COMPUTER APPLICATIONS TECHNOLOGY: PAPER I

Time: 3 hours   150 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1.   This question paper consists of 18 pages and an answer sheet of 4 pages (i–iv). Please check that your question paper is complete.

2.   The question paper is divided into Section A (25 marks), Section B (75 marks) and Section C (50 marks).

3.   Answer ALL the questions.

4.   Number your answers exactly as they appear in the question paper.

5.   Non-programmable calculators may be used.

6.   It is in your own interest to write legibly and to present your work neatly.

7.   Read the questions carefully. Take note of the wording of the questions, i.e. explain, name, select, discuss, identify, etc. and then answer accordingly.

8.   Give your answers in general terms. Use brand names only when asked, e.g. use "word processing" rather than "Microsoft Word" or "WordPerfect".

9.   In general, a mark is allocated per fact. Therefore, a two-mark question would require two facts, and so on.

SECTION A

All questions in Section A are to be answered on the Answer Sheet provided.

QUESTION 1

1.1 Choose the correct word(s) in Column B which **BEST** describe(s) the statements in Column A. Write down **ONLY** the word(s) of your choice next to each question number.

	Column A	Column B
(a)	An important factor regarding the quality of the image produced that needs to be considered when purchasing a computer screen.	Dual Core
(b)	A technology that will speed up the processing power of the CPU.	WLAN
(c)	A way to connect the computer networks of two branches of a company in separate suburbs in the same city.	GPRS
(d)	A technology that gives you a faster connection to the internet than an EDGE connection.	Hoax
(e)	The same email message sent indiscriminately to a large number of recipients.	DPI
		GPS
		MAN
		Multitasking
		SPAM
		pixels

(5)

1.2 Select the **MOST** appropriate answer to each question. Write down **ONLY** the letter of your choice next to each question number.

(a) Which one of the following statements with regard to RSS is **FALSE**?

A   To receive RSS you need to subscribe to the feed.
B   RSS is a web or news feed that automatically provides you with information.
C   RSS is a platform that allows you to upload personal information.
D   RSS will allow you to access information from a central application.

(b) Which **ONE** of the following programs is normally associated with a .zip extension?

A   OCR software
B   Decompressing software
C   Utility software
D   File management software

(c)   When you run an update on your software programs this means that …

A   you uninstall and re-install the new programs to ensure that they are up to date.
B   you only download the new features and improvements to existing software when they become available.
C   you receive a new beta version of the software.
D   you need to create a backup program that will update software every night.

(d)   Which one of the following items is an example of an integrated package?

A   Excel and Quattro Pro
B   Microsoft Office
C   Windows 7 Professional
D   Windows Vista

(e)   Which one of the following statements regarding a USB connection is **FALSE**?

A   The connection supports Plug and Play.
B   You can use a hub for a number of connections at the same time.
C   You can plug in your digital camera, external hard drive and flash drive here.
D   The acronym USB stands for Uniform Serial Bus.

(f)   Which one of the following statements with regards to internet bots and computer zombies is **FALSE**?

A   A zombie computer is also known as a drone and allows a third party to control the computer and its resources remotely.
B   Spambots automatically add spam and adware to webpages as well as harvesting email addresses from the internet.
C   Botnets are used to send spam, commit click-fraud, and keep phishing scams alive.
D   An internet bot is a hardware device, connected to your computer by means of a firewire connection.

(g)   You want to create a query in a database that matches the word "Flat". Which one of the following criteria will NOT give you the correct result?

A   ="Flat"
B   "Flat"
C   ="F?"
D   Like "Flat"

(h)   Which tag will you use to indicate the heading above a table in HTML?

A   <th>
B   <thead>
C   <thr>
D   <trh>

(i)   The method of locking rows and columns in an Excel spreadsheet so that you can see columns far to the right of a spreadsheet while keeping row headings in Column A visible, is known as …

A   Split panes.
B   Freeze panes.
C   Hide panes.
D   Arrange panes.

(j)   The automatic movement of text to the next page in a word-processed document is known as a ... break.

A   continuous section
B   hard page
C   soft page
D   next page section   (10)
                                                                              [15]

QUESTION 2

2.1 Choose the **MOST** appropriate of the terms (<u>underlined and in brackets</u>) for each question that follows. Write down **ONLY** the term of your choice next to each question number.

    (a) (<u>Ring topology/Star topology</u>) is a network in which a number of repeaters are used with a large number of nodes to prevent data loss in the network. (1)

    (b) (<u>Cache memory/Memory dumping</u>) is the process in which the contents of computer memory are copied for use in problem analysis. (1)

    (c) (<u>Uploading/Downloading</u>) is the process of transferring a file from your local computer to the internet. (1)

    (d) (<u>Yahoo/Firefox</u>) is software that enables you to view web pages. (1)

    (e) (<u>Convergence/Compatibility</u>) brings together various media to form one information channel. (1)

    (f) The (<u>System Clock/System Utility</u>) operates at a fixed tempo and generates digital signals to synchronise all the computer's activities. (1)

2.2 Give an appropriate definition that would **BEST** describe each of the following terms.

    (a) Page footer/header (1)

    (b) Malware (1)

    (c) Avatar (1)

    (d) Cybersquatter (1)

[10]

25 marks

SECTION B

QUESTION 3   SYSTEM TECHNOLOGIES

3.1   In **Figure 1** identify and give the main function of the devices that are normally associated with the use of technology.
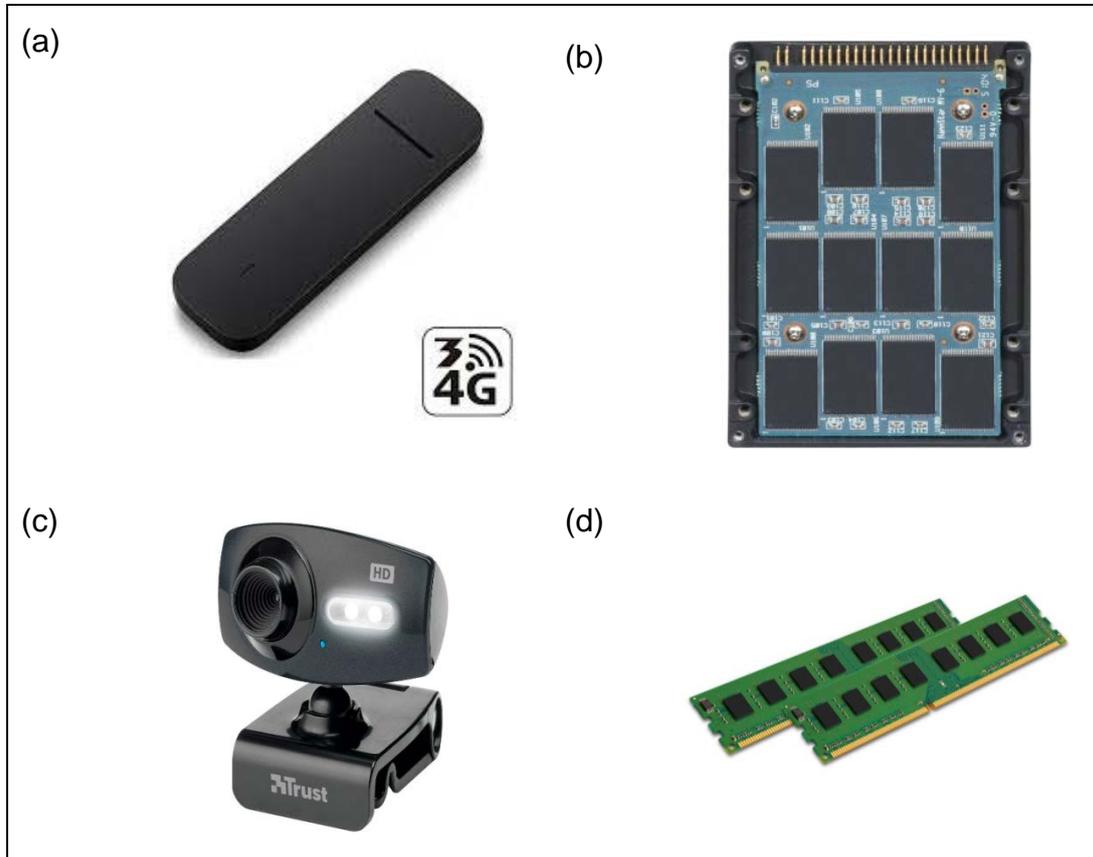

Figure 1

Using the table provided in your Answer Sheet, write down the name of each of the devices in the second column and their MAIN function in the third column. In your answer refer to what makes that particular device unique.

Question Number	Name of Device	Main Function
(a)		
(b)		
(c)		
(d)		

(8)

3.2   When you purchased a new computer it worked perfectly for the first 6 months but then there was a sudden decrease in the performance of the computer.

     (a)   What could the reason be for this sudden decrease in performance?   (1)

     (b)   Before you ask someone to help you to fix the performance of your computer you want to make backups. Why is it important to make a backup?   (2)

     (c)   (i)   Assuming the performance of your computer has been fixed, you still find that the computer is running slowly when you try to use the word processor, spreadsheet and database all at the same time. What could be the cause of this problem?   (1)

          (ii)   Give **ONE** possible solution to the problem   (1)

3.3   You need to maintain the information that you stored on your computer. Why will the following tasks be important to consider?

     (a)   Deleting any unwanted or temporary files.   (1)

     (b)   Defragmenting the hard drive.   (1)

3.4   Explain the function of the following items normally associated with computers. **Do not** simply expand the acronym.

     (a)   PCI   (2)

     (b)   UPS   (2)

     (c)   PROM   (2)

3.5   Scanners are used for capturing images from paper sources and for reading barcodes.

     What type of software do you need to convert images or text to editable text?   (1)

[22]

QUESTION 4   INTERNET AND NETWORK TECHNOLOGIES

4.1   When choosing an internet connection for a small business, a business owner would have to think about the way they can effectively connect all their computers to the internet.

(a)   Recommend **TWO** criteria that a small business would need to consider when choosing a broadband internet package.   (2)

(b)   The business owner is thinking of using Google Chat instead of using email in those instances when important, quick decisions need to be made. What is the main difference between communicating via email and using a service such as Google Chat?   (2)

4.2   The small business needs to set up a networking connection, and therefore needs a technician to assist. The technician needs to understand the different protocols that are available for data transfer.

(a)   Define the term protocol.   (2)

(b)   When an https protocol is seen in a URL, how will the owner of the small business know that this is a secure website?   (1)

(c)   Within the small business there needs to be a secure way of sharing files. Give **ONE** advantage and **ONE** disadvantage of using an FTP connection to share files, compared to using another connection protocol.   (2)

4.3   The use of internet technology is normally associated with the World Wide Web.

(a)   Explain the function of the World Wide Web.   (3)

(b)   When the connection to the internet is lost it is often suggested that you contact the ISP. Explain why you would phone an ISP by explaining the role or function it plays in providing internet access.   (2)

(c)   Other than providing internet connectivity, list **THREE** services that could be offered by an ISP.   (3)

(d)   Give **ONE** example of a South African ISP.   (1)

[18]

QUESTION 5   INFORMATION MANAGEMENT

Air France Flight 447 (AF447/AFR447) was a scheduled passenger international flight from Rio de Janeiro, Brazil to Paris, France, which crashed into the Atlantic Ocean on 1 June 2009, killing all 228 passengers, aircrew and cabin crew aboard the aircraft.

The BEA's final report, released at a news conference on 5 July 2012, concluded that the aircraft, an A330, crashed after temporary inconsistencies between the airspeed measurements – likely due to the aircraft's 2 pitot tubes (one for the pilot and one for the co-pilot) being obstructed by ice crystals – caused the autopilot to disconnect, after which the crew reacted incorrectly and ultimately caused the aircraft to enter an aerodynamic stall, from which it did not recover. The accident was the deadliest in the history of Air France. It was also the Airbus A330's second and deadliest accident and its first in commercial passenger service.

[<https://en.wikipedia.org/wiki/Air_France_Flight_447>]

5.1   Pitot tubes are devices that measure the airspeed of the aircraft by recording the air pressure and volume inside the tube. The problem was that in this case the devices were blocked by ice and so were giving incorrect readings. This led to incorrect results and ultimately fatal decisions being made, based on faulty data. What acronym describes this? **(Do not simply give the acronym but expand it as well.)**   (3)

5.2   Give **TWO** other inputs the on-board computers could have used to check the flying condition of the aircraft.   (2)

5.3   Data from the pitot tubes should have been checked before the auto-pilot disconnected. State **TWO** questions that should have been asked of the incoming data.   (2)

5.4   Give **TWO** forms of output that the aircraft computer could have made to alert the pilots to a potential problem with the pitot tubes.   (2)

[9]

QUESTION 6   SOCIAL IMPLICATIONS

6.1   When we make use of the internet, the only way to be safe is to know that it is mostly **NOT** a safe place and you need to be aware and on your guard.

    (a)   Phishing is the most common form of computer crime and people easily fall victim to this kind of crime.

        (i)   **Why** would people easily fall victim to phishing?   (2)

        (ii)   **How** does phishing happen?   (2)

    (b)   Give **TWO** online practical tips you need to remember, to ensure that your browsing experience is a safe experience.   (2)

    (c)   It is always recommended that firewall software be installed on one's computer.

        (i)   **What** is the function of firewall software?   (1)

        (ii)   **How** does this software carry out its function?   (1)

6.2   Technology also needs to cater for the disabled user. List **ONE** type of device that could be used by a person who has poor motor/muscle control.   (1)

6.3   Give **TWO** economic reasons why we use computers and ICTs in general, besides the fact that they might cost less than employing people in the long run.   (2)

[11]

QUESTION 7 SOLUTION DEVELOPMENT

You enjoy working with computers and decide to assist at a company where they often make use of databases, spreadsheets, word processors and do some HTML coding.

7.1 The secretary wants to create a database with all the relevant client data. You suggest that it is always good practice to use a primary key. Explain what the **primary key** in a database is **AND** what it is used for. (2)

7.2 Why would the secretary need to create an input mask for some of the fields in her database table? Motivate your answer by defining the term **input mask AND** give a well-formed example of an input mask. (2)

7.3 The secretary calculates the profit made for every month and wants to determine the ratio of the profit to the expected income. She uses the following formula: B5/H1.

	A	B	C	D	E	F	G	H
1		Total Montly Income					Expected Income	R185 000.00
2		January	February	March	April	May		
3	Income	R168 999.00	R150 000.00	R145 890.00	R148 234.00	R178 231.00		
4	Expenses	R123 489.00	R123 124.00	R112 345.00	R123 333.00	R124 242.00		
5	Profit	R45 510.00	R26 876.00	R33 545.00	R24 901.00	R53 989.00		
6	% Difference	25%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
7								

(a) When the above formula was used in B6 it worked correctly. However, when it was copied across to cells C6 to F6 it produced a #DIV/0! error. Why did this happen **AND** how should she fix this? (2)

(b) The secretary creates a graph that she wants to export to a Word document. She wants to make sure that when changes are made in the spreadsheet the graph in the Word document will automatically update as well. What will she need to do to ensure that this happens? (3)

7.4 The secretary wants to thank the more than 670 clients who support the company. She starts to compile the letter of thanks for every client by individually typing their names and addresses on the template she first created. How can she save time by still using the template and automatically including just the personal information of the more than 670 clients? (3)

7.5 The secretary creates a webpage to advertise a dog show as part of a fundraiser event.

(a) The following coding is used correctly,

<img src="./5_Intranet_files/dogshow.jpg" height="255">

However, the image displays as a broken image icon when viewed on the webpage. What could the possible cause be for the error? (1)

(b) She wants the following items to display one under the other. However, the information displays in one line on the webpage. What tags must she use to ensure that each line appears on a new line in the web page as indicated in the example below?

Brightest Eyes
Floppiest Ears
Most Like Owner
Best Dressed (2)

[15]

75 marks

SECTION C

QUESTION 8

INTEGRATED SCENARIO

[<http://www.bigconcerts.co.za/events/detail/katy-perry>]

Katy Perry visited South Africa for the first time as part of her *Witness: The Tour* tour.
Big Concerts announced the tour via Twitter.
Presented by Discovery, the US singer performed only in Johannesburg on 18 and 20 July at the Ticketpro Dome.
Perry's tour has received rave reviews with the *New York Times* describing her as "as confident and adept on stage as she's ever been".
Some of the singles released in her *Witness* album include *Bon Appétit* featuring Migos and *Swish Swish* featuring Nicki Minaj.

[<http://ewn.co.za/2018/01/24/>]

8.1 Ticketpro is an online site that relies on its customers to supply data so that they can buy their tickets online.

List **TWO** methods that Ticketpro can use to inform the customer that the purchase was successful and that the tickets can be downloaded. (2)

8.2 Big Concerts would like to communicate with all the ticket holders on a regular basis regarding upcoming events and, in this case, provide updated information about Katy Perry as the concert draws near. To communicate on a regular basis, they use Twitter.

    (a) What is Twitter? (2)

    (b) Why is the use of Twitter a better option than Facebook? Keep the scenario in mind when answering this question. (2)

8.3 The following link: <http://www.bigconcerts.co.za/events/detail/katy-perry> will direct you to the Big Concerts website.

    Identify the domain name in the above link. (1)

8.4 When going onto the internet all links have an associated IP address.

    (a) In what units are internet access usually measured? (1)

    (b) What is an IP address? (1)

8.5 Katy Perry's marketing team needs to determine how successful the marketing of her concerts is and if they are reaching her fans.

    (a) The marketing team is required to compile all the data into a proposal that will be presented to Katy Perry's promoter. Recommend **ONE** set of application packages that will be suitable for creating a report to lay out their findings in a clear and easy manner. (1)

    (b) Some of the information obtained was sent to another program to display it in a graph. What is the term that describes the sending of data from a database to another program? (1)

    (c) When the data collected from all social media platforms needs to be compared over a certain period of time, which **TWO** graph types would be suitable to clearly display the comparisons? (2)

(d)   The marketing team attempted to update Katy Perry's website. The following html coding was used.

```
<html>

<head>

Katy Perry – Witness the tour</title>

</head>

<img src="KatyPerry.jpg" height="255">

<ol>
<li>Date of Event: 18 – 20 July 2018</li>
<li>Venue: Ticketpro Dome</li>

<h1> Join us for this spectacular event to happen in South
        Africa for the first time </h1>

</body>
```

When they try to run the webpage, it does not produce the expected result. Carefully examine the preceding code and determine which **FOUR** tags have been left out. (4)

(e)   Expand the acronym html. (1)

8.6   The marketing team's assistant printed a pamphlet to advertise the new concert. She wants to edit the document but she cannot find the file. She did, however, insert the filename and path in the footer section of the pamphlet. The following appeared:

E:\2018\Concerts\KatyPerry_WitnessTheTour.doc

Explain to the assistant where she can find the document by explaining the various parts of the path. (3)

8.7   The marketing team needs the best technology to ensure that they are able to create videos, pamphlets, podcasts, etc. They will also require mobile devices as they will travel with Katy Perry when she comes to South Africa.

Dell recently launched a new range of Inspiron laptops.

[<http://mrmobo.com/dell-launches-a-new-range-of-inspiron-laptops>]

The specifications below were given:

13 Inch FHD IPS Touch Display. IPS (in plane switching) is a new screen technology for touch screens

LCD's Liquid Crystal Display

Improved pixels and contrast ratio to improve response time

Quick charge that enables a 15-minute full charge

Windows Hello Support available

Infrared camera

8th Generation Intel Core processor

253 GB SSD and 1 TB Hard Drive

Device platform KitKat 4.4 and Avast system software

9 hours of battery life

Fingerprint reader

(a) Explain each of the following key specifications regarding the screen on the laptop range.

    (i) Pixels (2)

    (ii) Contrast ratio (2)

    (iii) Response time (2)

(b) Differentiate between a fingerprint reader versus a user name and password as a means of security when accessing the laptop? (4)

(c) What does the KitKat 4.4 refer to **AND** what is its function? (2)

(d) (i) Identify the utility software in the advert above. (1)

    (ii) What is the main function of utility software? (1)

    (iii) Other than the main function given in Question 8.7(d)(ii) above, give **TWO** examples of other services that can be offered by utility software. (2)

8.8 Before using software on any device the EULA needs to be accepted. Expand the acronym and explain what the acronym means to the marketer? (2)

8.9 Katy Perry would like to keep in contact with her family and asked the marketer to make sure that when they get a new mobile device that she will be able to Skype.

(a) Skype uses VoIP. What is the function of VoIP? (Do **NOT** simply expand the acronym.) (2)

(b) List **TWO** hardware requirements that the mobile device must have to ensure that Katy Perry will be able to Skype when a video call is made. (2)

8.10 To give investors an idea of what Katy Perry has done in the past the marketer wants to create podcasts of Katy Perry's shows.

Will a podcast work? Indicate Yes or No, and you **MUST** explain your answer. (2)

8.11 Katy Perry already has a Facebook and Twitter account and heard that there is another way she can journalise her recent events for her followers. What social networking application could she be referring to **AND** how does it work? (2)

8.12 Katy Perry is always concerned about the environment and wants to make sure that the marketers are also looking out for the environment. For this reason, she wants to know what the marketer is doing with regard to contributing to green computing.

    (a)   Define the term "green computing". (1)

    (b)   How can the marketers ensure that they contribute to green computing when using their mobile device? (2)

50 marks

Total: 150 marks