

NAME: ..... INDEX NO: .....

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DATE: .....

**451/1**  
**COMPUTER STUDIES**  
**PAPER 1**  
**THEORY**  
**TIME 2 ½ HOURS**

**SMARTPASS EXAMINATION**

**Kenya Certificate of Secondary Education (KCSE)**

**MODEL ONE 2019**

COMPUTER STUDIES  
PAPER 1  
THEORY

**INSTRUCTION TO CANDIDATES**

- Write your name and index number in the spaces provided above
- *This paper consists of **two** sections A and B.*
- Answer **ALL** questions in section A.
- *.Answer question **11** and any other **THREE** questions from section B.*
- *All answers should be written in the spaces provided on the question paper.*

**For Examiners Use Only**

Section	Questions	Candidates Score
A	1-15	
B	16	
	17	
	18	
	19	
	20	
	TOTAL SCORE	

This paper consists of **11** printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing.

**SECTION A**  
**Answer All questions in this section**

1. Suggest **two** disadvantages of a notebook computer when compared with a desktop computer. (2 marks)

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2. (a) What is a software suite? (1 mark)

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- (b) Suggest **two** advantages of using a software suite. (2 marks)

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3. (a) Explain the two major types of software. (2 marks)

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- (b) Give an example of each of the above (2 Marks)

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4. (a) Explain the term Process Control. (1 Mark)

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- (b) State two areas where process control is used in industry (2 Marks)

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5. (a) Give **one** advantage of serial connection over parallel connection. (1 mark)

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(b) Give **one** advantage of parallel connection over serial connection. (1 mark)

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6. (a) Explain the term pipelining as used in CPU (1 mark)

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(b) Explain How parallel processing work (1 mark)

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7. Give **two** advantages and **two** disadvantages of display devices (e.g., monitors). (4 marks)

*Advantages:*

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*Disadvantages:*

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8. (a) Explain briefly why increasing the main memory may improve the performance (e.g., speed) of a computer system. (1 mark)

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(b) Explain the term memory address as used in primary memory (1 mark)

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9. Explain the following as used in word processing (3 Marks)

i. Spell-check

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ii. Thesaurus

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iii. Macros:

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10. Explain the following spreadsheet concepts:

i. Automatic Recalculation. (1 mark)

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ii. What if analysis (1 mark)

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11. Suggest **two** advantages of using presentation graphics software over the traditional chalk-and-talk approach in a school environment (2 marks)

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12. (a) Explain the term workstation as used in a networked environment (1 mark)

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(b) What is a server? (1 mark)

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13. (a) Explain briefly **identification** and **authentication** in computer access control. (2 marks)

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(b) What is a personal identification number (PIN)? (1 mark)

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14. (a) Explain the term ergonomics. (1 mark)

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(b) Suggest **two** possible causes of eyestrain due to prolonged use of computers. (2 marks)

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15. State **Three** benefits of telecommuting. (3 marks)

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### **SECTION B**

***Answer question 16 (compulsory) and any other three questions from this section***

16. (a)(i) State and describe three types of error that can occur in programming: (3 Marks)

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(ii) When is a programming language considered structured? (2 marks)

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(b)(i) The Global Science Museum is not large and can become over-crowded when more than 300 people are in the building. They would like a program that will stop visitors from entering when more than 300 visitors are in the building.

Design a Pseudocode segment for this problem using a REPEAT loop. You do not have to worry about visitors who leave the building, just those who have entered. (3 Marks)

(ii) Identify **Three** aspects of a good HCI? .

(3 Marks)

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(c)(i) Give **one** advantage of compilers over interpreters

(1 mark)

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(ii) Give **one** advantage of interpreters over compilers

(1 mark)

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(iii) Explain briefly why the source codes must be translated again if the programmer wants to use the program on a computer with a different platform.

(1 mark)

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(iv). Explain why a programmer may prefer to write code for device drivers using low level languages.

(1 Mark)

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17. (a) (i) With the aid of examples, explain number complements in the Binary number systems  
(2 marks)

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(ii) Outline the benefits of using binary number complementation in computers. (2 marks)

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(b) (i) Why is binary number system best suited for use in computers? (2 marks)

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(ii) Convert the following base two number into base ten. (2 marks)

11.01

(iii) Convert the following base sixteen number into base two. (2 marks)

DEF=

(c) Carry out the following binary arithmetic:

(i)  $11 + 10$  (1 mark)

(ii)  $101 \times 11$  (1 mark)

(iii)  $101 /_{11}$  (1 mark)

(iv)  $101 - 11$  (1 mark)

18. Describe briefly the three data processing modes

(3 marks)

i. *Batching Processing Mode*

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ii. *Real-time Processing Mode*

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iii. *Interactive Processing Mode*

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(b)(i) Suggest **two** possible reasons for data preparation errors.

(2 marks)

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(ii) Suggest **two** possible reasons for data input errors.

(2 marks)

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(c) (i) Distinguish between **data validation** and **data verification**.

(1 mark)

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(ii) Give **two** examples of data verification techniques.

(2 marks)

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(d) Describe briefly the following data validation techniques

i. Presence Check

(1 mark)

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ii. Type Check

(1 mark)

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Range Check

(1 mark)

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iii. Control Total Check

(1 mark)

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iv. Parity Checks

(1 mark)

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19. (a) (i) Explain the term search engine

(1 mark)

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(ii) Peter and Mary use the same keyword to search for information. Suggest **two** reasons why their search results are different.

(2 marks)

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(iii) State **one** disadvantage of using an e-mail account provided by the Internet service provider (ISP).

(1 mark)

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(b) (i) Explain the term URL

(1 mark)

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(ii) For the URL <http://www.csklsc.net/pe/calendar.htm>, **http** stands for

(1 mark)

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The domain name is (1 mark)

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The top-level domain (TLD) is (1 mark)

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*pe* stands for (1 mark)

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(c) (i) Explain the term communication protocol (1 mark)

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(ii) Explain the following types of communication protocol  
**Ethernet** (1 mark)

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**Token Ring** (1 mark)

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**TCP/IP** (1 mark)

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(iii) Give **Two** examples of wireless-based communications channels. (2 marks)

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20. (a).Describe the role of the systems analyst. (2 Marks)

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(b).Describe Two techniques used by the systems analyst in requirements elicitation. (2 Marks)

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(c)What is a requirements specification and what does it contain? (5 Marks)

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(d) Software development is often said to be an *iterative process*.

Describe Two events that might spark an iterative process in software development. (2 Marks)

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(e) (i) Describe briefly the **three** basic e-commerce models. (3 Marks)

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(ii) Apart from parental control, state **one** other ways of Internet censorship. (1 mark)

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