expo. Participants will be able to bring their own devices to demonstrate their projects. Internet access will be required for all participants and judges.

- 9.1 The most important part of the expo setup will be to share Internet access (provided by an ISP) with all the devices that will be used in the venue using the Wi-Fi facilities of the school.
- 9.1.1 State TWO advantages of using Wi-Fi to connect the devices in this situation. (2)
- 9.1.2 Some participants are too far away from the main venue to pick up the Wi-Fi signal.  
Suggest ONE technology they could use to still have 'wireless' Internet access without using Wi-Fi. (1)
- 9.1.3 Name TWO hardware components that might be needed to increase or expand the Wi-Fi coverage to all the locations used for the expo. (2)
- 9.1.4 Name TWO services an ISP can provide *other than* Internet access. (2)
- 9.1.5 What is the main reason for setting up and using an AUP in the context of Internet usage? (1)
- 9.1.6 People anywhere in the world can follow the expo by watching a live stream on a website.  
State TWO potential disadvantages of using live streaming. (2)
- 9.2 The organisers have been offered free use of online applications for the duration of the expo.  
Explain TWO advantages of online applications compared to applications installed on the computers. (2)
- 9.3 The school has implemented a BYOD policy to allow participants to bring their own devices to access the network.  
Outline ONE of the most likely technical problems that the school may encounter when the participants connect their devices. (1)

9.4 Participants and guests will vote for the projects at the expo.

The IT department has found an Android app to manage the voting. This app can be downloaded from the school's network server to cellphones and tablets of the participants and guests.

9.4.1 What is the general role of a server in any network? (1)

9.4.2 State TWO advantages for the guests of downloading the app from the school's network server as opposed to having to download the app from the app store. (2)

9.4.3 Many guests are concerned that the app may be a potential Trojan. What is a *Trojan* AND how is it typically installed? (2)

9.5 The organisers of the expo will use a computer to receive the votes from all the devices, and to collect and process all data of the expo.

Study the following specifications for the computer which will be used for these purposes:

- Intel i5 3.1 GHz
- 4 GB RAM
- 128 GB SSD
- 1 TB HDD
- DVD writer
- 21" LED touch screen 1920 x 1080
- Windows 10 Pro (64 bit)
- Bluetooth keyboard and mouse

9.5.1 How much permanent storage is available on the computer? (1)

9.5.2 The Windows 10 operating system was not installed on the 1 TB HDD.

On which device in the list above was the operating system loaded? (1)

9.5.3 Which component must be added to the list of specifications to enable the computer to connect to the school's network without using Wi-Fi? (1)

9.5.4 What change in specifications in the list above will have the biggest effect in terms of improving the overall performance of the computer? (1)

9.6 The following statement was made by one of the participants at the expo:

'Windows 10 has no option to turn off automatic system updates.'

- 9.6.1 Give TWO reasons for a software developer to release updates. (2)
- 9.6.2 Why would a software developer NOT give a user the choice to disable automatic updates? (1)
- 9.6.3 State ONE potential disadvantage of not being able to disable automatic updates. (1)

**[26]**

**QUESTION 10**

The organisers of the expo will be responsible for all managerial tasks at the expo, including registrations and the voting process.

- 10.1 State ONE potential disadvantage of using WhatsApp to promote the expo. (1)
- 10.2 One of the participants in the expo has done a study on information overload.
  - 10.2.1 What is *information overload*? (1)
  - 10.2.2 State TWO ways in which information overload can be reduced. (2)
- 10.3 Each participant in the expo needs to pay a registration fee a week before the expo starts.
  - 10.3.1 Suggest TWO technologies that participants can use to pay the registration fee if they cannot get to the school or a bank during office hours. (2)
  - 10.3.2 How could the organisers of the expo confirm that the registration fee has been paid, *other than* phoning the bank? (1)
- 10.4 An entry form for the expo is shown below.

Surname:														
Initials:		Cell No:												
Expo Type:	XP1	XP2	XP3	XP4	XP5	XP6	XP7	XP8	XP9					
e-mail:														
Fax No:														
										Date:	YYYY	MM	DD	

- 10.4.1 Explain why using a table format for the user to enter the cellphone number is a good idea. (1)
- 10.4.2 Suggest TWO ways in which to improve the layout of the form. (2)
- 10.5 All the data on the administration computer must be kept strictly confidential.
 

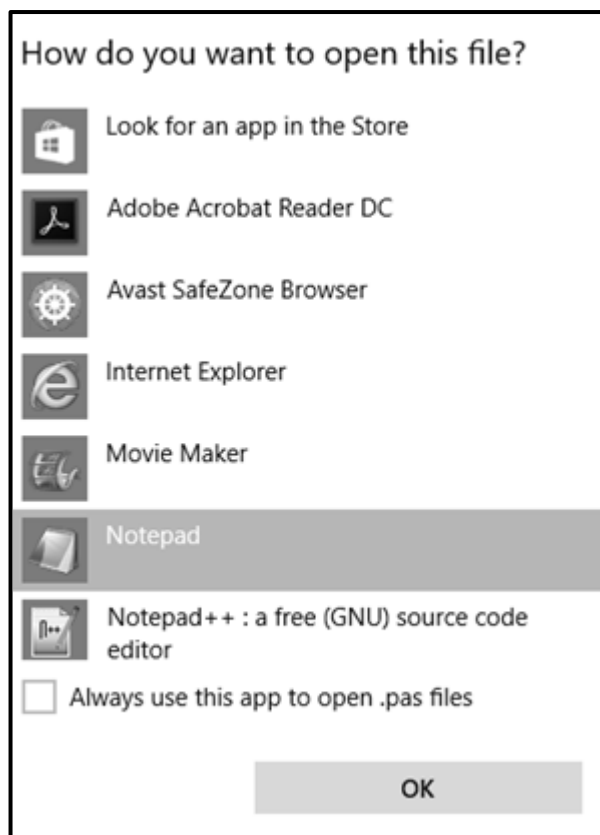
State TWO ways in which the organisers can be sure that the data on this computer cannot be stolen or accessed illegally, *other than* protecting it against physical theft. (2)

10.6 A database table was created to store the votes received. The table definition is shown below.

Field Name	Data Type	Description
Name	Text	Name of the person voting
Surname	Text	Surname of the person voting
DOB	Date/Time	Date of birth of the person voting
Date	Date/Time	Date on which the vote was cast
Favourite Project	Text	Name of the project voted for

- 10.6.1 Why is the **DOB** field not suitable to act as a primary key? (1)
- 10.6.2 Each project will receive a unique code which voters will use to vote in the **Favourite Project** field, e.g. Sci312.
- Which database feature can be used to ensure that a user will have to enter three letters followed by three digits? (1)
- 10.6.3 Which database feature can be used to ensure that the **Name** and **Surname** fields are NOT left blank? (1)
- 10.6.4 Which database feature can be used to ensure that typing errors do not occur when data is entered in the **Favourite Project** field? (1)

- 10.7 A participant asked the organiser to make a printout of a document which he brought in on his flash drive. When trying to open the file with the 'Open With' option, the following dialog box appeared:



- 10.7.1 Explain why or when one would generally try to use the 'Open With' option to open a file. (1)
- 10.7.2 One of the options provided is the Adobe Acrobat Reader, which reads PDF files.  
Give TWO reasons for using the PDF file format. (2)
- 10.7.3 Why would one tick the check box towards the bottom left-hand corner of the dialog box? (1)

10.8 The following spreadsheet was created to keep track of paid registration fees:

	A	B	C	D	E	F
1	<b>Project Name</b>	<b>Project type</b>	<b>Stands</b>	<b>Paid</b>	<b>Contact person</b>	<b>Owing</b>
2	New discoveries	Science	1	Yes	Thabo	R 0.00
3	Language literacy	Language	2	No	Susan	R 0.00
4	French in school	Language	1	No	Grant	R 0.00
5	New textbooks	Science	3	Yes	Barry	R 0.00
6	Chemistry in school	Science	2	Yes	Sandy	R 0.00
7	Tech in cars	Science	1	Yes	Kagiso	R 0.00
8						
9	<b>Registration fee:</b>	R 250.00				

The following function was used in cell **F2** and then copied down to the rest of the cells in **column F**:

**=IF(D2="Yes",0,C2\*B9)**

The function should multiply the number of stands in **column C** with the registration fee in cell **B9** if a 'No' is shown in **column D**.

10.8.1 Why is it better to use the cell reference **B9** in the function instead of just the value of 250? (1)

10.8.2 The function returns the correct answer in cell **F2**.

Explain why the function is not calculating the correct amounts for some cells in **column F** AND rewrite the function so that it would copy down correctly. (2)

10.8.3 Explain if it would be possible to create a meaningful graph from the data in the range **B2:B7**. (1)  
[24]

**TOTAL SECTION C: 50**  
**GRAND TOTAL: 150**



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**GRADE 12**

**COMPUTER APPLICATIONS TECHNOLOGY P2**

**FEBRUARY/MARCH 2017**

**MEMORANDUM**

**MARKS: 150**

**This memorandum consists of 15 pages.**

**SUGGESTIONS AND RECOMMENDATIONS TO MARKERS**

- Revisit the questions and the memorandum frequently during the marking session.
- It is advisable to read the question frequently (and re-read) 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 memorandum. Ask yourself or your senior marker if the response could 'fit' into the memorandum before allocating the correct marks to the candidate. For example, the memorandum states 'cheap' and the learner responds with 'less expensive'.
- Beware of overlapping answers to a specific question. In general, ONE mark is awarded per fact.

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

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

**QUESTION 2: MATCHING ITEMS**

2.1	P	✓	1
2.2	J	✓	1
2.3	B	✓	1
2.4	N	✓	1
2.5	Q	✓	1
2.6	E	✓	1
2.7	L	✓	1
2.8	I	✓	1
2.9	M	✓	1
2.10	O	✓	1
<b>Total: [10]</b>			

**QUESTION 3: TRUE/FALSE ITEMS**

*(Note to marker: In Question 3.1, 3.2, 3.3 and 3.4 accept the correct term even if 'false' is not stated. Do not award a mark if only 'FALSE' is written down.)*

3.1	FALSE, crowd funding ✓	1
3.2	FALSE, Count ✓	1
3.3	FALSE, VGA/DVI/HDMI/display port ✓	1
3.4	FALSE, Aspect Ratio ✓	1
3.5	TRUE ✓	1
		<b>[5]</b>

**TOTAL SECTION A: 25**

**SECTION B****QUESTION 4: SYSTEMS TECHNOLOGIES**

4.1.1	<ul style="list-style-type: none"> <li>To obtain directions/To pinpoint where they are.</li> <li>To find alternative routes (less traffic)</li> </ul> <p style="text-align: right;">✓ (Any one)</p>	1	
4.1.2	To stay up to date with new editions of maps/roads/street names. ✓	1	
4.1.3	<ul style="list-style-type: none"> <li>To check the driving of the driver</li> <li>To identify the exact location of the vehicle for evidence/insurance purposes should the taxi/bus be involved in an accident or hijacking, etc.</li> <li>To use as evidence if the driver is accused of being negligent/if criminal activities take place in the taxi etc.</li> <li>To gather data regarding traffic patterns</li> <li>As training material for drivers, etc.</li> </ul> <p style="text-align: right;">✓ ✓ ✓ (Any three)</p>	3	
4.1.4	<p>It has no moving parts and is therefore less likely to be affected by vibration in the vehicle/less likely to 'break'. ✓</p> <p><i>(Note to marker: Do not accept answers referring to speed, capacity or noise).</i></p>	1	6
4.2	It will revert to using the on-board graphics adapter ✓		1
4.3.1	<ul style="list-style-type: none"> <li>Large file size of photos/uses a lot of storage space/fills up the available storage quickly</li> <li>Sending/uploading/saving to the cloud will take a lot of data</li> </ul> <p style="text-align: right;">✓(Any one)</p>	1	
4.3.2	<ul style="list-style-type: none"> <li>Reduce brightness</li> <li>Reduce screen time-out/reduce the time before the screen blanks out</li> <li>Turn off vibration mode</li> <li>Reduce volume</li> <li>Turn off any wireless functionality, e.g. Wi-Fi, Bluetooth/Airplane mode</li> <li>Monitor/switch off background apps that are not needed</li> <li>Minimise notifications/Reduce checks for e-mails</li> <li>Use power saving modes, etc.</li> </ul> <p style="text-align: right;">✓(Any one)</p>	1	

4.3.3	<ul style="list-style-type: none"> <li>• Fewer physical buttons</li> <li>• The button layout can be changed as needed on the touch screen</li> <li>• More intuitive action</li> <li>• Easier to manipulate images/Gestures, e.g. pinching, etc.</li> </ul> <p>✓✓(Any two)</p>	2	
4.4	<ul style="list-style-type: none"> <li>• Accidental deletions also affect backups/files across multiple devices</li> <li>• Extra bandwidth used</li> <li>• Malware can spread</li> <li>• Possible security risks with multiple copies of same file, etc.</li> </ul> <p>✓✓(Any two)</p>		2
4.5.1	<ul style="list-style-type: none"> <li>• Keyboard</li> <li>• Touch screen</li> <li>• Mouse</li> <li>• Keypad</li> </ul> <p>✓(Any one)</p>		1
4.5.2	Update the record of the item on the POS system/database/server✓		1
4.6	A site license allows installation of the software ✓ on all devices within the company✓		2
4.7	To check which programs/background processes are making his computer perform slowly✓ and to close these programs✓		2
4.8	RAM loses its contents when the computer is switched off/in a power failure ✓		1
4.9	<ul style="list-style-type: none"> <li>• Pin code/Password</li> <li>• Fingerprint scanner</li> <li>• Pattern unlock (draw a pattern on the screen)</li> </ul> <p>✓✓(Any two)</p>		2
4.10	<ul style="list-style-type: none"> <li>• To reduce (cost of) data usage</li> <li>• Often have limited storage space</li> <li>• Threat of malware</li> <li>• Reduce power consumption, etc.</li> </ul> <p>✓✓(Any two)</p>		2
4.11	Add a USB hub✓ to the computer  <i>(Note to marker: Accept general answers such as unplugging a device that is not used all the time, such as the printer.)</i>		1
			<b>[25]</b>

**QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES**

5.1	<ul style="list-style-type: none"> <li>• Delivery to your home/No need to leave your home/Safer than going to a shop/More convenient</li> <li>• Can do your shopping from any device connected to the Internet</li> <li>• Can easily compare specifications/prices/easier to find specific item</li> <li>• Can see recommendations/choices of other customers</li> <li>• Much wider variety of items to choose from/Can buy from overseas shops</li> <li>• Saves on travelling costs when doing shopping, etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>		2
5.2	It indicates that the website is designed for viewing on mobile devices/smaller screens✓		1
5.3.1	<ul style="list-style-type: none"> <li>• Malware infection</li> <li>• Maintenance being performed on lines</li> <li>• Number/Size of concurrent downloads</li> <li>• Amount of people online through a certain exchange/Contention ratio</li> <li>• Connection problems at the telephone exchange/ISP problems/Damage to (underwater) cables</li> <li>• Damaged/Malfunctioning router</li> <li>• Shaping/Soft cap on an uncapped line/Line throttling, etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>	2	
5.3.2	Connects the computer/network to the Internet✓	1	3
5.4	<ul style="list-style-type: none"> <li>• High cost of data/Internet connectivity</li> <li>• Relative lack of knowledge and skills</li> <li>• Lack of access to (very) high speed Internet access.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>		2
5.5	<ul style="list-style-type: none"> <li>• Emoticons/Smileys/Emojis/Icons</li> <li>• Short versions of phrases, e.g. LOL, ROTFL</li> <li>• Use capital letters when necessary, etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>		2
5.6.1	Web browser✓  <i>(Note to marker: accept specific examples, e.g. Google Chrome, etc.)</i>		1
5.6.2	Intranet uses Internet technology and can be accessed from outside ✓ the premises as long as the user has been authorised✓		2
5.7	Transferring files✓		1
5.8	Firewall ✓		1
			<b>[15]</b>

**QUESTION 6: INFORMATION MANAGEMENT**

6.1.1	<ul style="list-style-type: none"> <li>• Check boxes allow users to make more than one choice</li> <li>• Data would not be accurate</li> </ul> <p style="text-align: right;">✓(Any one)</p> <p><i>(Note to marker: Accept any valid, specific example of data not being accurate.)</i></p>	1	
6.1.2	<ul style="list-style-type: none"> <li>• The caption/text on the button does not clearly indicate the function of the button</li> <li>• The location of the button on the form is not intuitive</li> </ul> <p style="text-align: right;">✓(Any one)</p>	1	
6.1.3	<ul style="list-style-type: none"> <li>• List boxes restrict the user to only choosing from the list of options ✓whereas combo boxes allow users to enter additional items not on the list✓. This may cause incorrect or invalid options to be entered/The list of classes is fixed/finite so there is no need for the user to enter another option ✓</li> </ul>	3	5
6.2.	<p>Information on web page may be outdated/old/not show any updated information on the page. ✓</p> <p>Any ONE of ✓:</p> <ul style="list-style-type: none"> <li>• Refresh/reload the page/Press F5 key</li> <li>• Delete the cached pages, etc.</li> </ul>		2
6.3.1	COUNTIF ✓	1	
6.3.2	<p>She included the levels (cells A2:A7) as part of the chart data/Cells A2:A7/Column A forms a(nother) series on the chart. /Incorrect data range✓</p> <p>Any ONE of: ✓</p> <ul style="list-style-type: none"> <li>• Use cells B2:B7/column B to draw the chart</li> <li>• Delete the series including the levels from column A</li> </ul>	2	3
			<b>[10]</b>

**QUESTION 7: SOCIAL IMPLICATIONS**

7.1	The confidential information that was collected cannot be sent back to the creator of the malware. ✓  <i>(Note to marker: Accept answers referring to keylogger hardware being harmful.)</i>		1
7.2.1	Using computers in a way that is not harmful to the environment ✓	1	
7.2.2	<ul style="list-style-type: none"> <li>• It contains poisonous materials</li> <li>• It requires more and more land to be allocated to rubbish heaps</li> <li>• It can cause health issues for humans and animals</li> <li>• It can pollute water and soil, etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>	2	3
7.3	<ul style="list-style-type: none"> <li>• Do not need large premises</li> <li>• Employees can work flexi-time (24/7) if need be</li> <li>• Less need for expensive equipment/features to improve working conditions (like coffee machine)</li> <li>• Reduced carbon footprint for the company, etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>		2
7.4	Phishing is any attempt to trick a user into giving out sensitive information. ✓ Humans make the attempt by sending out e-mails etc./There is no set program/code for the anti-virus program to recognise ✓		2
7.5	<ul style="list-style-type: none"> <li>• Do not use a lot of data/Do not download too much/Ask how much data you may use</li> <li>• Do not visit sites which could potentially endanger the security of the computer</li> <li>• Not visiting sites with inappropriate content sites</li> <li>• Not downloading inappropriate content</li> <li>• Ask each time before you use the connection, etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>		2
			<b>[10]</b>

**QUESTION 8: SOLUTION DEVELOPMENT**

8.1	Match Table of Contents levels/styles to those of styles used in the document ✓  <b>OR</b> Change the styles of the headings to match the ones specified in the Table of contents dialog		1
8.2	Use a column break (Ctrl+Shift+enter) ✓		1
8.3	<ul style="list-style-type: none"> <li>• Indentation</li> <li>• Tab Stops</li> <li>• Text Box</li> <li>• Align (center)</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>		2
8.4	A bookmark marks/indicates specific text in a document ✓ which can be navigated/hyperlinked to ✓		2
8.5.1	<ul style="list-style-type: none"> <li>• CONCATENATE</li> <li>• RIGHT/MID (not both)</li> <li>• RANDBETWEEN</li> <li>• LEN</li> </ul> <p style="text-align: right;">✓✓ (Any two)</p>	2	
8.5.2	The number of days (between the two dates) ✓  <b>AND</b> <ul style="list-style-type: none"> <li>• Divide by 365(.25)</li> <li>• Custom date display format</li> </ul> <p style="text-align: right;">✓(Any one)</p>	2	
8.6.1	The number of records ✓ that appear in the report ✓  <i>(Note to marker: Also accept the number of records that have a value for the Pay field.)</i>	2	3
8.6.2	The (current) date/time ✓	1	
8.7	The end tag/ </b> was omitted ✓		1
8.8	<ul style="list-style-type: none"> <li>• The image is not saved in the same folder as the HTML document/image name spelled incorrectly</li> <li>• The code is unknown format/ not compatible with the browser being used</li> </ul> <p style="text-align: right;">✓(Any one)</p>		1
			<b>[15]</b>

**TOTAL SECTION B: 75**

**SECTION C: INTEGRATED SCENARIO****QUESTION 9**

9.1.1	<ul style="list-style-type: none"> <li>• Devices can be moved freely around the venue and still connect</li> <li>• No need to install/lay cables for every device</li> <li>• Internet connectivity can be given to devices where cables cannot be laid, etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>	2	
9.1.2	3G/4G/LTE✓	1	
9.1.3	<ul style="list-style-type: none"> <li>• Communication medium/Cable</li> <li>• Switch</li> <li>• (Modem) Router/Access Point</li> <li>• Modem</li> <li>• Wi-Fi cards/NICs</li> <li>• Wi-Fi extenders/signal boosters, etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>	2	
9.1.4	<ul style="list-style-type: none"> <li>• Website hosting</li> <li>• E-mail services/addresses</li> <li>• Fax to e-mail</li> <li>• Cloud storage</li> <li>• Spam/Phishing protection</li> <li>• SaaS</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>	2	
9.1.5	To control or limit Internet use✓  <i>(Note to marker: Accept specific examples such as not going onto 'dodgy' sites/excessive downloading, etc.)</i>	1	
9.1.6	<ul style="list-style-type: none"> <li>• Data usage could be high</li> <li>• Poor connection speed could cause the video to hang/buffer</li> </ul> <p style="text-align: right;">✓✓(Any two)</p> <p><i>(Note to marker: Accept answers relating to cost of high data usage such as the faster connection required or to quality of the video.)</i></p>	2	10

9.2	<ul style="list-style-type: none"> <li>• Can be accessed from any computer, anywhere in the world via the Internet</li> <li>• Online storage is usually available with the online application</li> <li>• Software is always up to date/New versions are automatically available to subscribers</li> <li>• The hardware requirements of the computer can be lower, etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p> <p><i>(Note to marker: Do not allocate a mark for cheaper if not accompanied by a valid explanation.)</i></p>		2
9.3	<ul style="list-style-type: none"> <li>• There may be software compatibility issues</li> <li>• Problems with hardware compatibility</li> <li>• Need for more expertise to support different devices</li> <li>• Greater concern for theft/loss of confidential information</li> <li>• Potential misuse of bandwidth</li> <li>• Potential spread of viruses</li> <li>• Slowing down the network</li> </ul> <p style="text-align: right;">✓ (Any one)</p>		1
9.4.1	<p>The server provides resources/services to the clients ✓</p> <p><i>(Note to marker: Do not accept answers such as 'controlling the network'.)</i></p>	1	
9.4.2	<ul style="list-style-type: none"> <li>• Less data will be used</li> <li>• Less bandwidth will be used/fewer bottlenecks will occur when multiple users try to download over the Internet connection simultaneously.</li> <li>• Will be quicker/easier to download from the intranet</li> <li>• They will automatically download the correct app without searching the app store or choosing between similar apps</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>	2	
9.4.3	<p>A Trojan is a malicious software/program designed to look unsuspecting/useful ✓</p> <p>It relies on the user opening/running it ✓so that it can deliver its payload/implement the malware contained in it</p>	2	5
9.5.1	1152 GB/1128 GB/1 TB + 128 GB ✓	1	4
9.5.2	The SSD ✓	1	
9.5.3	NIC ✓	1	
9.5.4	RAM ✓	1	

9.6.1	<ul style="list-style-type: none"> <li>• Fixing problems/bugs/flaws in software</li> <li>• Improve the security features of the software</li> <li>• Improve the efficiency of the software</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>	2	
9.6.2	<ul style="list-style-type: none"> <li>• Updates ensure minimal problems with software</li> <li>• Developer feels all updates are important</li> <li>• Updates ensure that software stays current</li> <li>• Users may forget to update software, etc.</li> </ul> <p style="text-align: right;">✓(Any one)</p>	1	
9.6.3	<ul style="list-style-type: none"> <li>• Data use could increase dramatically</li> <li>• Downloading updates will have an impact on the speed at which a user can browse the Internet</li> <li>• A drop in computer performance while the update is running may occur</li> <li>• Drop in performance after updates installed</li> <li>• Decrease in storage space</li> <li>• Features may be unnecessarily updated as they are not used, etc.</li> </ul> <p style="text-align: right;">✓(Any one)</p>	1	4
			<b>[26]</b>

**QUESTION 10**

10.1	<ul style="list-style-type: none"> <li>Not everybody has the WhatsApp app installed</li> <li>Need to have everybody's cellphone numbers</li> <li>In a group one can be inundated with responses to a posting/People are reluctant to join groups</li> </ul> <p style="text-align: right;">✓(Any one)</p>		1
10.2.1	A person receives too much new information/posts/e-mails, etc. to process efficiently/being overwhelmed/is not coping with volume of information they encounter✓	1	
10.2.2	<ul style="list-style-type: none"> <li>Don't subscribe to too many sites for updates/Unsubscribe from lists/groups</li> <li>Define/Use e-mail message rules</li> <li>Limit interactions/friendships/postings on social media</li> <li>Do not contribute to the problem by continually posting/sending (needless) information</li> <li>Use ICT tools (accept examples such as RSS feeds) to help process organise data/information</li> <li>Create to-do lists of critical tasks</li> <li>Actively take breaks from interacting with people/systems that contribute to information overload etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>	2	3
10.3.1	<ul style="list-style-type: none"> <li>Internet banking/Banking app</li> <li>Cell phone banking (for dumb/feature phones)</li> <li>Transfer at an ATM</li> </ul> <p style="text-align: right;">✓✓(Any two)</p> <p><i>(Note to marker: Accept specific examples, FNB banking app, Paypal, Bitcoin etc.)</i></p>	2	
10.3.2	<ul style="list-style-type: none"> <li>Receive a confirmation notification via e-mail or SMS</li> <li>Use a banking app/Notifications/Electronic receipts</li> <li>Check online bank statements</li> </ul> <p style="text-align: right;">✓(Any one)</p>	1	3
10.4.1	It reduces the likelihood of error ✓ as it guides the user to fill in the correct number of digits.	1	
10.4.2	<ul style="list-style-type: none"> <li>Add more space for the surname</li> <li>Use blocks for surname</li> <li>Reduce space for the initials</li> <li>Increase height of rows</li> <li>Add instructions</li> <li>Increase the number of blocks/cells for the cell number, etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>	2	3

10.5	<ul style="list-style-type: none"> <li>Do not connect to the network/Internet</li> <li>Install/Make use of security software</li> <li>Ensure security software is updated</li> <li>Do not allow anyone to insert any form of storage device/block ports</li> <li>Disable any wireless capabilities, e.g. Bluetooth</li> <li>Password-protect the data files which contain the final votes</li> <li>Encryption</li> <li>Biometrics, etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>	2	2
10.6.1	Duplicate values ✓are likely/not unique value	1	4
10.6.2	Input mask✓	1	
10.6.3	Validation rule(s)/required field ✓	1	
10.6.4	Combo/Drop down/ List box/Lookup Wizard✓	1	
10.7.1	When the file will not open automatically when double-clicking on it/ When the file has no default program associated with it. ✓	1	4
10.7.2	<ul style="list-style-type: none"> <li>It can be viewed without access to the type/version of software it was created in</li> <li>The 'reader' software is free/freely available</li> <li>It has become standard/used extensively</li> <li>It can be used to restrict editing of the file</li> <li>It can (sometimes) be smaller in size than the original file, etc.</li> </ul> <p style="text-align: right;">✓✓(Any two)</p>	2	
10.7.3	<ul style="list-style-type: none"> <li>So that it associates the type of file with the selected program</li> <li>So that it will automatically open this type of files with the selected program in the future</li> <li>So that you are not asked the same 'question' next time</li> </ul> <p style="text-align: right;">✓(Any one)</p>	1	
10.8.1	<p>Only need to change in one place if cost changes/Do not have to adjust each formula, etc. ✓</p> <p><i>(Note to marker: Do not accept 'quicker' or 'easier' without a suitable explanation.)</i></p>	1	
10.8.2	<p>Absolute cell referencing needs to be used on cell B9/B9 cell reference changes when copied✓ <b>OR</b> Relative cell referencing was used and resulted in cell reference changes when copied</p> <p>=IF(D2="Yes",0,C2*\$B\$9) /=IF(D2="Yes",0,C2*B\$9) ✓</p>	2	

10.8.3	<ul style="list-style-type: none"><li>• Yes, if one calculates totals of each project type first</li><li>• A meaningful graph cannot be produced by just selecting text entries</li></ul> <p style="text-align: right;">✓(Any one)</p>	1	4
			<b>[24]</b>

**TOTAL SECTION C: 50**  
**GRAND TOTAL: 150**