

KZN DEPARTMENT OF EDUCATION

INFORMATION TECHNOLOGY

GRADE 10

PAPER 2

JUNE EXAM 2017

Duration : 2 hours

Max Mark : 100

INSTRUCTIONS AND INFORMATION

1. This question paper consists of **SIX** Questions:

QUESTION 1 :	Multiple-choice Questions	(10)
QUESTION 2 :	Matching	(10)
QUESTION 3 :	System Technologies- Hardware	(23)
QUESTION 4 :	System Technologies : Software	(12)
QUESTION 5 :	Solution Development	(20)
QUESTION 6 :	Integrated Scenario	(25)

2. Answer ALL the questions.
3. Read ALL the questions carefully.
4. The mark allocation generally gives an indication of the number of facts required in your answer.
5. Number the answers correctly according to the numbering system used in this question paper.
6. Write neatly and legibly.

SECTION A

QUESTION 1: MULTIPLE-CHOICE QUESTIONS (10)

Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (1.1–1.10) in the ANSWER BOOK.

- 1.1. Which of the following is an example of system software?
- A. Microsoft Word
 - B. Adobe Photoshop
 - C. Linux
 - D. iMovie
- (1)
- 1.2. Which of the following is NOT an output device?
- A. printer
 - B. speaker
 - C. monitor
 - D. touchpad
- (1)
- 1.3. Which of the following is a characteristic of RAM?
- A. Cheap
 - B. Stores information when the PC is off
 - C. Volatile
 - D. Data transfer is slow
- (1)
- 1.4. Which of the following is not part of mechanical storage?
- A. CD
 - B. HDD
 - C. SSD
 - D. Blu-ray
- (1)
- 1.5. A file extension for a Delphi project file.
- A. .proj
 - B. .dcu
 - C. .unit
 - D. .jpeg
- (1)
- 1.6. Specification NOT necessary to consider when purchasing a new monitor.
- A. Resolution
 - B. Capacity
 - C. Response time
 - D. Contrast ratio
- (1)

1.7. The functions of an operating system does NOT include...

- A. Word processing
- B. Process and task management
- C. Memory management
- D. Providing an interface

(1)

1.8. Which of the following is an example of a Utility program?

- A. iCloud
- B. Dropbox
- C. OneDrive
- D. Disk Clean-up

(1)

1.9. Which one of the following is an example of both an input and an output device?

- A. Touch pad
- B. Keyboard
- C. Scanner
- D. Touch screen

(1)

1.10. Windows explorer has the following function...

- A. To browse the internet
- B. Makes a backup of files
- C. Used to check for new viruses
- D. To manage files and folders

(1)

QUESTION 2: MATCH THE CORRECT TERM(10)

Choose the correct description from Column B that matches the terms in Column A and write only the letter next to the question number (2.1. – 2.5.) in the ANSWER BOOK.
E.g. 2.6. K.

Column A - TERMS	Column B – DESCRIPTION
2.1. Carpal Tunnel Syndrome	A. Software that can be modified
2.2. Proprietary software	B. Type of mechanical storage
2.3. Solid State Drive	C. Study and design for comfort and safety in work environments
2.4. Peripheral	D. Pressure in the nerves of the wrist
2.5. Ergonomics	E. Type of electronic storage
	F. Software owned by a company
	G. Devices that connect to a computer via a port

(5x2) = 10

TOTAL: SECTION A (20)

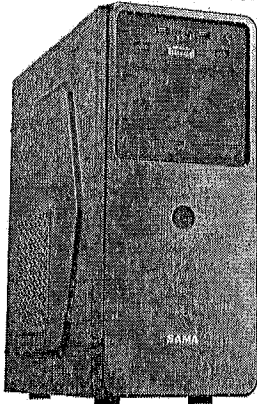
SECTION B

Scenario

The local library needs to upgrade their Computer Centre. RandSaver Stores were willing to sponsor an upgrade to the value of R50 000. The management members of the library have called on the Information Technology learners at a local Secondary School to assist in the selection of the computers for the centre. You are part of the team of learners who will be assisting with queries and questions.

QUESTION 3 : System Technologies: Hardware [23]

The learners have selected the computer below.



Intel Core i5 7400 3.0Ghz 6MB Cache Skt 1151 (7th Gen)
Sama (CR M35) M35 350w Matx Black Mini Tower
Msi (TV MTB773) H110M Pro-VD Plus Lga1151 Mainboard
DVD Writer LG SATA
Toshiba 1TB Desktop HDD SATA 3.5"
Memory Desktop 4GB DDR4

Answer the following questions related to the quote and the hardware of the computer.

- 3.1 What is the speed of the CPU? (1)
- 3.2 A computer tower will contain a fan. Why is this necessary? (2)
- 3.3 State the size of RAM that the computer has. (1)
- 3.4 Explain what 1TB HDD refers to? (2)
- 3.5 The computer will have six USB ports. What is the reason for many USB ports? (1)
- 3.6 A mouse is essential. State another common input device. (1)
- 3.7 What is the function of RAM in a computer. (1)
- 3.8 The team has to select a screen for the computer. An 18.5" will be suitable.
- 3.8.1 What does 18.5" mean? (1)
- 3.8.2 Explain how the size of a screen is measured. (1)
- 3.9 From the quote give an example of a/an:
- 3.9.1 Magnetic storage device (1)
- 3.9.2 Optical storage device (1)

- 3.10 What is the purpose of a firewire port? (1)
- 3.11 The quote comes with an MSI motherboard. State TWO functions of a motherboard. (2)
- 3.12 The librarian wants to include a scanner and printer in the purchase. You suggest purchasing a multifunction printer.
- 3.12.1 List TWO other functions besides printing that a multifunction printer provides. (2)
- 3.12.2 Explain why a multifunction printer is beneficial when compared to purchasing a separate scanner and a printer. (1)
- 3.13 The librarian would like know if a biometric scanner will benefit users of the computers. Explain why users of the computer will not require a biometric scanner by discussing the purpose of a biometric scanner. (2)
- 3.14 State TWO advantages of using a flash-drive to store data instead of a DVD. (2)
- [23]**

QUESTION 4 :System Technologies: Software [12]

The computer system does not come with software as the library has licensed software which includes Windows 10, Microsoft Office 2016 and Norton Antivirus.

- 4.1 State from the above mentioned software which is an:
- 4.1.1 Operating system (1)
- 4.1.2 Application software (1)
- 4.2 Why is operating system essential software? (1)
- 4.3 Give an example of utility software. (1)
- 4.4 With a new multifunction printer, a device driver must be installed.
- 4.4.1 State the purpose of a device driver. (1)
- 4.4.2 Where can the device driver be obtained from? (1)
- 4.5 Windows 10 has a GUI (Graphical User Interface). Explain what a GUI is. (1)
- 4.6The librarian would like to know more about compression software.
- 4.6.1 Give an example of compression software. (1)
- 4.6.2 Discuss the purpose of compression software. (2)
- 4.7 The operating system is responsible for memory management. Explain what memory management involves. (2)
- [12]**

TOTAL: SECTION B (35)

SECTION C

QUESTION FIVE [Solution Development]

Information technology learners are subjected to a process of debugging and testing during software design. One of the tools used to achieve this process is called a trace table. Study the algorithm given below and answer the questions based on it:

Line No.

1. Input (num) - user enters an integer
2. check \leftarrow true
3. c \leftarrow 2
4. Repeat until c = num
5. if num mod c = 0 then check := false;
6. c \leftarrow c + 1
7. end repeat
8. if check = true then Display('The number' num 'is P')
9. if check = false then Display ('The number ' num 'is C')

5.1. State the type of data stored in the variables:

- (a) **check**
- (b) **c**

(2)

5.2. Use the headings given below to draw up a trace table in your answer books. Show a complete trace of the code above on the trace table for the input value num \leftarrow 7.

(6)

N.B. Start your trace table on a new page so that you will have enough space if necessary.

Line No.	Num	Check	C	Num mod c = 0 ?	c = num ?	Display/Output
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5.3. State briefly what this algorithm is designed to do.

(1)

5.4. What do you think the letters C and P in the output stands for?

(2)

5.5. What will be the output for the following inputs:

5.5.1. num \leftarrow 51

(1)

5.5.2. num \leftarrow 83

(1)

5.6. The school wants to award, at random, a learner with a sponsored prize. There is no criteria specified, so the school decided that instead of drawing from a hat, the interested learners should write down their five-digit admission numbers on a page and submit to office. The winner of the prize will be the first palindrome number received. A palindrome number is a number that is the same value when read backward and forward e.g. **37573**. Your task is to write an algorithm to determine and output whether the number is a palindrome or not.

(7)

N.B. You are not allowed to convert the number to a string/text. You are only allowed to use mathematical(mod, div)/logical operators to produce a solution.

[20]

QUESTION SIX [Integrated Scenario-General Knowledge]

- 6.1 *The management is concerned about the employees spending prolonged periods of time in front of the computers as he has heard that computers can have an adverse effect on their health.*
- 6.1.1 List TWO ways in which computers can possibly contribute to ill health. (2)
- 6.1.2 List TWO common-sense, practical precautions that you could take to prevent your health being adversely affected by the prolonged use of a computer. (2)
- 6.2 *Many users who come to the computer centre have difficulty in using the Computers and other electronic devices.*
- 6.2.1 What does Digital Divide refer to? (2)
- 6.2.2 List and explain TWO factors that contribute to the digital divide. (2)
- 6.3.1 Explain what software piracy is. (2)
- 6.3.2 State 2 examples of software piracy. (2)
- 6.4 *To reduce costs the management wanted to explore the use of "free" software and have heard about freeware, shareware and open source software.*
- 6.4.1 Briefly explain the difference between freeware and shareware software. (4)
- 6.4.2 Rather than purchase a copy of Microsoft Office, the Library Management wants to know about using "**open office**"
- a) Which one of the three categories (below) does **open office** fall into? (Freeware/Shareware/Open source) (1)
- b) In order to advise the library management, state 3 advantages and 1 disadvantage of using open office instead of MS Office. (4)
- 6.5 *The Library Managers wants as far as possible to reduce the negative impact the new library centre will have on the environment.*
- 6.5.1 Name the term used to describe the environmentally responsible and eco-friendly use of **computers** and their resources? (1)
- 6.5.2 Name THREE ways in which the new centre can help reduce their carbon footprint and be environmentally friendly. (3)

[25]

TOTAL: SECTION C (45)

TOTAL :100

SECTION A

QUESTION 1 – MULTIPLE CHOICE QUESTIONS (10)

- 1.1. C ✓
- 1.2. D ✓
- 1.3. C ✓
- 1.4. C ✓
- 1.5. A ✓
- 1.6. B ✓
- 1.7. A ✓
- 1.8. D ✓
- 1.9. D ✓
- 1.10. D ✓

QUESTION 2: MATCHING COLUMNS (10)

- 2.1. D ✓✓
- 2.2. E ✓✓
- 2.3. G ✓✓
- 2.4. D ✓✓
- 2.5. A ✓✓

SECTION B

QUESTION 3 : System Technologies: Hardware [23]

- 3.1 3.0 Ghz ✓ (1)
- 3.2 The CPU gets very hot when the computer is on. ✓ Overheating can damage a CPU, so it needs a fan to cool it. ✓ (2)
- 3.3 4GB ✓ (1)
- 3.4 Refers to the size of the harddisk ✓ which is 1 Terabyte. ✓ (2)
- 3.5 Many devices connect to USB ports. More ports allow more devices to be connected and used simultaneously. ✓ (1)
- 3.6 keyboard ✓ (1)
- 3.7 RAM is the place where the computer stores the programs or data it is working with. ✓ Programs / data needs to be loaded into the RAM before use. (1)
- 3.8.1 It is the size of the screen measured in inches ✓ (1)
- 3.8.2 It is measured diagonally. ✓ (1)
- 3.9.1 HDD ✓ (1)
- 3.9.2 DVD ✓ (1)
- 3.10 To transfer video from a video camera to your computer. ✓ (1)
- 3.11 (1)
- a) It is a big circuit board with slots that connect different components of the computer and peripherals. ✓ (2)
- b) It enables all the parts of the computer to communicate with each other. ✓ (2)
- 3.12.1 scanning/ copying / faxing. ✓✓ (Any 2) (2)
- 3.12.2 (2)
- They occupy less space (1)
- Cheaper than purchasing separate equipment for each function.
- Cheaper to maintain one device. ✓ (Any 1)
- 3.13 A biometric scanner reads and identifies unique identifying characteristics of people, like fingerprints ✓ or the pattern of an iris, for access control systems. ✓ (2)
- 3.14 (2)
- Much faster to access and store data.
- Less likely to be damaged compared to optical discs.
- They are also smaller in size / easier to carry around. ✓✓ (Any 2) (2)

QUESTION 4 : System Technologies: Software [12]

- 4.1.1 Windows 10 ✓ (1)
- 4.1.2 Office 2016 ✓ (1)
- 4.2 An operating system is system software which controls all activities that take place in a computer. ✓ (1)
- 4.3 Antivirus /driver / compression software / backup ✓ (Any 1) (1)
- 4.4.1 Device drivers are system software that allow an operating system to communicate with and control a hardware device. ✓ (1)
- 4.4.2 From the printer box when purchasing a new printer / download from the internet. ✓ (1)
- 4.5 It uses visual components to represent options and choices for the user, and it lends itself to being used with a pointing device, such as a mouse. ✓ (1)
- 4.6.1 Winzip / WinRAR ✓ (1)
- 4.6.2 Compression software is aimed at reducing the size of a file ✓ so that it takes up less space to store. ✓ (2)
- It is often used to reduce the size of e-mail attachments. (2)
- 4.7 Memory management involves the managing RAM- to control how programs use it ✓ - i.e. make sure that programs don't try to use the same area of memory at the same time and so corrupt each other's data/instructions. ✓ (2)

[12]

QUESTION 5

- 5.1. a. Check – Boolean Type (1)
- b. C – Integer (1)
- 5.2. (1)

Line No.	I/O-Variables		Decisions		Output
	num	check	C	num mod c = 0	
1	7				
2		TRUE			
3			2		
4				F	
5				F	
6			3		
7					F
4				F	
5					
6			4		
7					
4				F	
5				F	
6			5		
7					
4				F	
5				F	
6			6		
7					F
4				F	
5			7		
6					
7					T
4					
8	✓	✓	✓	✓	✓
					The number num is P

5.3. It is determining if an input is prime or composite. / counts the factors of a number ✓ (1)

5.4. C = Composite ✓ P = Prime ✓ (2)

5.5.1. The number 51 is C ✓ (1)
 5.5.2. The number 83 is P ✓ (1)

- 5.6. (7)
- 1. Enter an input (num) ✓ (1)
- 2. $x \leftarrow \text{num div } 1000$; ✓ (1)
- 3. $y \leftarrow \text{num mod } 100$; ✓ (1)
- 4. $y := y \text{ mod } 10 * 10 + (y \text{ div } 10)$; ✓ (1)
- 5. if $x = y$ then Display('is a palindrome') ✓ else Display('is not a palindrome'); ✓ (1)

TOTAL = 20

QUESTION SIX

- 6.1.1 Prolonged use of computer without breaks can lead to Obesity, hypertension (high blood pressure), diabetes and even increases the risk of heart disease. ✓
Uncomfortable posture for many hours can lead to back-ache. ✓ (2)
- 6.1.2 Sit correctly – don't slouch or hunch. ✓
Every once in a while, turn your eyes away from your monitor and focus on something else which is far away. This will help prevent eye strain. ✓
Take regular breaks – don't work for more than an hour at a time without taking at least a small break. {any two} (2)
- 6.2.1 The Digital Divide refers to situations when individuals or groups (even countries) do not have access to ✓, or the ability to make use of, technology, compared to digitally-enabled groups. ✓ (2)
- 6.2.2 A lack of financial resources to purchase or access technology. ✓
Differences in educational levels. ✓
The Age gap where many 'older' people have not had formal training in technology.
Disabled individuals often experience problems in terms of making effective use of ICT due to their sight, hearing or limitations in terms of their cognitive levels or physical mobility.
{any two} (2)
- 6.3.1 The act of stealing ✓ intellectual property. ✓ (2)
- 6.3.2 Distributing illegal copies of software. ✓
Installing single licence software on multiple computers. ✓ (2)
- 6.4.1 Freeware refers to software that can be freely downloaded, copied and used. ✓ for an unlimited period of time ✓ whereas shareware is copyrighted and free usage is allowed for a period of time ✓ on the understanding that it will be paid for once that period expires or the user must discontinue use. ✓ (4)
- 6.4.2 a) Open source (1)
b) adv
- It is free
 - The code is available for programmers to improve if they have knowledge
 - Contains all the popular software packages
 - Plenty of online support
 - Updates are regularly available and are free.
 - No licensing or renewing of licensing required ✓✓✓ Any 3 (3)
- Disadv: Not compatible with MS Office. ✓ (1)
- 6.5.1 Green Computing ✓ (1)
- 6.5.2)
- Reduce the use of printing and rather transfer softcopies between secondary storage devices.
 - Maximize energy usage by switching off equipment not in use and use energy saver products
 - Promote recycling by disposing of old equipment in the correct manner and recycle used paper, cartridges etc. ✓✓✓ Any 3 (3)

