



Province of the  
**EASTERN CAPE**  
EDUCATION

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 11**

**NOVEMBER 2017**

**INFORMATION TECHNOLOGY P2**

**MARKS: 150**

**TIME: 3 hours**

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This question paper consists of 14 pages.

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**INSTRUCTIONS AND INFORMATION**

1. This paper consists of SIX sections

SECTION A: Short questions	(15)
SECTION B: System Technologies	(21)
SECTION C: Communication and Network Technologies	(26)
SECTION D: Data and Information Management	(24)
SECTION E: Solution Development	(25)
SECTION F: Integrated Scenario	(39)

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

**SECTION A: MULTIPLE CHOICE QUESTIONS****QUESTION 1**

1.1 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 (1.1.1–1.1.10).

1.1.1 Which of the following is NOT a correct way in which storage differs from memory?

- A Storage is non-volatile or permanent.
- B It is very fast compared to RAM.
- C The cost per GB for a storage device is substantially less than the cost per GB of RAM.
- D Most storage devices are mechanical (1)

1.1.2 Which of the following is an advantage of virtualisation?

- A You will save hard drive space
- B You will save money but lose time.
- C You will increase the level of efficiency
- D You will use less memory. (1)

1.1.3 A software bug is caused by ...

- A a coding error.
- B a virus.
- C a triggered trojan horse.
- D an SQL injection. (1)

1.1.4 VPN stands for ... (1)

- A Very Private Network.
- B Virtual Protocol Network.
- C Very Powerful Network.
- D Virtual Private Network.

1.1.5 This technology is being developed to replace Flash technology on websites.

- A HTML3
- B HTML5
- C JAVASCRIPT
- D PHP (1)

- 1.1.6 Which of the following would be associated with a JPEG file?
- A Video
  - B Music
  - C Text
  - D Images
- (1)
- 1.1.7 RIA has become a very common Internet feature. Expand the term **RIA**.
- A Real Internet Application,
  - B Rich Internet Application.
  - C Realtime Internet Application.
  - D Robust Internet Application.
- (1)
- 1.1.8 Which one is a characteristic of quality data in a database?
- A Short
  - B Currency
  - C Punctuality
  - D Perfect
- (1)
- 1.1.9 Which one is NOT an advantage or characteristic of a static website?
- A Relatively simple to design.
  - B Do not need much server power.
  - C Designed for client side only.
  - D Can adapt to user needs and preferences.
- (1)
- 1.1.10 Which one is NOT a function or duty of a database administrator?
- A Managing and maintaining the database via a DBMS.
  - B Capturing and entering data in a database.
  - C Setting up and maintaining users of the database and their access rights.
  - D Performing routine maintenance on the database.
- (1)

- 1.2 Give ONE word/term for each of the following descriptions. Write only the word/term next to the question number (1.2.1-1.2.5).
- 1.2.1 A startup test performed by the BIOS to ensure that all essential hardware is present and in working order (1)
- 1.2.2 The configuration of two or more hard drives, designed to minimise the possibility of data loss (1)
- 1.2.3 The immediate and real time delivery of media content to a receiving device, starting from the time at which the media is opened (1)
- 1.2.4 A single fact or the smallest unit of data in a database (1)
- 1.2.5 Diagrams used to illustrate relationships between entities (1)

**TOTAL SECTION A: 15**

## SECTION B: SYSTEMS TECHNOLOGIES

### QUESTION 2

You have decided to buy the following laptop for your start-up web designing business.



- 15.6" HD Display
- 4GB RAM, 500GB HDD
- 5th Generation Intel® Core™ i3-5005U Processor (3M Cache, 2.00 GHz)
- Intel HD Graphics 4400
- 1 Year Warranty

2.1 Use the laptop specifications to answer the following questions.

2.1.1 Identify the CPU manufacturer. (1)

2.1.2 What is the speed of the CPU? (1)

2.2 The CPU is one of the most important components of a computer system.

2.2.1 Identify another processor that you can find in a computer system? Explain how this processor works with the main CPU. (2)

2.2.2 List the FOUR steps of the machine cycle. (4)

2.3 You have heard some of your IT friends say: "*Firmware on some of the computer components may need to be upgraded*".

2.3.1 Is firmware considered RAM or ROM? (1)

2.3.2 Define the term **firmware**. (2)

2.3.3 List THREE reasons for upgrading firmware on a device. (3)

2.3.4 What does '*flashing the ROM*' mean? (1)

2.4 You have been given a task of testing the capabilities of an app developed by your employer on 4 different operating systems. It has been suggested that you could manage this faster if you apply virtualisation.

2.4.1 Define the term **virtualisation**. (1)

2.4.2 Suggest a way in which you will use virtualisation to test the app on four operating systems. List all the steps to be followed. (5)

**TOTAL SECTION B: 21**

**SECTION C: COMMUNICATION AND NETWORK TECHNOLOGIES**

**QUESTION 3**



[Image courtesy of <http://www.colourbox.com>]

You are considering setting up a Wi-Fi network to connect the devices in your office and have decided on the above layout.

3.1 A friend suggests setting up a wired network.

- 3.1.1 Give TWO reasons why you need a network. (2)
- 3.1.2 State TWO disadvantages of having a computer network. (2)
- 3.1.3 Discuss TWO reasons why one would prefer a wired network instead of a wireless network. (2)

3.2 You have decided to use Wi-Max technology to connect to the Internet.

- 3.2.1 State TWO other technologies you could have used to connect to the Internet. (2)
- 3.2.2 Justify your reason for choosing Wi-Max instead of any of the TWO ways mentioned in Question 3.2.1. (1)
- 3.2.3 Name the device that you will need to link your local network to the Internet. (1)

- 3.3 You will have to use a VOIP and SMTP to communicate with your office staff whenever you travel.
- 3.3.1 Expand the acronym VOIP. (1)
  - 3.3.2 Provide TWO examples of programs that use VOIP. (2)
- 3.4 You have also decided to use a smartphone and mobile apps to conduct your business.
- 3.4.1 Discuss TWO main hardware differences between a smartphone and a conventional phone. (2)
  - 3.4.2 List THREE commonly used smartphone operating systems. (3)
  - 3.4.3 What is meant by the term *mobile apps*? (1)
  - 3.4.4 Provide TWO advantages of using *mobile apps* to access the Internet instead of using browsers. (2)
- 3.5 A friend has just noticed that when browsing the Internet, the address either starts with http or https.
- 3.5.1 What does the **p** in http and https mean? Provide a definition. (2)
  - 3.5.2 What is the main difference between **http** and **https**? (1)
- 3.6 You have specific news websites that you visit regularly, RSS feeds have been suggested to you.
- 3.6.1 Explain how RSS feeds work. (1)
  - 3.6.2 Name another application of RSS feeds. (1)

**TOTAL SECTION C: 26**

**SECTION D: DATA AND INFORMATION MANAGEMENT****QUESTION 4**

myClientsTB					
CustomerID	OrderID	ProductID	UnitPrice	Quantity	Total
RONNIES	10M	11	72.00	10	720.00
SPAR	11L	42	15.00	5	45.00
RHINO	17R	72	75.69	6	454.14
MMSE	21M	44	69.99	5	349.95
RHINO	22R	40	50.00	12	720.00

As you work, you decide to keep a database with information about the orders, clients and products they buy in a database table similar to the one above.

4.1 Use the given table to answer the following questions.

4.1.1 Identify the following from the table above.

- (a) a field (1)
- (b) a record (1)
- (c) the table name (1)

4.1.2 Identify the field which is redundant. Motivate your answer. (2)

- 4.1.3 (a) What is the function of a primary key? (1)
- (b) Identify the field which can be a primary key. (1)

4.2 While discussing the database, it is suggested that you setup a distributed database for your small office.

- 4.2.1 (a) What is a distributed database? (1)
- (b) Justify why this may not be a good idea. (1)

4.2.2 Suggest a more appropriate type of database for your office. (1)

4.2.3 Give an example of a program that can be used to design a distributed database. (1)

4.2.4 Will it be possible for many staff members to work on the distributed database at the same time? Justify your answer. (2)

- 4.3 List THREE tasks involved in data maintenance. (3)
- 4.4 You eventually decide to use the relational database model.
- 4.4.1 Define a *relational database*. (1)
- 4.4.2 Explain why foreign keys are used in a relational database. (2)
- 4.4.3 After analysing the table above, you realise that there are two main entities involved, namely the Customer and the Product. Use a simple ER diagram to show how entities are linked together. (5)

**TOTAL SECTION D: 24**

**SECTION E: SOLUTION DEVELOPMENT****QUESTION 5**

- 5.1 An application to help you generate simple passwords is needed. A section of the program will have to remove vowels from a surname. It is suggested that you create a parameterised function which receives the surname as a **parameter** and **returns** the surname without vowels, instead of using a procedure.
- 5.1.1 What does the term **parameter** mean? (1)
- 5.1.2 Explain what is meant by the term **returns**. (1)
- 5.1.3 Give an example of a built-in function that requires at least one parameter. (1)
- 5.1.4 Differentiate between a function and a procedure. (2)
- 5.1.5 Design an algorithm to remove the vowels from the surname. (8)
- 5.2 Text files are used to capture a lot of information in a shorter time frame.
- 5.2.1 Why is a WHILE loop used when reading from a file? (1)
- 5.2.2 Explain the following terms:
- (a) Reset (1)
  - (b) Append (1)
  - (c) Assignfile (1)
- 5.3 Arrays are used in many programming applications. An array element must have an index when referring to it in the program.
- 5.3.1 What is an **array**? (1)
- 5.3.2 What is an **element** in an array? (1)

5.3.3 Study the following code and complete the trace table.

```

x ← 5
Index ← 0
REPEAT
  y ← x MOD 2
  y ← x DIV 2
  Index ← Index + 1
  Result[Index] ← y
UNTIL x = 0

```

y	x	Index	Result		
			[3]	[2]	[1]
-	5	0	-	-	-
1	2	1	-	-	-
y	x	Index	-	-	-

(6)

**TOTAL SECTION E: 25**

**SECTION F: INTEGRATED SCENARIO****QUESTION 6**

As a young entrepreneur you have been coming across a number of concepts that you must either understand or apply in your business.

- 6.1 You have been investigating how to use social media and you are being warned about social engineering tricks.
- 6.1.1 What is *social engineering*? (1)
- 6.1.2 Name and explain ONE example of social engineering. (2)
- 6.1.3 Describe TWO ways you could avoid social engineering tricks. (2)
- 6.2 On one of your social media news feeds, you notice that your friend has checked in at Wimpy Greenacres Mall and is in a meeting.
- 6.2.1 Identify the type of computing that has been used here. (1)
- 6.2.2 Name the type of device/system needed in order for this type of computing to work. (1)
- 6.2.3 Explain how this type of technology can be used by businesses. (2)
- 6.2.4 Pictures taken by your friend also contain some meta data showing where the picture was taken.
- (a) Explain what *meta data* is. (2)
- (b) What is this ability of the camera to record the physical location data of where the picture was taken, called? (1)
- 6.3 One of your clients has indicated that he might need your services since they are planning to go into partnership with a popular Internet Protocol TV (IPTV) company which also offers VOD services.
- 6.3.1 What is the *Internet*? (1)
- 6.3.2 Differentiate between *IPTV* and *VOD* services. Indicate where each one may be used. (4)

- 6.4 As a consulting job, you have been asked to help compile the End-user AUP documents for a new private educational institution's network.
- 6.4.1 Briefly explain what End-user AUP documents are. (1)
- 6.4.2 Describe TWO aspects that must be included in the documents. (2)
- 6.4.3 State TWO tasks that network managers need to do in order for an AUP to work effectively. (2)
- 6.5 As the workload is increasing you realise that you need to hire someone to assist you in designing websites. A friend introduces you to a possible employee who says he has been a website author for the past five years.
- 6.5.1 Explain THREE main skills required in order to design websites. (3)
- 6.5.2 State TWO duties of a website author. (2)
- 6.5.3 Motivate why you would hire or not hire this website author for the job. (2)
- 6.6 One of your tasks for the private educational institution is to conduct online surveys. You discover that one of the limitations to ICT is the fear of ICT.
- 6.6.1 Describe TWO other factors that limit ICT and its advancement. (2)
- 6.6.2 Motivate THREE capabilities of ICT that have made life in business and life as a whole much better. (3)
- 6.7 Due to the growing globalisation of businesses, you decide to use crowd-funding for one of your projects.
- 6.7.1 Briefly explain what *crowd-funding* is. (2)
- 6.7.2 List THREE factors or trends that are driving globalisation. (3)

**TOTAL SECTION F: 39**  
**GRAND TOTAL: 150**