



education

Department:
Education

PROVINCE OF KWAZULU-NATAL

INFORMATION TECHNOLOGY

PAPER 2

JUNE EXAMINATION 2016

GRADE 10

MARKS: 100

TIME: 2 HOURS

This question paper consists of 10 pages including the cover page.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE sections:

SECTION A:	Multiple-choice Questions	(10)
SECTION B:	System Technologies	(30)
SECTION C:	Social Implications	(15)
SECTION D:	Data and Information Management	(25)
SECTION E:	Solution Development	(20)

2. Answer ALL the questions.

3. Read ALL the questions carefully.

4. Start EACH question on a NEW page.

5. Leave a line after each answer.

6. The mark allocation generally gives an indication of the number of facts required in your answer.

7. Number the answers correctly according to the numbering system used in this question paper.

8. Write neatly and legibly.

SECTION A : MULTIPLE CHOICE QUESTIONS

QUESTION 1

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 one of the following is NOT an example of an operating system?
- A Windows
 - B Linux
 - C Microsoft Office
 - D Android
- 1.2 Types of computers sorted according to highest processing power to lowest processing power.
- A Server, laptop, tablet, Smartphone
 - B Notebook, laptop, tablet, desktop
 - C Desktop, server, laptop, smartphone
 - D Smartphone, tablet, laptop, server
- 1.3 Which of the following is NOT an advantage of using computers?
- A Are fast and accurate.
 - B Quickly becomes out-dated.
 - C Are multi-purpose.
 - D Performs repetitive tasks
- 1.4 A device that is considered to be both an Input device AND Output device.
- A Touchpad
 - B Projector
 - C Touch Screen
 - D Game controller
- 1.5 A file extension for a video file is ...
- A docx
 - B gif
 - C mp3
 - D mp4
- 1.6 A control that allows the user space to enter information
- A Spinner
 - B Edit box
 - C Label
 - D Button
- 1.7 Allows you to connect to the Internet using the cellular telephone network.
- A ADSL modem
 - B Dial-up
 - C 3G modem

D Switch

1.8 The contrast ratio is

- A The ratio between the colour in a colour printer
- B The ratio of the darkest black and the brightest white the monitor can produce.
- C The ratio of an image
- D The measurement of the size of the screen to the size of the laptop.

1.9 Used to navigate between folders you have already opened.

- A Toolbar
- B Search Box
- C Address bar
- D Back and Forward buttons

1.10 The hexadecimal number $2F3_{16}$ is equivalent to

- A 755_{10}
- B 752_{10}
- C 752_2
- D 307_{10}

Total for Section A: 10

SECTION B : SYSTEMS TECHNOLOGY

Scenario

Ichigo Secondary School has encountered a lot of break-ins during the course of this year. One of the major rooms that the break-ins occurred recently was the computer room. Due to this break-in, the local municipality has decided to do an audit so that they can see how best to help the school.

QUESTION 2

The learners were interviewed about what had been stolen from the computer room and they came up with the following list:

<u>Quantity</u>	<u>Item</u>
50 GB	RAM
5	CRT Monitor
12	LCD Monitor
3	Towers
1	3-in-1 Laser Printer
1	Data Projector

2.1 The towers that were stolen have a number of components inside it and the individuals that are doing the audit need some clarity on certain components.

2.1.1 What is the *motherboard*? (1)

2.1.2 Besides the motherboard there is another very important component in the computer called the CPU.

a) Explain the purpose of the CPU. (1)

b) Name ONE manufacturer of a CPU. (1)

c) Why does the CPU need a cooling fan? (1)

2.1.3 RAM plays a very important role in a computing device.

a) How does RAM assist the CPU? (1)

b) The audit team is considering getting computers with bigger RAM.

Is this a good idea? Motivate your answer by making reference to what happens when RAM is increased. (2)

c) Name TWO disadvantages of RAM. (2)

2.2 Motivate TWO reasons why the CRT monitors should be replaced by LCD Monitors. (2)

2.3 Explain to the auditors why having a data projector is necessary in the classroom. (1)

2.4 The school principal has purchased a new printer for the room.

- 2.4.1 Explain what "3-in-1" means in reference to printers. (1)
- 2.4.2 Briefly explain how a laser printer works? (1)
- 2.4.3 Name ONE other printer you have studied. (1)
- 2.4.4 The new printer is not working with the existing computers. An error message: "**driver not found**" is displayed. The principal does not understand what this means.
- a) State the purpose of a device driver. (1)
- b) Explain to the principal how this problem can be solved. (1)
- 2.5 Besides having hardware issues in the school, software is also a concern, especially now that computers are needed for the mid-year examinations.
- One of the most important software that is needed is an operating system.
- 2.5.1 What is an operating system? (1)
- 2.5.2 Name TWO roles of the operating system. (2)
- 2.5.3 Explain how an embedded operating system differs from a standalone operating system. (2)
- 2.6 The school is going to invest in new computers. The IT learners have requested that the principal considers computers that have a good amount of memory and storage.
- 2.6.1 Differentiate between *memory* and *storage*. (2)
- 2.6.2 List TWO advantages of using a flash drive. (2)
- 2.7 The principal has recently bought a 2.5" driver portable hard drive.
- 2.7.1 Name the port that the above mentioned device can be plugged into. (1)
- 2.7.2 List TWO advantages of using a 2.5" drivers portable hard drive? (2)
- 2.8 What is the main reason for *synchronising* your phone and your computer? (1)
- Total for Section B: 30**

SECTION C : SOCIAL IMPLICATIONS

QUESTION 3

- 3.1 Due to the lack of computer equipment and budgetary constraints in the school, there has been many software issues that have been dealt with incorrectly.
- 3.1.1 Every software that one installs on a computer has a EULA.
- a) What does the abbreviation EULA stand for? (1)
 - b) Explain what *EULA* is. (2)
- 3.1.2 The principal of the school has heard of copyright and copyleft but does not know what they are.
- Explain the difference between *copyright* and *copyleft* to him. (2)
- 3.1.3 The principal has been buying one license for certain software and installing it on multiple computers. It was brought to his attention that he is committing piracy.
- a) Explain the term *piracy*. (1)
 - b) List TWO other ways in which one can commit piracy. (2)
- 3.2 Explain the term *digital divide*. (1)
- 3.3 Ichigo Secondary is considered to be a green school because of their love for the environment and their practice of green computing.
- 3.3.1 List TWO tips on how to practice green computing. (2)
 - 3.3.2 Define the term *ergonomics*. (1)
 - 3.3.3 Name THREE health practices that one can engage in when using computers. (3)

Total for Section C: 15

SECTION D: DATA AND INFORMATION MANAGEMENT

QUESTION 4

4.1 Data plays a very important role when it comes to computing.

4.1.1 Differentiate between *data* and *information*. (2)

4.1.2 One way of storing data is using a variable that can hold a value of a specific data type.

a) How many binary digits does a byte consist of? (1)

b) Name TWO types of primitive data types. (2)

c) Name and explain the TWO categories that results in unreliable data, which are caused by trying to allocate data that cannot fit into that variable. (4)

4.2 One of the ways in which you can search for a document is by remembering its path. An example of a path is

D:\Documents\SchoolFees\2016\10A.xlsx

Using the path above answer the questions that follow:

4.2.1 Name the drive. (1)

4.2.2 Name ONE folder. (1)

4.2.3 The name of the file is **10A**.

a) What file type is 10A considered to be? Explain how you came to that conclusion. (2)

b) A file type should be saved in a format that can be read by more than one type of programs.

Name TWO advantages of saving a file in a format that can be read by other types of programs. (2)

4.3 Number systems play a very important role in computing. Convert the following accordingly.

4.3.1 10011101_2 to decimal. (3)

4.3.2 101.101_2 to base 10. (3)

4.3.3 6532_{10} to binary. (4)

Total for Section D: 25

SECTION E : SOLUTION DEVELOPMENT

QUESTION 5

- 5.1 Line
1. Input num
 2. $\text{count} \leftarrow 0$
 3. repeat num
 4. if num mod count = 0
 5. sum \leftarrow sum + num
 6. change count by 1
 7. Display sum

The above pseudo code is an incorrect pseudo code calculating the sum of all the factors of a number that was input by the user. Using the pseudo code, answer the questions that follow.

- 5.1.1 Name ONE variable. (1)
- 5.1.2 What is the function *mod* used for? (1)
- 5.1.3 Is the loop in the pseudo code above a *conditional* or *unconditional* loop?
Justify your answer. (2)
- 5.1.4 There are currently TWO errors in the pseudo code.
Identify the line numbers and explain these TWO errors. (4)

5.2 The principal of the school has decided to create a password for each of the 20 teachers in the school. He has asked for your assistance, as a programmer, to write the pseudo code that will generate these passwords for each teacher.

The principal will enter the names, date of birth (yyyy/mm/dd) and contact number for each teacher. The password that you generate must be stored in a list called **passwordList**.

The password is generated as follows:

- First 2 letters of the teachers name followed by,
- The age of the teacher (use 2016 as the current year), then
- the '@' and finally
- a random number between 5 and 10

Sample Input

Name: Ashlin
Date of Birth: 1990/16/12
Random Number: 6

Sample of code

Code: As26@6



(12)

Total for Section E: 20
GRAND TOTAL: 100

