



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2013

COMPUTER APPLICATIONS TECHNOLOGY: PAPER I

Time: 3 hours

150 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 16 pages. Please check that your question paper is complete.
 2. The paper is divided into Section A (30 marks) and Section B (120 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 action verbs in each of the questions, i.e. explain, name, select, discuss, identify, etc. and 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. So a two-mark question would require two facts, and so on.
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SECTION A

QUESTION 1

1.1 Choose the correct TERM in Column B which **BEST** fits the statement in Column A. Write down **ONLY** the word of your choice next to each question number.

Column A	Column B
1.1.1 A standard computer interconnection architecture that is associated with the motherboard	A Bus
1.1.2 Transfers data between the CPU and primary memory	B BIOS
1.1.3 A temporary area in the primary memory that is reserved for input and output	C PCI
1.1.4 A program used to check your drives for errors	D Recycle Bin
1.1.5 The process where several tasks at various stages of completion are running in the computer	E CISC
	F Buffer
	G Control Panel
	H DIMM
	I Multitasking
	J Scandisk

(10)

1.2 Give the MOST appropriate term that describes each of the statements below. Write down the TERM of your choice next to each question number.

1.2.1 A collection of web pages that focuses on a common theme or project where users or group members are invited to develop, contribute and update the content

1.2.2 A technology that allows web users to be notified every time content is updated on a particular website

1.2.3 The process of copying a file from a remote computer, e.g. a server on the Internet, to a local computer

1.2.4 A public location where you can access the Internet for a fee using your own computer

1.2.5 Software that performs a user requested task, such as word processing, although this software is not essential for running the computer

1.2.6 A way of making voice calls over the Internet

- 1.2.7 A company or organisation that provides access to the Internet for a fee
- 1.2.8 The main or introductory page of a website
- 1.2.9 The software that enables you to view web pages
- 1.2.10 An electronic document that is used to verify the identity of a website (10)
[20]

QUESTION 2

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

- 2.1 Which of the following is an example of ergonomically designed hardware?
- A Headphones
 - B Optical mouse
 - C Large joystick
 - D Split and rotated keyboard
- 2.2 Which of the following is an example of a presentation package?
- A Pegasus Mail
 - B Microsoft Word
 - C Microsoft PowerPoint
 - D CorelDRAW Graphics Suite
- 2.3 Select the most appropriate definition for a dual core processor:
- A A dual core processor is two CPUs with two processors on the two dies, each with its own cache.
 - B A dual core processor is two CPUs on the same die with one cache.
 - C A dual core processor is a CPU with two separate processors on the same die, each with its own cache.
 - D A dual core processor is a CPU with two separate processors with one cache.
- 2.4 Which of the following is an example of an incorrectly constructed e-mail address?
- A ABlogs@multicomp.com
 - B a!blogs@multicomp.gov.com
 - C ABlogs@multicomp.gov.uk
 - D ABlogs@multicomp.co.za
- 2.5 Which of the following file extensions is usually associated with a spreadsheet file?
- A .doc
 - B .jpg
 - C .html
 - D .xls
- 2.6 The global address of a website is called a URL. This acronym stands for ...
- A Uniform Resource Locator.
 - B Unique Resource Locator.
 - C Uniform ROM Location.
 - D Unique RAM Location.

- 2.7 A function in a spreadsheet package that adds together the values contained in a number of cells that satisfy a given condition or criteria.
- A AVERAGEIF()
 - B SUMIF()
 - C TOTALIF ()
 - D COUNTIF()
- 2.8 Which of the following types of memory retains its data after the computer is switched off?
- A ROM
 - B DDR3 SDRAM
 - C Cache SRAM
 - D Virtual Memory
- 2.9 Which of the following assists the user in organising, maintaining and improving the efficiency of a computer system?
- A Communication software
 - B Utility software
 - C Database management system
 - D Application software
- 2.10 In a spreadsheet, when a cell is filled with #####, it means that ...
- A the value cannot be calculated.
 - B there is a missing cell reference.
 - C the function used is spelt incorrectly.
 - D the column is too narrow.

[10]

30 marks

SECTION B

Read through the background theme below. Note that all of the questions in Section B are based on this theme and the scenario described at the beginning of each question. **Please relate your answers to that scenario.**

Aunt Leah from Pofadder and her Home Industries Store



Your Aunt Leah lives in Pofadder, a tiny rural town in the north of South Africa. She needs to supplement her income and has decided to set up a home industries store. Aunt Leah, together with three of her friends, plan to make and sell such home industry items as knitted goods, homemade foodstuffs and second-hand books. It is now November 2012 and she wants to get the store up and running as soon as possible in the new year.

[<<http://blogs.psychcentral.com/coming-out-crazy/files/2012/03/knitter3.gif>>]

QUESTION 3

Aunt Leah arrives to spend the weekend with your family. She knows that you are studying CAT at school and so asks if you would mind answering a few questions to do with computerising the store. She needs to purchase a computer system and peripheral devices that can do the following tasks:

- Prepare and edit electronic documents using a word processor
- Process accounts and employee wages using a spreadsheet
- Store client and supplier records using a database
- Print large (A3-sized) knitting patterns
- Connect to the Internet for
 - information searching and retrieval
 - e-mailing
 - basic web design

In the local paper *Morning News* two computers were advertised. These advertisements are displayed on the next page, **Figure 1** and **Figure 2**.

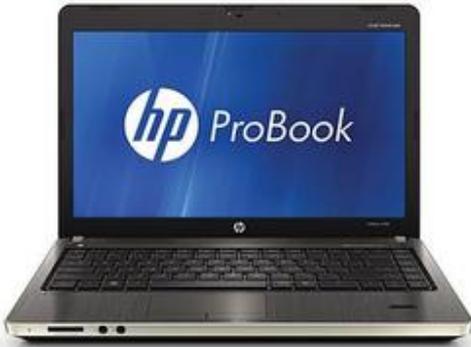
Figure 1



Processor Intel Core i5-2400 Dual Core CPU frequency 3.1 GHz L2 Cache 6 MB
 Main Memory 2048 MB Memory Bus DDR3-1333 Main Memory (Max) 16 GB
 Hard Disk 500 GB RPM 7200 rpm Hard Disk Controller Serial ATA
 Video Card Integrated Intel HD
 DVD Super Multi drive Light Scribe (DVD-RAM, DVD R/RW)
 LAN 1 Gigabit Ethernet Integrated NIC Yes
 5.25" Bay 2 Free 5.25" Bay 1
 3.5" Bay 3 Free 3.5" Bay 2
 PCI Slot 1 AGP Slot 0
 USB 2.0 10
 Parallel Port 0
 Serial Port 1
 Integrated Audio Yes
 Sound Card Integrated
 PCI-Express Slot 1 QTY 16x; 2 QTY 1x
 Mouse Optical mouse with wheel
 US 101 Standard Keyboard
 Acer V193HQL 18.5" LCD Monitor
 Windows 7 Professional 32 bit

R8 100.00

Figure 2



Model Number XX957EA
 Processor Type Intel Core i5 Dual Core
 Processor Speed 2.3 GHz
 Installed Memory 3000 MB
 Hard Drive Size 320 GB
 Display Size 15.6"
 Wireless LAN Yes
 Bluetooth Yes
 DVD Drive Multi Drive (R/RW)
 WebCam Logitek 5 Megapixel Built-In
 Pre-Installed Microsoft Windows 7 Professional 64 bit

R7 277.00

[Source <<http://www.pricecheck.co.za/offers/20591170/HP>>]

- 3.1 After reading the advertisements, Aunt Leah thinks that the capacity of the hard drives is smaller than that of the RAM. Explain to her why her logic is incorrect by referring to the units of measurement. (2)
- 3.2 Aunt Leah asks you to recommend whether to purchase a desktop computer (**Figure 1**) or a laptop computer (**Figure 2**). What would you recommend? Give **TWO** reasons to justify your answer. (3)
- 3.3 What *operating system* is supplied with the desktop computer? (1)
- 3.4 Briefly describe **TWO** functions of the *operating system*. (2)
- 3.5 Give **ONE** function of each of the following components listed in the advertisements:
 - 3.5.1 LAN 1 Gigabit Ethernet Integrated NIC (1)
 - 3.5.2 Logitek 5 Megapixel Built-In WebCam (1)
- 3.6 Aunt Leah will need to be able to send her hand-drawn knitting patterns via the computer to her partners.
 - 3.6.1 What additional piece of **hardware** will she need to convert the hand-drawn pattern into a form that can be e-mailed to her partners? (1)
 - 3.6.2 What additional piece of **software** will she need to convert the hand-drawn pattern into a form that can be e-mailed to her partners? (1)

- 3.7 Aunt Leah has to be able to set up invoices for sold items. Which integrated package would you recommend? Give a brand name. Justify your choice. (2)
- 3.8 You mention to her that she does have another method to store and send her knitting patterns.
- 3.8.1 What type of optical storage device is offered with both of the advertisements? (1)
- 3.8.2 What is the generic name of the storage medium used with these optical storage devices? (1)
- 3.8.3 Briefly describe how information is written to the storage medium using these optical devices. (1)
- [17]**

QUESTION 4

- 4.1 Aunt Leah asks you to set up a database of the suppliers to the store. This requires a lot of typing on the computer and you warn her that this could lead to a number of health-related problems.
- 4.1.1 Name and briefly explain the cause of **TWO** possible health problems that she could encounter. (4)
- 4.1.2 Using the two problems you named in Question 4.1.1, give **ONE** possible action that one could take to prevent **each** of the problems. (2)
- 4.2 Aunt Leah wants to send a standard letter to all her suppliers introducing the store and her partners. She asks you to type out 50 identical letters of introduction.
- 4.2.1 You inform her that there is no need for you to do this as the integrated package chosen has a facility to do this far more easily. What is the name of this facility? (1)
- 4.2.2 Outline the steps you will follow when using the facility named in Question 4.2.1. (4)
- 4.3 Aunt Leah needs to purchase a printer in order to send letters to her suppliers. You show her an advertisement for the following printer.

Figure 3

HP OFFICEJET PRO K8600 – HP CB015A – A3 PRINTER



Enjoy real economy too and get professional-quality results at a cost per page up to 50% less than A4 lasers. Reduce your external costs – print high-impact marketing materials in-house with HP Officejet inks; for enhanced quality, use office papers with the ColorLok logo.

Print it all – from envelopes and documents to spreadsheets and posters – with one ultra-versatile A3+ printer. Print 2-sided documents with optional duplexer. Print borderless up to 330 x 482 mm using brochure and photo papers. Print quality up to 4800 x 1200 dpi.

Enhance your productivity with breakthrough speeds and intuitive controls. Print at breakthrough speeds of up to 35 ppm in black or colour (A4 pages). Connect either through Wi-Fi or USB.

R2 900.00

- 4.3.1 Aunt Leah is unsure of what some of the terms in the advertisement mean. Expand the following acronyms:
- (a) dpi (1)
- (b) ppm (1)
- 4.3.2 Based on Aunt Leah's requirements, would you recommend this printer? Give **ONE** reason to justify your answer. (2)

- 4.4 Aunt Leah notices that there are two ways to connect to this printer. Explain the following connection methods (Do not simply expand the acronyms) **AND** explain **WHAT, IF ANY**, additional hardware each connection method would need.
- 4.4.1 Wi-Fi (2)
- 4.4.2 USB (2)
- 4.5 Based on your recommendations Aunt Leah has purchased her computer system. Assuming she purchased the desktop, when she switches her computer on for the first time, she encounters a number of problems. You act as troubleshooter for her. In each of the following situations, **EXPLAIN** what the cause of the problem could be **AND** give **ONE** possible solution to the problem.
- 4.5.1 The computer system does not switch on at all. (2)
- 4.5.2 Aunt Leah's password is not accepted when she tries to log on. (2)
- 4.5.3 The computer runs slowly when she tries to use the word processor, spreadsheet and database all at the same time. (2)
- 4.6 Aunt Leah notices that when she prints many large knitting patterns one after the other, while the computer says that the documents have been printed, they do not appear immediately on the printer. You explain to her that this is because of the printer buffer and spooler. Explain the meaning of the following terms and state whether they are hardware or software items:
- 4.6.1 printer spooler (2)
- 4.6.2 printer buffer (2)

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QUESTION 5

- 5.1 Aunt Leah will need to ensure that the integrity of all the information stored on the computer is maintained. To do this she will need to perform certain tasks on a regular basis. Explain why each of the following tasks is important.
- 5.1.1 Backing up all her data files (1)
- 5.1.2 Deleting any unwanted or temporary files (1)
- 5.1.3 Defragmenting the hard drive (2)
- 5.2 Aunt Leah has access to the Internet. She has, however, heard from her partners of the dangers involved when connecting to the Internet.
- 5.2.1 Explain the term 'Computer Virus'. (2)
- 5.2.2 You install a free anti-virus program on her computer. Explain how this program protects her computer and why it must be kept up-to-date. (3)
- 5.2.3 Name **ONE** other software method of protecting her computer. (1)
- 5.3 Aunt Leah wants to be able to do her banking online. You arrange with her bank for access to all the store's banking accounts. To ensure the safety of her financial transactions you help her create a password.
- 5.3.1 Give **TWO** ways of ensuring that the password she chooses will be a 'good' or 'strong' password. (2)
- 5.3.2 Why would you recommend that she changes her password on a regular basis? (1)
- 5.4 Aunt Leah has heard how profitable e-commerce can be, so she wants to be able to sell the store's products online. You feel that it is necessary that she understands about 'Internet Fraud'.
- 5.4.1 Name **TWO** common types of Internet Fraud. (2)
- 5.4.2 To protect her online business you set up a Secure Socket Layer (SSL) connection for her website. Give **TWO** features of the website that potential customers accessing her website will see that will reassure them that their data is safe on her site. (2)
- 5.4.3 You set up merchant accounts on the 'PayPal' and 'WebMoney' sites. Explain to her the basic functions of these websites. (2)

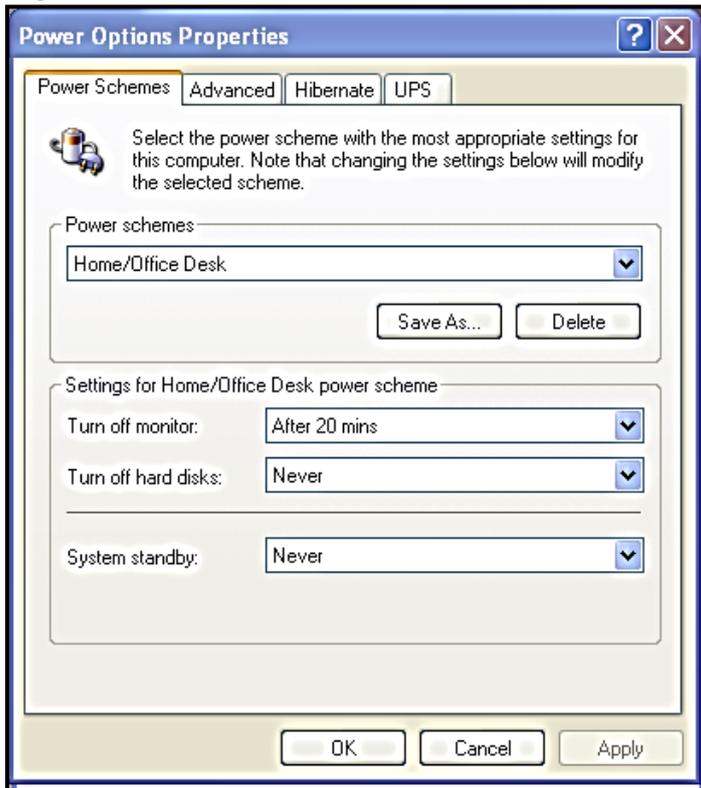
[19]

QUESTION 6

Aunt Leah complains that her paper and electricity costs have increased significantly since she opened the store. She is concerned about the impact on the environment that the use of the computer system is having.

- 6.1 There are a number of ways you can suggest for her to lower her electricity costs. One way to reduce electricity costs is to tweak the power option properties. The following window is displayed.

Figure 4



- 6.1.1 One of the power options is to turn off the hard drives. Give **TWO** benefits of turning off the hard drive in a computer. (2)
- 6.1.2 Briefly explain the concept of *hibernation* mode and what happens to the computer during hibernation mode. (4)
- 6.2 The following logo appears in the top right hand corner of the screen when Aunt Leah switches on her computer, **Figure 5**.

Figure 5



Explain why 'Money Isn't All You're Saving'. (2)

- 6.3 Suggest **THREE** ways that Aunt Leah can reduce her printing costs. (3)
- 6.4 When Aunt Leah has no use for a particular printout any longer, suggest **TWO** ways to get rid of the paper that will help the environment. (2)
- 6.5 Aunt Leah is concerned that some of the workers in the store are victims of the 'Digital Divide'.
- 6.5.1 What is meant by the 'Digital Divide'? (2)
- 6.5.2 Give **TWO** ways that Aunt Leah can overcome the digital divide amongst her employees. (2)

[17]

QUESTION 7

- 7.1 The home industries store has been open for a few weeks and a customer e-mailed Aunt Leah a pattern of a jersey she wanted to be knitted. Aunt Leah had saved the file to the hard drive but then she accidentally deleted it.
- 7.1.1 Explain what happens when a file is first deleted on the computer. (2)
- 7.1.2 Explain how to recover the deleted file. (2)
- 7.1.3 Would you have been able to recover the file if it had been stored originally on a flash drive? Justify your answer. (2)
- 7.2 Aunt Leah is unable to recover the knitting pattern so she decides to do an Internet search to find a replacement pattern.
- 7.2.1 What is a 'search engine'? (3)
- 7.2.2 Give the names of **TWO** 'search engines'. (2)
- 7.3 Aunt Leah is concerned that one of the workers has installed the game: 'Star Trek Away Team' on the store's computer.
- Is it legal for the worker to install the purchased game on two computers? Justify your answer with **ONE** supporting argument. (2)
- 7.4 Aunt Leah sees the following icons on a website she has visited.

Figure 6



Explain to her what the following icons refer to.

- 7.4.1  (1)
- 7.4.2  (1)
- 7.5 Give Aunt Leah **TWO** ways of ensuring that the information she finds on the Internet is reliable and accurate. (2)

[17]

QUESTION 8

Aunt Leah has decided to keep her workers' financial information on computer and wants you to set up a spreadsheet to do the various calculations required for wages.

8.1 Explain to her why a spreadsheet and not a database is more suited for this purpose. (2)

8.2 You create the following worksheet, **Figure 7**.

Each workers' First Name, Surname, Staff Id, Basic Wage per hour, Number of Hours Worked in a Week, Weekly Wage, Tax Rate (based on their weekly wage), Actual Tax Paid, Medical Aid Deduction (12% of their weekly wage), a bonus payment (R100 – if they worked more than 40 hours a week, R50 – if they worked 20 – 39 hours a week, R0 – if they worked less than 20 hours a week) and Final Weekly Wage (Weekly wage + Bonus – tax – medical aid) has been entered.

What feature of the spreadsheet did you use to join cells A8 and B8 together to fit all the text in? (1)

Figure 7

	A	B	C	D	E	F	G	H	I	J	K
1	First Name	Surname	StaffId	Basic Wage	Hours Worked	Weekly Wage	Tax Rate	Tax	Medical Aid	Bonus	Final Weekly Wage
2	Dumi	Tshabang		R 40.00	44	R 1 760.00	10	R 176.00	R 211.20	R 100.00	R 1 472.80
3	Jane	Austen		R 35.00	35	R 1 225.00	10	R 122.50	R 147.00	R 50.00	R 1 005.50
4	Themba	Banda		R 50.00	38	R 1 900.00	10	R 190.00	R 228.00	R 50.00	R 1 532.00
5	Lily	Jones		R 22.00	42	R 924.00	7.5	R 69.30	R 110.88	R 100.00	R 843.82
6	Andy	Babble		R 45.00	19	R 855.00	7.5	R 64.13	R 102.60	R 0.00	R 688.27
7											
8	Medical Aid Rate		12								
9											
10											
11											

8.3 Aunt Leah sorts the spreadsheet alphabetically by surname and gets the following output.

Figure 8

	A	B	C	D	E	F	G	H	I	J	K
1	First Name	Surname	StaffId	Basic Wage	Hours Worked	Weekly Wage	Tax Rate	Tax	Medical Aid	Bonus	Final Weekly Wage
2	Dumi	Austen		R 40.00	44	R 1 760.00	10	R 176.00	R 211.20	R 100.00	R 1 472.80
3	Jane	Babble		R 35.00	35	R 1 225.00	10	R 122.50	R 147.00	R 50.00	R 1 005.50
4	Themba	Banda		R 50.00	38	R 1 900.00	10	R 190.00	R 228.00	R 50.00	R 1 532.00
5	Lily	Jones		R 22.00	42	R 924.00	7.5	R 69.30	R 110.88	R 100.00	R 843.82
6	Andy	Tshabang		R 45.00	19	R 855.00	7.5	R 64.13	R 102.60	R 0.00	R 688.27
7											
8	Medical Aid Rate		12								
9											
10											
11											

8.3.1 Compare **Figure 7** and **Figure 8**. From Figure 8 it can be seen that while the surnames have been alphabetically sorted, the rest of the data is now not linked to the correct surname. Explain why this happened. (2)

8.3.2 How can Aunt Leah fix this problem? (2)

- 8.4 8.4.1 You want to create a StaffId for each worker in Column C. It is formed from the first three letters of the worker's first name and the last three letters of the worker's surname. For example, Dumu Tshabang will have a StaffId of Dumang. Write down the complete spreadsheet function that will perform this task. (3)
- 8.4.2 Since the function you used for the StaffId of Dumu Tshabang is the same for all the other workers, what facility unique to the spreadsheet program can you use to copy the formula down the whole of column C? (1)
- 8.5 The tax rate is obtained from a table stored in another worksheet in the spreadsheet. Write down the name of the function that will allow you to retrieve the rate based on the weekly wage from the other worksheet. (1)
- 8.6 The bonus calculation is based on an **IF** function.
For example: =IF(E2>40,100,IF(E2<20,0,50))
What type of **IF** function is this called? (1)
- 8.7 8.7.1 Explain the use of absolute cell referencing in the following formula in cell I2 to calculate the medical aid deduction.
$$= \$C\$8 * F2 / 100$$
 (2)
- 8.7.2 What would happen if the calculation in cell I2 was =C8*F2/100 and this was used to calculate the medical aid deduction of the rest of the staff members? (1)
- 8.8 Aunt Leah wants to get an idea of how much she is paying each worker as a percentage of the whole wage bill. You recommend that a graph be produced from the data in the spreadsheet.
- 8.8.1 What type of graph (or chart) would best be used to represent this query? Justify your choice. (2)
- 8.8.2 Which column(s) of data would you include in the graph (or chart)? (Give the data field name(s) AND the column(s) letter.) (2)
- 8.9 To ensure that no-one else is able to open the spreadsheet document, she asks you if you are able to protect the file for her. Give **ONE** way of ensuring only Aunt Leah will be able to open the file. (1)

[21]

120 marks

Total: 150 marks