Instructions and information
1. This question paper consists of three sections: Section A (25 marks), Section B (77 marks) and Section C – the integrated scenario (48 marks).
2. Answer all the questions.
3. Read the questions carefully, taking note of the mark allocations. In general, one mark is allocated per fact. A two mark question would therefore require two facts, and so on.
4. Number the answers according to the numbering system used on this question paper.
5. Leave a blank line after EACH sub-question.

SECTION A

Question 1

Identify the correct answer for each question. Write down only the number of each question, and next to it the single capital letter which represents the best answer, for example 1.11 A.

1.1 Which one of the following types of files (file extensions) can NOT be opened by a word processor?
   A. .txt
   B. .rtf
   C. .gif
   D. .html
   (1)

1.2 Which one of the following statements about resolution in scanners and digital cameras is FALSE?
   A. The higher the resolution, the larger the file will be that stores the image.
   B. Resolution refers to the number of diagonal pixels in the image.
   C. An 18 MP digital camera has about 18 million pixels.
   D. The resolution of a scanner is stated as dpi (dots per inch).
   (1)

1.3 Which one of the following is an example of an internet cap?
   A. 8ta
   B. 20 GB
   C. 4G
   D. 384 Kb
   (1)

1.4 Which one of the following is an example of a monitor’s aspect ratio?
   A. 10 000 000:1
   B. 21.5"
   C. 16:9
   D. 1600 x 900
   (1)
1.5 In which one of the following areas do optical media have an advantage over other storage devices?
   A. Speed
   B. Storage capacity
   C. Reliability
   D. Cost (1)

1.6 Which one of the following statements about file sharing using email is TRUE?
   A. The file extension of an attachment is not important.
   B. Email is not suitable for very large files.
   C. Email is an expensive way to transfer files.
   D. Email is secure because the sender has to enter a password. (1)

1.7 The function =LOWER(A6) is entered in a cell in a spreadsheet.
Which one of the following is a possible result (answer) of this function?
   A. february
   B. FALSE
   C. 1 Jan
   D. 2G (1)

1.8 Which one of the following statements about touch screens is FALSE?
   A. Touch screens allow natural input, such as gestures.
   B. Touch screens serve the function of both a mouse and a keyboard.
   C. Touch screens are easy to use for all data entry tasks.
   D. Touch screens are standard on most mobile devices. (1)

1.9 Which one of the following is NOT a method of processing data?
   A. Filtering
   B. Saving
   C. Sorting
   D. Grouping (1)

1.10 Which one of the following criteria could be used in an Access query to extract records of learners only in grades 11 and 12?
   A. BETWEEN 10 AND 13
   B. 11–12
   C. 11 AND 12
   D. 11 OR 12 (1)
Question 2

Write down only the number of the description from Column A, and next to it the correct matching capital letter from Column B, for example 2.11 T.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 A type of printer that can create ‘carbon copies’</td>
<td>A. iOS</td>
</tr>
<tr>
<td>2.2 An example of an open source operating system</td>
<td>B. Java</td>
</tr>
<tr>
<td>2.3 A form of virtual, digital currency, which can be exchanged for other currencies, products and services.</td>
<td>C. E-commerce</td>
</tr>
<tr>
<td>2.4 A category of computer user who often works from home</td>
<td>D. Ctrl+P</td>
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<tr>
<td>2.5 A wireless radio technology used to connect to an existing ADSL internet connection</td>
<td>E. HAN</td>
</tr>
<tr>
<td>2.6 Software produced by Apple, and found in all Apple mobile devices</td>
<td>F. SSD</td>
</tr>
<tr>
<td>2.7 Electronic alternative to traditional hard drives</td>
<td>G. Linux</td>
</tr>
<tr>
<td>2.8 A shortcut used to copy a portion of the contents of RAM to permanent storage</td>
<td>H. Multi-function printer</td>
</tr>
<tr>
<td>2.9 A technique whereby certain network services (e.g. gaming) are given lower priority than other more critical ones (e.g. email)</td>
<td>I. WAN</td>
</tr>
<tr>
<td>2.10 A type of network that connects, for example, offices in Durban and Pretoria</td>
<td>J. Throttling</td>
</tr>
<tr>
<td></td>
<td>K. Ctrl+S</td>
</tr>
<tr>
<td></td>
<td>L. Thunderbolt</td>
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<tr>
<td></td>
<td>M. Dot-matrix</td>
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<tr>
<td></td>
<td>N. Bitcoin</td>
</tr>
<tr>
<td></td>
<td>O. Client</td>
</tr>
<tr>
<td></td>
<td>P. Bluetooth</td>
</tr>
<tr>
<td></td>
<td>Q. WiFi</td>
</tr>
<tr>
<td></td>
<td>R. SOHO</td>
</tr>
<tr>
<td></td>
<td>S. Shaping</td>
</tr>
</tbody>
</table>

[10]

Question 3

State whether each of the following statements is TRUE or FALSE.

If the statement is FALSE, then write down the word ‘False’ and, next to it, the word(s) which should replace the underlined word(s) to make the statement TRUE. (Note that no marks will be awarded if ‘False’ is given without a suggested replacement.)

Example 1: A printer is an example of an output device.
Answer: True

Example 2: A printer is an example of software.
Answer: False – hardware.

3.1 Beta versions of software are made available so that people can test the software, and suggest improvements to the software before it is released for sale.
3.2 The History button or icon in a web browser is used to store shortcuts to pages which you want to return to.

3.3 A Pie Chart is the most appropriate chart type to illustrate growth of a company over a period of time.

3.4 Ransomware is a type of malware designed to encrypt or block access to your computer files until you pay a sum of money to ‘unblock’ the files.

3.5 The Mode function in Excel is used to find the answer to the expression 5 x 5 x 5 x 5 x 5.

SECTION B

Question 4: System Technologies

4.1 Every general-purpose computing device needs both RAM (memory) and storage.

   4.1.1 Briefly explain the function of RAM. (1)

   4.1.2 Give ONE difference between RAM and storage, besides their difference in function. (1)

4.2 Give TWO input devices that are found in a smartphone, but not in a typical desktop computer. (2)

4.3 Give TWO reasons why portable computers are increasingly being designed NOT to include CD/DVD/Blu Ray drives. (2)

4.4 You are working with a wired mouse that suddenly ‘freezes’ (fails to respond). Assume that the mouse itself is clean and not damaged.

   Give TWO trouble-shooting techniques you could try to get the mouse working again. (2)

4.5 Give TWO reasons why SSDs are particularly suited to portable computers. (2)

4.6 Give TWO potential disadvantages, or limitations, of web-based applications. (2)

4.7 Give TWO general limitations in using voice recognition software. (2)

4.8 Name the device in a smartphone that is used to ‘read’ the information in a QR code. (1)

4.9 Give ONE reason for pressing Ctrl+Alt+Del on a computer (Cmd+Alt+Esc on a Mac). (1)

4.10 What is a software patch? (2)

4.11 Give TWO limitations of data projectors for showing computer output, compared to normal monitors. (2)

4.12 Explain why business invoices, statements etc. are generally converted to PDF files before they are sent to customers. (1)

4.13 When one buys a new computer game or programme, one has to consider certain requirements. Give ONE general example of a typical software system requirement. (1)
4.14 A computer game has the following hardware system requirements:

![Image](https://example.com/image)

Intel i3 (or higher)
8 GB of RAM
DVD drive

4.14.1 Give the general function (in any computer) of the item specified as ‘Intel i3’. 

4.14.2 Assuming that the DVD drive will only be used to install the game, briefly explain how one could install the game on a computer that does NOT have a DVD drive. 

4.14.3 Give ONE other common hardware requirement to consider, besides those listed above.

**Question 5: Internet and Network Technologies**

5.1 What is meant by a broadband internet connection? 

5.2 Give the unit in which internet connection speed is usually measured. (You can also give an example of a typical connection speed.) 

5.3 Briefly explain why more bandwidth is generally allocated for downloading than for uploading. 

5.4 Give TWO services typically offered by an ISP (Internet Service Provider), besides providing internet access to its customer. 

5.5 Give ONE advantage and ONE disadvantage of an uncapped internet connection package over a capped package. Distinguish clearly between the advantage and the disadvantage in your answer. 

5.6 Briefly explain how a fixed line internet connection such as ADSL can be used to provide internet access to mobile devices such as smartphones and tablets. 

5.7 Give the name of the internet service that consists of a large collection of interlinked documents stored on servers all over the world. 

5.8 WhatsApp is an example of an IM (Instant Messaging) application.

5.8.1 Why is one less likely to become a victim of cyber-bullying by using WhatsApp than by using a more general online chat facility? 

5.8.2 Explain why real-time messaging can lead to antisocial behaviour. 

5.9 Skype is a popular software communication package.

5.9.1 Give the name of the protocol/technology used by Skype, that allows telephone calls to be made over computer networks including the internet. 

5.9.2 Give TWO possible disadvantages of including video content in a Skype call. 

5.10 Give ONE advantage of having government resources and services available online to members of the public.
Question 6: Information Management

6.1 Give TWO advantages of the fact that so much information is already in digital format. (2)

6.2 Consider the question below that was asked in a questionnaire, and answer the questions that follow:

Which is your favourite movie of all time?
(Write your response in the space below)

6.2.1 Is this question a closed question or an open-ended question? Motivate your answer. (1)

6.2.2 What would be the disadvantage or limitation, in this particular case, of asking the respondent to select from a set of options? (1)

6.3 Information requested in forms is often ‘asked’ and stored as codes. For example, a person applying for a driver license must enter the type of license as a code, where ‘A’ represents a motor cycle and ‘B’ represents a car, etc.

Give TWO reasons why this is the case. (2)

6.4 Give ONE piece of information that should appear on the cover page of a report, besides the title of the report. (1)

6.5 Why would one export an Excel spreadsheet to an Access database? (1)

6.6 Give TWO reasons why the information contained in libraries (e.g. details of books and borrowers) is stored in databases rather than in spreadsheets. (2)

[10]

Question 7: Social Implications

7.1 What is the practical benefit of the trend of convergence in people’s everyday lives? (1)

7.2 Briefly explain what keylogger software is designed to do, and why this type of software is generally classed as malware (malicious software). (2)

7.3 Give TWO ways in which we can practise green computing in the way we use printers, besides limiting the number of pages printed. (2)

7.4 Give TWO tips for good user-centred design in terms of the layout of a web site. (2)

7.5 Briefly explain what a bot (also called a ‘zombie’) is, in the context of computer crime. (2)

7.6 Briefly explain why the widespread use of flash drives has some negative social and ethical consequences. (1)

[10]
Question 8: Solution Development

8.1 In a long *Word* document there are two spaces after every full stop.
Give the name of the facility, or command, that you can use to change the two spaces to a single space throughout the document. (1)

8.2 Give ONE method you can use to quickly move to a bookmark that you have created in a *Word* document. (1)

8.3 Explain why it is sometimes desirable to use a *soft enter* (obtained by pressing Shift-Enter) rather than a 'normal' Enter in a *Word* document. (1)

8.4 Give the name of the *type* of indent illustrated in the following screenshot:

8.5 Why is it recommended to check a file or document for *accessibility* before publishing it? (1)

8.6 The finishing times for a cycle race are stored in cells E5:E45 in an *Excel* spreadsheet.
Briefly describe TWO changes that must be made to the function below in order to return the second fastest time. Also rewrite the function in the way it should appear.

\[=\text{MAX}(2, \ E5:E45)\] (2)

8.7 Why should one store dates as numerical values in Excel, rather than as text. (1)

8.8 Study the spreadsheet below and answer the questions that follow:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CITY</td>
<td>PROVINCE</td>
<td>POPULATION 2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Durban</td>
<td>NL</td>
<td>KwaZulu-Natal</td>
<td>595,061</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Upington</td>
<td>NC</td>
<td>KwaZulu-Natal</td>
<td>74,834</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Welkom</td>
<td>FS</td>
<td>KwaZulu-Natal</td>
<td>211,011</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>EC</th>
<th>Eastern Cape</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS</td>
<td>Free State</td>
</tr>
<tr>
<td>GT</td>
<td>Gauteng</td>
</tr>
<tr>
<td>LP</td>
<td>Limpopo</td>
</tr>
<tr>
<td>MP</td>
<td>Mpumalanga</td>
</tr>
<tr>
<td>NC</td>
<td>Northern Cape</td>
</tr>
<tr>
<td>NL</td>
<td>KwaZulu-Natal</td>
</tr>
<tr>
<td>NW</td>
<td>North West</td>
</tr>
<tr>
<td>WC</td>
<td>Western Cape</td>
</tr>
</tbody>
</table>

24% 68% 8%
8.8.1 The following function was used in cell D3 to determine the name of the province in which the city of Durban is located:

\[ \text{= VLOOKUP ($C$3, $G$3:$H$11, 2)} \]

What error was made in this function, before it was copied/filled down to cells D4 and D5? (1)

8.8.2 The chart represents the populations of Durban, Upington and Welkom in 2011.

Give TWO chart elements that can be added to the chart to make the chart more understandable. (2)

8.9 Give TWO field properties or features that can be used in designing an Access table, to ensure that the data entered in a field is valid (acceptable in terms of allowed values). (2)

8.10 The following criteria appear in the Surname field of an Access query:

**Like "*son"**

Describe in words which type of surnames will be displayed when the query is run. (In other words, what must a surname 'look like', for that surname to appear in the query?) (1)

8.11 In an Access table, the field Mark is used to store learners’ scores for a test that counted out of 75.

Indicate TWO changes that must be made to the calculated field Percent in an Access query, so that the field will display learners’ scores as percentages (marks out of 100). Rewrite the calculated field carefully showing your corrections. (2)

8.12 Give one reason to use the HTML ALT tag when creating a webpage. (1)

**SECTION C**

Your school is hosting a cycling race in which cyclists from various schools have been invited to participate. A small computer network must be established in the sports complex to help process registrations and handle other administrative details. Five laptops (clients) and one desktop (file server) will be connected in the network. You have been asked to help with the setting up.

Question 9: Integrated Scenario

9.1 Give ONE general reason for using computers in this scenario, instead of relying on manual systems (pen and paper), besides the fact that computers are very fast and accurate. (1)

9.2 Powerful computers will be needed to process all the data.

Which TWO specifications of a computer usually determine how ‘powerful’ it is? (2)
9.3 The municipality warned of pending load shedding. Briefly explain why it is not necessary to connect the five laptops to a UPS. (2)

9.4 The five laptops are running on a Windows platform, and have the LibreOffice suite installed.

9.4.1 What is a ‘platform’ in this context? (1)

9.4.2 Give the main advantage of LibreOffice over Microsoft Office. (1)

9.4.3 Two different values are listed for the memory requirement of LibreOffice, namely 256 MB and 512 MB. Explain why two different values are listed for this requirement. (2)

9.5 Some changes need to be made to the Race Rules. Unfortunately the Race Rules document exists only in a hardcopy format.

What type of scanning software can be used to convert the Race Rules into a format that can be edited in a word processor? (1)

9.6 What device, besides a flatbed or a sheet-fed scanner, could be used to create digital copies of the handwritten award certificates? (1)

9.7 The URL for the event is http://www.highrise/sport/events/2017/cycle-race/

What would be the advantage of including this information (the URL) in a QR code printed on an advertising leaflet, rather than just supplying the URL in the leaflet? (1)

9.8 Data typists will use the laptops to capture all the registrations. This requires a lot of typing.

9.8.1 Give the name of a medical condition that can result from the improper use of input devices. (1)

9.8.2 The typists use an online Typing Tutor software package to improve their typing skills.

Give TWO general advantages of online training using tutoring software, apart from the fact that it can improve one’s skills. (2)

9.9 One of the data typists suffers from poor eyesight.

Give ONE input device that this person could use, to enable them to use a computer more effectively. (1)

9.10 A printer must be set up to print certificates at the end of the event.

9.10.1 Explain how it is that Windows will ‘know’ exactly how to use (send the correct instructions to) the printer. (1)

9.10.2 Briefly explain why printing at a high resolution is more expensive than printing at high speed. (1)

9.10.3 A test page was sent to the printer, but the page did not come out. Assume that the printer is not damaged, is receiving power and is connected to the network.

Give ONE troubleshooting tip you could try to fix the problem. (1)
9.11 It has been decided to allow race officials to participate in the network, provided they do so on a BYOD basis. Explain what BYOD means and give one advantage to the school of this decision.

9.12 *Google Keep*, a note-taking app, is installed on a tablet that will be used during the event. The app is integrated with Google Drive.

9.12.1 Give one special feature of note-taking software, that takes advantage of the touch screen interface of a tablet.

9.12.2 Give two advantages of the fact that the app is integrated with Google Drive.

9.13 The server must be connected to the internet.

9.13.1 Give two reasons why ADSL might be a better connection option rather than 3G.

9.13.2 Suppose that the ADSL option is not available. What additional piece of hardware would be needed to connect the server to the internet via 3G, without sharing the connection of another computing device?

9.14 A hotspot will be set up at the sports complex.

Briefly explain what a 'hotspot' is in terms of connecting to the internet.

9.14 Consider the specifications of the server below, and answer the questions that follow:

```
Intel Core i7 3.4 GB
Gigabyte motherboard, with LAN and VGA
16 GB DDR4
Blu-ray writer
2 x 2 TB hard drives (RAID technology)
NVIDIA graphics card
18.5" LED monitor
Windows Server 2016
```

9.15.1 What output device is associated with the VGA specification?

9.15.2 Give the common term for the item with the 16 GB DDR4 specification.

9.15.3 What OS would this computer use?

9.15.4 Give one reason why a graphics card is generally not an essential component of a server computer.

9.15.5 The specification of one of the items is obviously incorrect. Write down the correct specification.
9.16 One of the data typists received the following message while checking her email:

Dear customer,

You received a pending payment in your Standard Bank account, you have to login to your online banking with the below web-link to receive your pending payment in your Standard Bank account:


*NOTE: Failure to do this will lead to suspension of your ATM Card.

Thank you for using Standard Bank.

Administrator

9.16.1 Give TWO reasons, with reference to the content of the message, why this can be regarded as a social engineering attempt. (2)

9.16.2 What common name is given to this particular type of social engineering? (1)

9.16.3 Give ONE reason why the URL in this message should not be trusted as being secure. (1)

9.17 Anti-virus software has been installed on the laptops in order to protect them against malware attacks.

9.17.1 Give TWO general tips on the use of anti-virus software. (2)

9.17.2 Give ONE example of an anti-virus package. (1)

9.18 Unfortunately the computers can be used to commit theft.

9.18.1 Give TWO types of theft that can be committed with the aid of computers, apart from the theft of hardware and data / intellectual property. (2)

9.18.2 The administrator has drafted a policy document which spells out the rights and responsibilities of the network users.

Give the common term for such a document. (1)

9.19 Suggest a device (technology) that could be attached to each cyclist to record his/her details wirelessly as they cross the finishing line. (1)

9.20 An electronic questionnaire containing form fields was created in Word to obtain cyclists’ feedback.

Name 3 types of form fields that can be used in such a questionnaire. (3)

TOTAL: 150