

COMPUTER APPLICATIONS TECHNOLOGY: PAPER I

Time: 3 hours

180 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 18 pages and an insert (HTML Tag List and Input Mask Character Sheet) of 2 pages (i–ii). Please check that your question paper is complete.
2. The examination consists of 5 sections and 8 questions. All questions in all sections must be answered.
3. You must use a text editor for the HTML section. Acceptable applications are Notepad, Notepad++ or WordPad. Microsoft Word may **NOT** be used for HTML coding.
4. Use functions and/or formulas to calculate answers, unless otherwise instructed.
5. Do not do more than is required by the question.
6. Take note of the mark allocation to ascertain the complexity of the solution required and the amount of time you should spend on each question.
7. Save your work regularly.
8. If you are unable to get a formula/function to work correctly: open the **Student_Screenshots** document; indicate the question number; paste a screenshot showing the issue and provide a brief explanation to obtain part marks; you may then leave it out of the spreadsheet or database solution.
9. Unless other instructions are given, all word-processing documents should be set up as follows:
 - Measuring units – centimetres (cm)
 - Language – English (South Africa)
 - Page size – A4
 - Margins – 2.54 cm
10. You may use the offline help function, if available, in each application.

11. Figures in the question paper have a border. When a figure is provided as part of a question, you are not expected to add the border unless specifically instructed to do so.
12. Before you begin, rename your data folder to your examination number.
13. Do **NOT** rename any files or folders unless instructed to do so.
14. Save your work at regular intervals to prevent data loss. Backup data files will be made available to you by your teacher/invigilator, if needed.

The contents of your examination **Data Files** folder and sub-folders are as follows:

Data Files	QUESTION 1	QUESTION 1 (Multimedia)
QUESTION 1 QUESTION 2 QUESTION 3 QUESTION 4 QUESTION 5 QUESTION 6 QUESTION 7 QUESTION 8 Student_Screenshots.docx	Multimedia Questionnaire StoredDocuments _Q1Answers.docx About-the-Internet.pdf Brief-history.webm DoNotEdit.txt Google.jpg Internet_History.docx Internet-cables02.jfif IntroSlide.mp3 Statistics.xlsx Twitter.jpg	(empty)
QUESTION 1 (Questionnaire)	QUESTION 1 (StoredDocuments)	QUESTION 2
QuestionsBase.docx Social Media Questionnaire.zip	(empty)	images Q2DigitalSA.docx Q2TheInternet.docx Q2Timeline.docx source.txt
QUESTION 2 (images)	QUESTION 3	QUESTION 4
Nikola-Tesla.jpg timeline.png	Invites.csv Q3MailmergeTemplate.docx	Q4InternetStatistics.xlsx
QUESTION 5	QUESTION 6	QUESTION 7
Q5InternetUsers.xlsx	Q6ISPs.xlsm	AdditionalISPs.csv Q7_InternetData.accdb ThumbsUp.jpg
QUESTION 8	QUESTION 8 (images)	
images index.htm	Amazon.jpg Facebook.jpg vint.jpg	

Check each folder and ensure that every file/document/folder is accessible.

Contextual Scenario

The Internet and the WWW

The Internet started in the 1950s by connecting computers to each other, thus enabling them to communicate with each other. As technology progressed, so did global connectivity. A worldwide network consisting of billions of devices, all connected via various protocols, is now available.

The World Wide Web was born in the 1980s and grew into the massive web of content as known today. There is instant access to a world of resources, social networks, multimedia and news content.

SECTION A FILE AND FOLDER MANAGEMENT

QUESTION 1

Open and work *only* in the folder named **QUESTION 1**.

- 1.1 Group the contents of the window according to Type. (1)
 - 1.1.1 Sort the contents, according to file size, in descending order. (2)
 - 1.1.2 Take a screenshot of the sorted contents. Include all the column headings in the screenshot. (1)
 - 1.1.3 Insert the screenshot into the **_Q1Answers** document. (1)
- 1.2 Insert a screenshot into the **_Q1Answers** document showing that file name extensions have been enabled. (1)
- 1.3 Determine who the author is of the file **Statistics.xlsx**. Type your answer in the **_Q1Answers** document. (1)
- 1.4 What is the exact file size of the file **Google.jpg**, in bytes? Type your answer in the **_Q1Answers** document. (2)
- 1.5 Move all word processing documents and PDF files into the **StoredDocuments** folder. *Do not move* the **_Q1Answers** document. (1)
- 1.6 Copy all multimedia type files to the **Multimedia** folder. (3)
- 1.7 Open the **Questionnaire** sub-folder.
 - 1.7.1 Extract the contents of the zipped file. (1)
 - 1.7.2 Rename the extracted file to **Social-Survey.docx**. (1)
 - 1.7.3 Protect the document **QuestionsBase** so that only users using the password '**q1w2**' (no quotation marks) can access it. An incorrect password will forfeit one mark. (2)

Move back to the **QUESTION 1** folder.

- 1.8 An important file has been hidden. Unhide the file and change the attributes of the file so that it will no longer be hidden. (2)
- 1.9 Adjust the properties of the file **DoNotEdit.txt** so that it becomes a Read-only file. (1)

20 marks

SECTION B WORD PROCESSING**QUESTION 2**

Open and work *only* in the folder named **QUESTION 2**.

Open the document **Q2TheInternet.docx** and edit as per the instructions below.

- 2.1 Adjust ***all*** the page margins to 1.5 cm. (1)
- 2.2 Format all paragraphs in the document, *except* the heading at the top of page 1, with the following specifications:
 - 2.2.1 Set the line spacing to 1.5. (1)
 - 2.2.2 Set the paragraph spacing to 12 pt after for each paragraph. (1)
 - 2.2.3 Change the font type to Arial, size 12 pt. (1)
 - 2.2.4 Justify the text in all paragraphs. (1)
- 2.3 Format the paragraph beginning with 'Long before the technology existed ...'
 - 2.3.1 Insert the image **Nikola-Tesla.jpg**, available in the **images** sub-folder, into the paragraph as shown in the screenshot below. (1)
 - 2.3.2 Set the height of the image to 3.5 cm. (1)
 - 2.3.3 Format the image with any colour border of 3 pt thickness. (1)
 - 2.3.4 Crop and align the image as per the example. (1)
 - 2.3.5 Add the caption 'Figure 1 Nikola Tesla' below the image. (1)

Long before the technology existed to actually build the internet, many scientists had already anticipated the existence of worldwide networks of information. Nikola Tesla toyed with the idea of a 'world wireless system' in the early 1900s, and visionary thinkers like Paul Otlet and Vannevar Bush conceived of mechanised, searchable storage systems of books and media in the 1930s and 1940s.

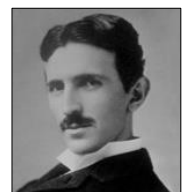


Figure 1
Nikola Tesla

- 2.4 Locate the text 'Vinton Cerf', highlighted for you in green. Add a footnote to the text. The footnote text should read 'Father of the Internet'. Ignore the quotation marks. (1)
- 2.5 Indent the final paragraph in the document, starting with '*ARPANET adopted ...*', 3 cm from the left. (1)

- 2.6 Format the final paragraph of the document with an appropriate feature to ensure that the paragraph will *not* split up across two pages. (1)
- 2.7 Add alternative text, for the image at the end of the document, for sight-impaired users. The descriptive text should read 'Picture of the world'. Quotation marks are not necessary. (1)
- 2.8 Ensure that the text 'Adapted from <https://www.history.com/news/who-invented-the-internet>' only appears in the footer from page two onwards. (1)
- 2.9 Add your examination number as an author to the document. (1)

Save and close the document.

Open the document **Q2Timeline.docx**.

- 2.10 Change the page orientation to landscape. (1)
- 2.11 Format the timeline content, excluding the heading, into THREE columns with a line between each column. (2)
- 2.12 Use an appropriate break to ensure that '1988: IRC – Internet Relay Chat' will always remain at the top of the second column. (1)
- 2.13 Convert the text 'Google!' into a hyperlink. Link the text to '<https://www.google.com>' (do not include quotation marks). (1)
- 2.14 Insert the image **timeline.png** as a watermark to the document. The file is located in the **images** sub-folder. (1)
- 2.15 Use the information provided in the **source.txt** file and the Source Manager to create and insert an automatically-generated reference on the last page, below the heading titled 'Reference'. (2)
- 2.16 On the last page, insert a bookmark called 'TheReference' (do not include quotation marks) at the beginning of the heading 'Reference'. (1)
- 2.17 Convert the heading 'The Internet Timeline' into a URL linking to the bookmark created in the previous question. If you did not create a bookmark in the previous question, then link to the heading, 'Reference'. (1)

Save and close the document.

Open the document **Q2DigitalSA.docx**.

Page 1

- 2.18 Access the header section and format as follows:
- 2.18.1 Set a right-aligned tab stop at 16 cm. (1)
- 2.18.2 Insert an automatically updating date field at the right-aligned tab stop. Any date format is acceptable. (2)

- 2.19 Insert automatic page numbering in the footer. Odd page numbers must appear on the left, even page numbers must appear on the right. (2)

Page 2

- 2.20 Split the table into three separate tables. The shaded rows should be the first rows of each table. See Figure 1 below. (2)











<u>Internet users in South Africa</u>	
	There were 38.19 million internet users in South Africa in January 2021.
	The number of internet users in South Africa increased by 1.7 million (+4.5%) between 2020 and 2021.
	Internet penetration in South Africa stood at 64.0% in January 2021.
	Note: we no longer include data sourced from social media platforms in our internet user numbers, so the numbers shown above and in our complete Digital 2021 reports are not comparable with numbers published in our reports from previous years.
<u>Social media statistics for South Africa</u>	
	There were 25.00 million social media users in South Africa in January 2021.
	The number of social media users in South Africa increased by 3.0 million (+14%) between 2020 and 2021.
	The number of social media users in South Africa was equivalent to 41.9% of the total population in January 2021.
<u>Mobile connectivity in South Africa</u>	
	There were 100.6 million mobile connections in South Africa in January 2021.
	The number of mobile connections in South Africa increased by 817 thousand (+0.8%) between January 2020 and January 2021.
	The number of mobile connections in South Africa in January 2021 was equivalent to 168.5% of the total population.

Figure 1

- 2.21 Create a new style with the following specifications:
- 2.21.1 Style name: **SectionHeader**. (1)
- 2.21.2 Font size: 20 pt, font colour: dark red, text is underlined. (1)

- 2.22 Apply the newly created style, **SectionHeader**, to the text in each of the three shaded rows. If you were unable to create the style in the previous question, use the **Heading 1** style. (2)
- 2.23 Move the paragraph text starting with 'Note: Figures for social media users ...' (located under the 'Social media statistics for South Africa' heading and highlighted in yellow), into a comment linked to the word 'Africa' (which has been highlighted in green). (2)
- 2.24 Delete the row that contained the text from the previous question as it should now be empty. (1)
- 2.25 Convert all content, in the three non-shaded rows, into bulleted lists using Webdings code 252 as the bullet symbol. (2)
- 2.26 Follow the instructions contained in the comment linked to the word 'connections' in the third shaded row. (2)
- 2.27 Enable *Track Changes*. (1)

Page 1

- 2.28 Insert an automatically generated Table of Contents under the heading 'Contents'. Use the style **SectionHeader** to create a first-level only Table of Contents. If you did not create a **SectionHeader** style, use **Heading 1**. (2)
- 2.29 Export the file as a PDF document of the same file name, into the current folder. (1)

Save and close the document.

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QUESTION 3

Open and work *only* in the folder named **QUESTION 3**.

- 3.1 Open the file **Q3MailmergeTemplate.docx**.
- 3.1.1 Insert the SIX fields, obtained from the **Invites.csv** file, into the document. The field placements have been highlighted. (2)
- 3.1.2 Sort the data alphabetically according to the **FirstName** field. (1)
- 3.1.3 Complete the merge and save the final merged document as **Q3CompletedMerge.docx**. (2)

Save and close the document(s).

[5]

53 marks

SECTION C SPREADSHEETS**QUESTION 4**

Open and work *only* in the folder named **QUESTION 4**.

Open the workbook **Q4InternetStatistics.xlsx**.

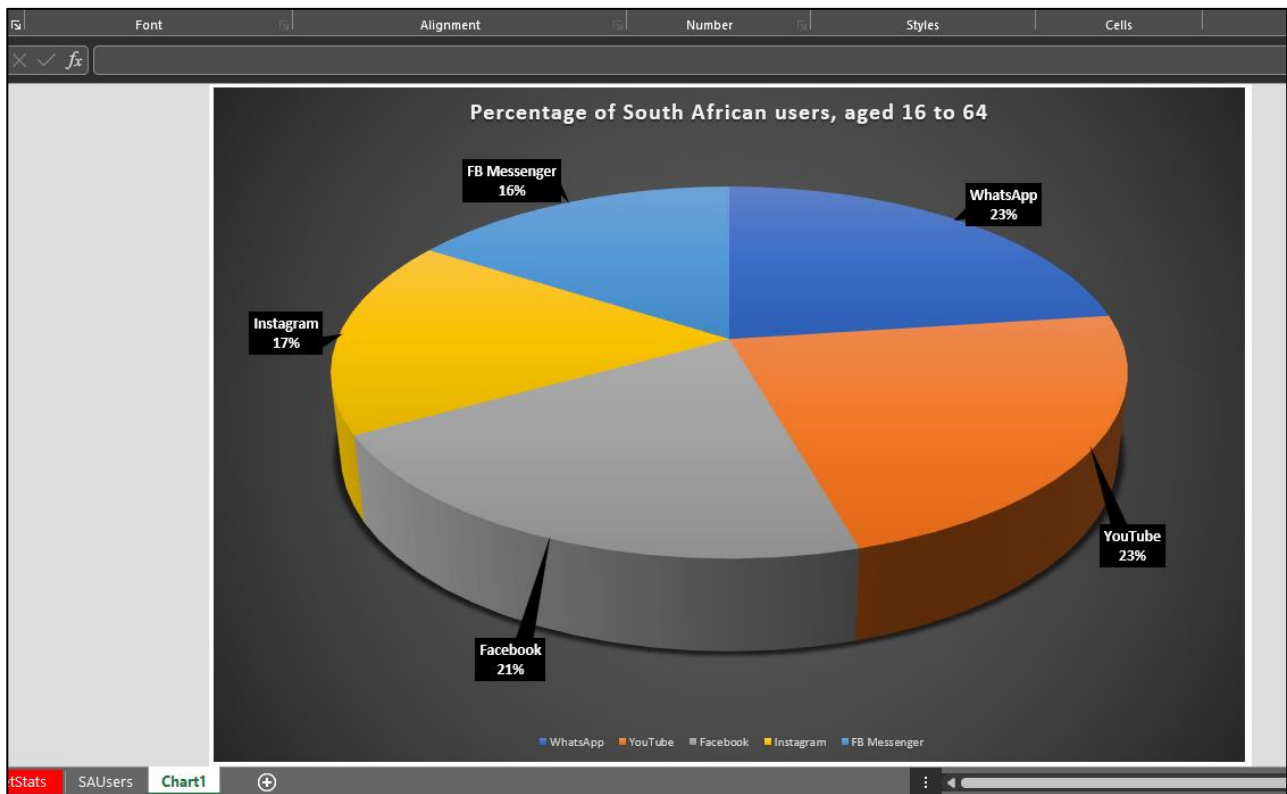
Sheet1 worksheet

- 4.1 Rename *Sheet1* to *InternetStats*. (1)
- 4.2 Merge and centre cells **A1:F1**. (1)
- 4.3 Define a name for the data in cell **E4**. Use the name 'Population'. (1)
- 4.4 Calculate the percentage of users for each category (**Column D**) out of the total population (provided in cell **E4**) for cells **F5:F9**. Display each amount with a percentage symbol. If you were unable to complete Question 4.3, make use of absolute cell referencing in your calculation. (2)
- 4.5 Use conditional formatting in cells **E13:E25** to fill the top three social platforms based on the percentages with any colour of your choice. (2)
- 4.6 Insert a field in the bottom right of the footer to automatically display the current page number if the worksheet needs to be printed. (2)

SAUsers worksheet

- 4.7 Sort the data in cells **A4:C16**, descending, according to the percentage of users. The icons in **Column A** should sort automatically. If the icons *do not* sort, you can ignore their order for this question. (2)
- 4.8 Format the cell range **C4:C16** so that the numbers display with a percentage symbol. For example, 25.50 will display as 25.50%. (1)
- 4.9 Create a 3D pie chart consisting of the top **FIVE** most-used social platforms: (2)
 - 4.9.1 Use data callouts with a black fill and white text. (1)
 - 4.9.2 Move the chart to its own new sheet called **Chart1**. (1)

See Figure 2 on the next page for an example of what the completed chart should look like.

**Figure 2**

Save and close the workbook.

[16]

QUESTION 5

Open and work *only* in the folder named **QUESTION 5**.

Open the workbook **Q5InternetUsers.xlsx**.

InternetUsers worksheet

- 5.1 Ensure that **row 1** remains visible even when scrolling down. (1)
- 5.2 Do not display the gridlines in the worksheet. (1)
- 5.3 Apply a filter to all the data using the following criteria: (2)
 - 5.3.1 Entity must be South Africa.
 - 5.3.2 Year must be 2015, 2016 and 2017 only.

Pivot worksheet

- 5.4 Create a pivot table **and** pivot chart of a clustered column type. Use the cell range **A1:C5719** from the *Data* worksheet. Place the chart below the pivot table. The pivot table should display the following information: (1)
 - 5.4.1 The countries Eswatini, Namibia, South Africa and Zimbabwe. (1)
 - 5.4.2 The years 2015, 2016 and 2017. (1)
 - 5.4.3 The values for Individuals using the Internet must be represented as averages. (1)
- 5.5 Set cell range **A1:I24** as the print area of the worksheet. (1)

See Figure 3 on the next page for an example of what the pivot table and chart should look like.

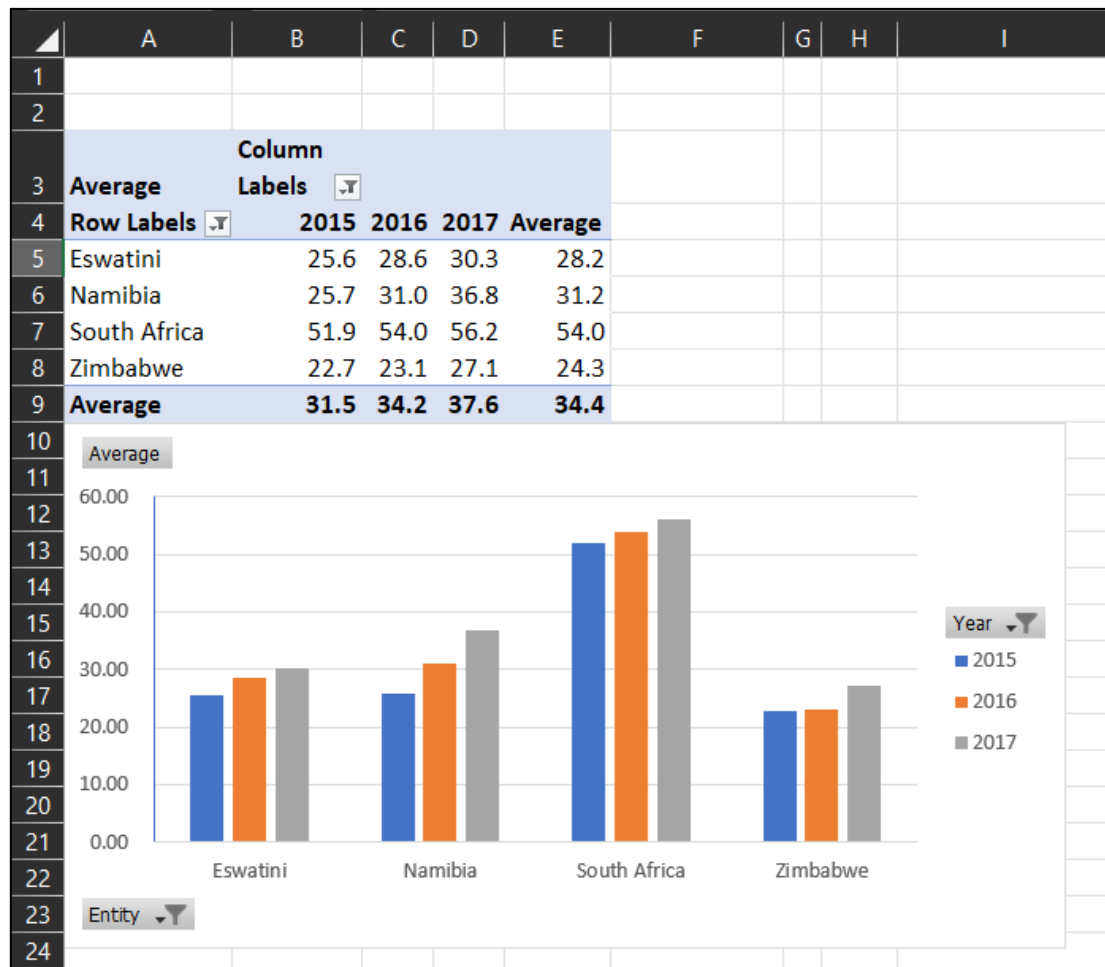


Figure 3

Save and close the workbook.

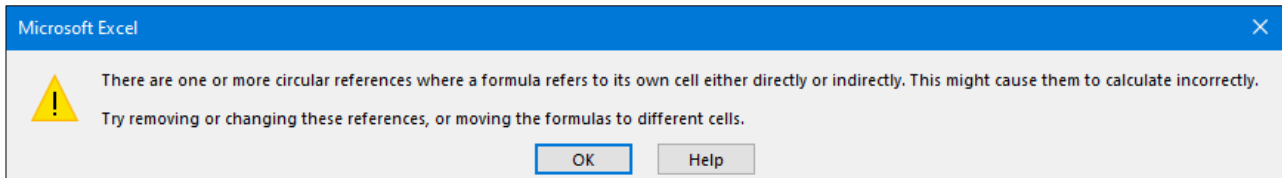
[9]

QUESTION 6

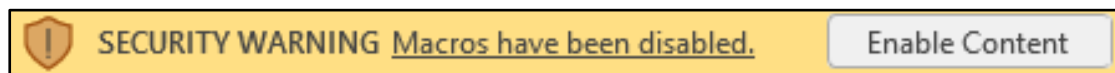
Open and work *only* in the folder named **QUESTION 6**.

Open the workbook **Q6ISPS.xlsm**.

Upon opening the workbook, you may receive a message such as the one below. Read the message carefully and then click 'OK' to continue.



You may also see a security warning, as seen below. Please click the '**Enable Content**' button.

*SAISPs worksheet*

6.1 In **Column B**, create a database code for each service provider. The code must be created as follows:

- 6.1.1 The code must be all uppercase. (1)
- 6.1.2 It must contain the first three letters of the company name. (1)
- 6.1.3 A random number between 1 and 9 must be generated at the end of the code.

Example for company 'Active Fibre' in **row 1**:

Their code will be **ACT7**

(1)

6.2 Use functions to calculate:

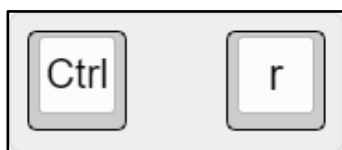
- 6.2.1 Highest fibre cost in cell **H52**. (2)
- 6.2.2 Lowest ADSL cost in cell **H53**. (2)
- 6.2.3 The number of providers who charge more than R1 000 for Fibre in cell **H54**. (3)

AFRIHOST worksheet

- 6.3 Afrihost Mobile launched a structured Pay-Per-Meg system for its mobile users. If a user has used 200MB or less over four weeks, they pay R0.20 per megabyte. If they have used up to 500MB, they pay R0.35 per megabyte, etc. Calculate, in **Column H**, the cost for a user per month based on the pricing strategy given in **Columns J and K** and their usage in MBs over the four-week period. (5)
- 6.4 Unlock cells **H4:H8** so, when the sheet is protected, only those cells can be edited. (1)

MBPS worksheet

- 6.5 Correct the error in **Column I** that causes the function to not calculate correctly. (1)
- 6.6 Create a drop-down list in cell **C8** displaying the values from the cell range **B2:B6**. (2)
- 6.7 Use a suitable function in cells **C9:C13** to find and display the cost of the selected speed (chosen in cell **C8**) for each service provider. (6)
- 6.8 Create a macro that will hide **rows 1 to 6**. You may choose only **ONE** of the following options for the recorded macro: (2)
- 6.8.1 **Option 1:** Assign the shortcut keys **Control** and **r**.



- 6.8.2 **Option 2:** Create a button, titled 'HIDE ROWS', and attach the macro to the button so that it runs when clicked. Place the button in cells **D8:E8**.

D	E	F	G	H	I
AFRIHOST	TELKOM	VOX	AXXESS		
R 597.00	R 449.00	R 599.00	R 645.00		
R 797.00	R 699.00	R 759.00	R 749.00		
R 917.00	R 869.00	R 899.00	R 849.00		
R 1 117.00	R 1 169.00	R 1 299.00	R 999.00		
R 1 297.00	R 1 349.00	R 1 589.00	R 1 499.00		
HIDE ROWS		Place macro-enabled button here if you did not create a keyboard shortcut for your macro.			

Save and close the workbook.

[27]

52 marks

SECTION D DATABASE**QUESTION 7**

Open and work *only* in the folder named **QUESTION 7**.

Open the database file **Q7_InternetData.accdb**.

Tables

Table: tbl_SAISPS

The table has not been correctly prepared for data entry. Format the table fields as per the following instructions:

- 7.1 Select the most appropriate field to be the primary key. (1)
- 7.2 Ensure that any data entered into the DatabaseCode field meets the following criteria:
- 7.2.1 Three uppercase letters only. (2)
- 7.2.2 One number only. (1)
- Example: **ABC1**
- 7.3 Change the Other field to a combo box. Obtain the values from the *tbl_OtherServices* table. Allow for multiple values to be selected. (2)
- 7.4 Set the default value of the field CustomerSatisfaction to a value of 5. (1)
- 7.5 Ensure that a value greater than 10 cannot be entered in the CustomerSatisfaction field. A suitable message should appear if someone attempts to enter a number greater than 10. (2)
- 7.6 The Email field may not be left empty when entering a new record. Adjust the field properties to enforce this. (1)
- 7.7 Import and append the data from **AdditionalISPs.csv** (from the **QUESTION 7** folder) into the *tbl_SAISPS* table. (2)

Forms

- 7.8 Create a form called *frm_DataCapture* displaying all fields from the *tbl_SAISPS* table. (1)
- 7.9 Insert a button in the header of the *frm_DataCapture* form that closes the form when clicked. (2)

Queries


- 7.10 Create a query called *qry_AllServices* that will display all companies that provide all three services, namely ADSL, fibre and Wireless LTE. Display the company name and their web address only. (4)
- 7.11 Create a query called *qry_CustomerRating*. Display company names, web addresses and customer satisfaction ratings of only companies with a rating of 8 and above. Do not include companies with no web address, even if they have a rating of 8 and above. (4)
- 7.12 Create a query called *qry_Gauteng* to display all companies that provide fibre or satellite in Gauteng only. Display the name of the company, whether they offer fibre and/or satellite services, their web and email addresses. (4)
- 7.13 All ISP's providing wireless services are running a special for the month of December. Create a query called *qry_SummerSavings* to display the company names, their location and a new calculated field called SummerSavings. The new calculated field must display the new wireless service cost after 25% has been deducted from the original wireless service cost. Format the SummerSavings field as currency. (3)

Reports

- 7.14 Create a report called *rpt_HighRating* using the *tbl_Ratings* table.
- 7.14.1 Group the report according to the CustomerSatisfaction field. (1)
- 7.14.2 Display the fields CustomerSatisfaction, Company, OfficeLocation and URL. (1)
- 7.14.3 Add your examination number, in a label, to the footer of the report. (1)
- 7.14.4 Insert the image **ThumbsUp.jpg** (from the **QUESTION 7** folder) into the header of the report. (1)
- 7.14.5 Change the colour of the header of the report to white. (1)

See Figure 4 on the next page for an example of the report.

rpt_HighRating



CustomerSatisfaction	Company	OfficeLocation	URL
9	Imaginet	Gauteng	imagnet.co.za
	Afrihost	Gauteng	afrihost.com
	Alesco Internet Solutions	Western Cape	alesco.co.za
	Adept ICT	Gauteng	adept.co.za
	Cool Ideas	Northern Cape	coolideas.co.za
	Web Squad Connect	Gauteng	websquad.co.za
	MWEB	Western Cape	mweb.co.za
	Neofibre	Western Cape	neofibre.com
	Rain	Free State	rain.co.za
	Reflex Solutions	Gauteng	reflex.co.za
	TENET	Gauteng	tenet.ac.za
10	IvyWeb	North West	
	CMC Network	North West	cmcnetworks.ne
	Business Connexion	Free State	bcx.co.za
	BitCo	Gauteng	bitco.co.za
	Axxess DSL	Gauteng	axxess.co.za
	Home-Connect	Eastern Cape	home-connect.c

079874511457

Figure 4

7.15 Edit the report *called rpt_WirelessAverages* as follows:

7.15.1 Add a footer for the OfficeLocation field. (1)

7.15.2 Add calculations in the OfficeLocation footer to calculate:

(a) The highest cost of the wireless services per province. (1)

(b) The average cost of the wireless services per province. (1)

(c) The number of companies in each province. (1)

7.15.3 Format the calculated fields in the OfficeLocation footer, that display costs, as currency. (1)

See Figure 5 on the next page for an example of the report.

rpt_WirelessAverages				
OfficeLocation	Company	WIRELESScost	Email	
Eastern Cape	Faircom	R756.00	info@faircom.co.za	
	Home-Connect	R1 093.00	info@home-connect.co.za	
Highest cost	<input type="text" value="R1 093.00"/>	Average cost	<input type="text" value="R924.50"/>	No. of companies <input type="text" value="2"/>
Free State				
	Business Connexion	R756.00	info@bcx.co.za	
	Buzzdotnet	R572.00	info@buzzdotnet.com	
	Digital Zoo		info@digitalzoo.com	
	Rain		info@rain.co.za	
Highest cost	<input type="text" value="R756.00"/>	Average cost	<input type="text" value="R664.00"/>	No. of companies <input type="text" value="4"/>
Gauteng				
	AB Solutions			
	Active Fibre	R918.00	info@activefibre.co.za	
	Adept ICT	R690.00	info@adept.co.za	
	Afrihost		info@afrihost.com	
	ASAP Internet		info@asap.co.za	

Figure 5

40 marks

SECTION E WEB DEVELOPMENT (HTML DESIGN)**QUESTION 8**

Open and work *only* in the folder named **QUESTION 8**.

Open the document **index.htm** using a text-only HTML editor.

Make the following edits to the file:

- 8.1 Set the title of the document to 'The Internet and the WWW'. (1)
- 8.2 Set the background colour of the entire document to #454746. (2)
- 8.3 Change the colour of the font for the main heading to #FFFFFF. (2)
- 8.4 Set the width of the main table container to 70%. (1)
- 8.5 Set the font size of the first and second paragraph to size 4. (2)
- 8.6 Convert the text, starting with 'Joseph Licklider' and ending with 'Vint Cerf', into a bulleted list. (2)
- 8.7 Insert the image **Amazon.jpg** from the images folder in **QUESTION 8** into the correct location for Jeff Bezos. Reference the image in its primary location, do not move the image. (2)
- 8.8 Insert the necessary code to convert the image of Mark Zuckerberg into a hyperlink, linking to <http://www.facebook.com>. (3)

15 marks

Total: 180 marks