



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2016

COMPUTER APPLICATIONS TECHNOLOGY: PAPER I

Time: 3 hours

150 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 12 pages. Please check that your question paper is complete.
 2. The 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. Read the questions carefully. Take note of the wording of the questions, i.e. explain, name, select, discuss, identify, etc. and then answer accordingly.
 7. Give your answers in general terms. Use brand names only when asked, e.g. use 'word processor' rather than 'Microsoft Word' or 'WordPerfect'.
 8. In general, a mark is allocated per fact. So a two-mark question would require two facts, and so on.
 9. It is in your own interest to write legibly and to present your work neatly.
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SECTION A

QUESTION 1

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

Column A		Column B
1.1.1	A device used to connect two different networks together, especially a connection to the Internet.	Gateway
1.1.2	An unwanted program, such as adware, that is downloaded and installed together with user-requested software.	Whaling
1.1.3	A code that describes how a webpage is formatted.	Server Farm
1.1.4	A collection of servers maintained as a unit increasing the capability of individual servers.	Tags
1.1.5	Registering a domain name without any intention to use it legitimately.	File Storage
		Barnacle
		Client-Server
		Cyberhacker
		Tags
		Cybersquatting

(10)

1.2 Give the most appropriate definition of the following terms:

- 1.2.1 Network Interface Card (NIC)
- 1.2.2 bcc (blind carbon copy)
- 1.2.3 Green computing
- 1.2.4 Plug and Play
- 1.2.5 Smartphone

(5)
[15]

QUESTION 2

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

- 2.1 Which of the following devices can be used to directly input printed text?
- A OCR
 - B OMR
 - C MICR
 - D All of the above
- 2.2 The output quality of a printer is measured by ...
- A dots per inch.
 - B dots per square inch.
 - C dots printed per unit time.
 - D dots per million.
- 2.3 The brain of any computing system where most of the calculations take place is/are known as ...
- A the ALU.
 - B registers.
 - C the CU.
 - D the CPU.
- 2.4 A type of storage that is used for holding information between steps in its processing is ...
- A the HDD.
 - B the ROM.
 - C cache.
 - D a DVD.
- 2.5 Computing devices use a number of chips mounted on an integrated circuit board. The common name for this circuit board is ...
- A a motherboard.
 - B SIM card.
 - C a slot.
 - D a port.
- 2.6 Dot-matrix is a type of ...
- A tape.
 - B printer.
 - C disk.
 - D bus.

- 2.7 The different components of the integrated circuit board of a PC are linked together by sets of parallel electrical conducting wires. What are these wires called?
- A Conductors
 - B Buses
 - C Connectors
 - D Insulators
- 2.8 Programs designed to optimise the operation of the computer are known as ...
- A gaming software.
 - B application software.
 - C utility programs.
 - D compilers.
- 2.9 The function of a modern computer that allows it to work on many programs at the same time is called ...
- A multitasking.
 - B multifunctioning.
 - C multithinking.
 - D multiactivating.
- 2.10 The instructions for starting (booting) the computer are stored on ...
- A a Random Access Memory chip.
 - B a CD-ROM disk.
 - C a Read Only Memory chip.
 - D all of the above.

[10]**25 marks**

SECTION B

QUESTION 3 SYSTEM TECHNOLOGIES

3.1 You have been given photographs of different devices that could be inserted in, or connected to, a typical computer. **(Figures 1–5)**

Draw the following table in your Answer Book. Identify the device by writing the name of each of the devices in the second column and their MAIN function in the third column. Note: When filling in the function, think of what makes that particular device unique.

Question Number	Name of Device	Main Function
3.1.1		
3.1.2		
3.1.3		
3.1.4		
3.1.5		

(10)



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5

- 3.2 3.2.1 Give **TWO** hardware differences between laptop and tablet computers. (2)
- 3.2.2 Explain the following types of software:
- (a) Commercial software (or payware or proprietary software) (2)
 - (b) Freeware (2)
 - (c) Shareware (2)
- 3.3 The main primary memory of a computer is quite large these days, often in excess of 4 GB. With this fact in mind, give **THREE** reasons why secondary storage is still needed. (3)
- 3.4 Computer files are found in many different formats today. Describe the following formats:
- 3.4.1 Executable file (2)
 - 3.4.2 Compressed file (2)
- 3.5 Using the formats discussed in **Question 3.4**, what is a possible extension of ...
- 3.5.1 an executable file? (1)
 - 3.5.2 a compressed file? (1)
- [27]

QUESTION 4 INTERNET AND NETWORK TECHNOLOGIES

- 4.1 You are on holiday in Israel and have taken some great photos that you wish to send to friends and family back in South Africa. Your digital camera can connect to your computer using a Wi-Fi connection. Explain how modern technology is able to achieve this operation. You need to follow the path of the photographs from Israel to South Africa, explaining the medium through which the photographs are transmitted at each part of the journey and who or what is responsible for the signal being routed. (7)
- 4.2 Aunty Hannah wants to see your photos of Israel. However, she lives in Perth, Australia. You suggest to her that in order to quickly send her copies of your photos, she needs to connect her computer to the Internet. The sales consultant at her local Internet store tells her all about the different connection packages. However, all the packages mention **broadband** and **bandwidth**.
- Explain to her what these terms mean:
- 4.2.1 Broadband (2)
- 4.2.2 Bandwidth (2)
- 4.3 4.3.1 What is the difference between a search engine like *Google* and a webpage like *News24*? (5)
- 4.3.2 Give an example of a search engine other than *Google*. (1)
- 4.4 Explain to Aunty Hannah what *Bluetooth* could be used for. (2)
- [19]**

QUESTION 5 INFORMATION MANAGEMENT

- 5.1 The South African Intelligence Service (SAIS) has been asked to secure the access to Mahlamba Ndlopfu, the official Pretoria residence of the President of South Africa. You are a known learner of CAT in Grade 12 and so are approached for assistance. Nene Security Systems offer one of the following access control methods:
- Biometric Access
 - Access Control List
- 5.1.1 Recommend **ONE** of the above access methods to SAIS by clearly explaining either the term *Biometric Access* OR *Access Control List*. (3)
- 5.1.2 Based on your selection in **Question 5.1.1**, state **ONE** piece of hardware that would be required for your system, other than the basic computer system. Justify your choice of hardware. (2)
- 5.2 What type of software, other than dedicated software for using the device chosen in **Question 5.1.2**, would you recommend for the President to purchase? Justify your choice of software. (Do not use a brand name.) (2)
- 5.3 5.3.1 What question must be asked of the data by the software recommended in **Question 5.2**? (1)
- 5.3.2 Give a suitable response if the answer to the question asked in **Question 5.3.1** is YES. (1)
- 5.3.3 Give a suitable response if the answer to the question asked in **Question 5.3.1** is NO. (1)
- 5.4 Justify the use of your selected method over the use of a human security guard. (1)
- [11]**

QUESTION 6 SOCIAL IMPLICATIONS

- 6.1 A data clerk sits in front of a computer screen for upwards of eight hours a day. When he stands up to go home, he finds that he has a number of aches and pains brought on by working on the computer.
- 6.1.1 Give the names of **TWO** types of injury brought about by extended computer usage. (2)
- 6.1.2 For each of the **TWO** named injuries in **Question 6.1.1**, explain how each one could be prevented. (2)
- 6.2 When using email and the Internet, you need to be aware of *Internet Fraud*. Based on this concept, explain the following terms:
- 6.2.1 Phishing (2)
- 6.2.2 Pharming (2)
- [8]**

QUESTION 7 SOLUTION DEVELOPMENT

Biff Cooper is the Sales Manager for second-hand cars at Legassi Cars Ltd. He has set up a database of the various models on sale at the showroom. The database table is shown below.

Year_of_Registration	Make	Model	Engine_Capacity_(cc)	Engine_Number	Cost_(Rand)	Cost_+_VAT	10%_Discount
2001	Opel	Astra	1400	LV147852	R19 000,00	R21 660,00	R2 166,00
2002	Toyota	Yaris	1300	MN855899	R41 000,00	R46 740,00	R4 674,00
2004	Toyota	Corolla	1600	MM741011	R56 000,00	R63 840,00	R6 384,00
2008	Nissan	Maxima	1600	HT855544	R74 000,00	R84 360,00	R8 436,00
2011	BMW	318i	1800	DD998557	R69 000,00	R78 660,00	R7 866,00

- 7.1 How many records have been created in the above database? (1)
- 7.2 How many fields are there in the database? (1)
- 7.3 He needs to sort the data according to **Make** and then **Model**. What will be the resulting table after Biff has completed the sort? You must just list the data for the **Year_of_Registration**, **Make** and **Model** in your Answer Book in the correct sequence. (4)
- 7.4 7.4.1 What data type will be used for the **Year_of_Registration** field? (1)
- 7.4.2 What data type will be used for the **Engine_Number** field? (1)
- 7.5 7.5.1 Recommend another application program that would have been more suitable for his requirements. (1)
- 7.5.2 Justify your choice in **Question 7.5.1**. (1)
- [10]**

75 marks

SECTION C**Massively Multiplayer Online Role-playing Games (MMORPGs)**

[<http://upload.wikimedia.org/wikipedia/en/e/e2/Star_Trek_Online_cover.jpg>]

The new *Star Wars* movie recently came out and Dr Bloodwise, your CAT educator, has just completed writing a *Star Wars* MMORPG for Electronic Arts (EA). He has decided to try the game out at school, using the Grade 12 CAT learners as testers. He has asked for your assistance in setting up the hardware required for the game to be run. This will include a gaming LAN (Local Area Network). Each learner will need to be registered on the LAN and given access to the game. All relevant software and hardware will have to be borrowed or purchased.

QUESTION 8 INTEGRATED SCENARIO

- 8.1 What is the testing version of a new game or app called? (1)
- 8.2 Explain what a **Local Area Network (LAN)** is. (2)
- 8.3 8.3.1 List **TWO** pieces of **additional** hardware, other than the playing computers themselves, needed to set up the LAN. (2)
- 8.3.2 Give **ONE** piece of **additional** software, other than the game itself, needed to set up the LAN. (1)
- 8.4 8.4.1 MultiConnect, an ISP, offers different packages for connecting to the Internet to be used for Gaming LANs. Recommend **ONE** of the following suitable packages. Choose from ... (1)
- (a) Capped/shaped ADSL
- (b) Uncapped/shaped ADSL
- (c) Uncapped/unshaped ADSL
- 8.4.2 Justify your choice in **Question 8.4.1**. (2)
- 8.5 Parents are concerned about allowing their children to participate in the gaming LAN.
- 8.5.1 Give **ONE** advantage of allowing children to play MMORPGs on a school LAN. (1)
- 8.5.2 Give **ONE** disadvantage of allowing children to play MMORPGs on a school LAN. (1)

- 8.6 8.6.1 Recommend to Dr Bloodwise whether the LAN must be set up as a client-server network or as a peer-to-peer network. (1)
- 8.6.2 Give **TWO** reasons to justify your choice in **Question 8.6.1**. (2)
- 8.7 8.7.1 Each player will need to be registered on the gaming LAN. What **TWO** pieces of information must each player be assigned to log on to the LAN? (2)
- 8.7.2 Give **TWO** reasons why each player must be registered on the LAN. (2)
- 8.8 8.8.1 Give the **brand name** of one MMORPG **OR** one RPG other than *Star Wars Online*. (1)
- 8.8.2 What is the main difference between *System Software* and *Applications Software*? (2)
- 8.8.3 Label the following software as either **System Software** or **Applications Software**:
- (a) Ubuntu Linux 10.1 (1)
 - (b) Defrag Program (1)
 - (c) ESET Smart Security Anti-Virus Program (1)
 - (d) Netbeans 8.0 IDE (1)
- 8.9 The gaming LAN has been set up in the school hall. However, there are a number of problems listed below:
- 8.9.1 A new player cannot get access to the game
 - 8.9.2 One of the computers is not connecting to the game
 - 8.9.3 One of the players is connected but cannot advance past level 1
 - 8.9.4 One of the computers is not displaying the game scenes properly
 - 8.9.5 All the computers are working, but none are able to access the game

For each of the above problems, you are required to identify a possible reason and then give a possible solution. Copy the following table into your Answer Book in order to answer this.

QUESTION NUMBER	POSSIBLE REASON	POSSIBLE SOLUTION	
8.9.1			(2)
8.9.2			(2)
8.9.3			(2)
8.9.4			(2)
8.9.5			(2)

- 8.10 In order to publicise the upcoming gaming LAN weekend, you decide to create a website for prospective players to visit.
- 8.10.1 You decide to set up the website using html. What does html stand for? (1)
- 8.10.2 (a) What tag is used for the main part of the webpage code? (1)
- (b) What tag is used for inserting a line break? (1)
- (c) What tag is used for creating a list with numbers? (1)
- 8.10.3 You need to create a hyperlink to another website called *South African Gaming*. The URL of the website is www.gamingsa.co.za. Write down the complete tag you would use. (5)
- 8.10.4 Give the **brand name** of **ONE** suitable html text editor you can use to create the website. (1)
- 8.11 8.11.1 What is the pictorial character, which you can use in a MMORPG instead of your real image, called? (1)
- 8.11.2 Give **TWO advantages** of using this pictorial image instead of your real image. (2)
- 8.11.3 Give **TWO disadvantages** of using this pictorial image instead of your real image. (2)

50 marks

Total: 150 marks