

**451/1
COMPUTER STUDIES
PAPER 1
(THEORY)**

2 HOURS)

KASSU JET -12010

INSTRUCTIONS TO CANDIDATES

This paper consists of TWO sections; a and b

Answer ALL the questions in section A

Answers should be written questions from section B.

All answers should be written in the spaces provided on the question paper

SECTION A (40 MARKS)

1. List and describe **four elements** of a computer system. (2mks)
2. a) Describe the following technologies as used in the computer generations and name the generation. (1mk)
b) Suggest **two** possible causes of data and program loss in a computer (2mks)
3. a) Describe two functions of the CPU in a standard computer (2mks)
b) List **two** classifications of printers, and give an example of each. (3mks)
4. Define the term double-clicking as used in mousing skills (1mk)
5. The Overtyping key and Delete key are both referred as editing keys. Explain how they are used.
6. a) Identify the main stages of program development (3 ½ mks)
b) Define the term program documentation (1mk)
c) List three program control structures giving examples. (3mks)
8. Distinguish between high level and low-level languages giving one advantage and one disadvantage of each of them. (2mks)
9. distinguish between **TCP/IP** and **HTTP** protocols. (2mks)
10. Differentiate between Real time processing and Batch processing giving examples where each could be used. (2mks)
11. Differentiate between Real time processing and Batch processing giving examples where each could be used. (2mk)
12. Study the following worksheet and then answer the questions that follow:

SN	Ad.No.	HSE	Name	Paper 1	Paper 2	Paper 3	TOTAL	PASS
				30%	30%	40%		
1	8521	Art. 15A	Ganda John Okoth	12	14	20		
2	8524	Wil. 10A	Kanyi Samuel Ngugi	4	5	15		
3	8531	Agg 9	Kariuki James	15	19	27		
4	8534	Will. 11	James Karuri Njora	9	13	30		
5	8541	Fra. 17B	Gitahi Daniel Waweru	13	9	17		
6	8544	Liv. 2	Elias D. Maswi	10	11	21		

- a) Write down the formula in cell J4 that can be used to evaluate the total marks for the student whose admission no is 8521. (5mks)
- b) The pass mark is 40%. Write down an IF function that will return two values, PASS or Fail depending on the Total mark. (2mks)
13. what is a computer network? (3mks)
14. Describe **three** different types of computer network (3mks)
15. Describe five electrical safety precaution rules that should be observed in a computer room. (5mks)

SECTION B (60 MKS)

Answer question 16 (Compulsory) and any other **THREE** questions from this Section.

16. To maintain a strategic fit Safaricom is introducing a tariff called the mega tariff that will lower costs to Safaricom to Safaricom calls and calls to other networks. Calls to Safaricom networks will be charged according to the time of the day as listed below:

- Between 8am to 12 noon – 6 Ksh
- Between 12 noon to 2pm-0.8 Kshs
- Between 6 to 1 am -4Kshs
- between 1 am t 8am- 1Kshs

Internal calls to other networks are charged at a fixed rate of 7 Kshs between 8am to 8pm and to while international calls are charged at a rate of 25 Kshs between 8am to 8pm and Kshs 35 for the rest of the day. All calls are charged per minute usage.

Mr. Wasswa Bbaale a business man who makes both internal and internal calls would like to make maximum use of this of this tariff.

- a) Write a pseudo code that would show him know the charges of calls with an appropriate label when he the inputs type of call and the time where appropriate. Use a 24 hour clock. (8mks)
 - b) Design a flowchart for the pseudo code in 16(a) above (7mks)
- 17.
- a) Explain how an operating system controls I/O devices. (2mks)
 - b) Maintaining security is one of the functions the operating system. Explain how the operating system maintains security (2mks)
 - c) Distinguish between the following pairs of terms
 - i) Indexed sequential and direct file organizations (2mks)
 - ii) State any two factors to consider when selecting a data processing
 - d) i) Using appropriate examples, differentiate between distributed and centralized processing modes (3mks)
 - ii) state one advantage and one disadvantage of the processing modes in 17(d) (i) (opposite page) (2mks)
 - e) i) With reference to an operating system, differentiate between formatting and partitioning. (2mks)
 - ii) List any **TWO** types of user interface. (1mk)
 - iii) Explain how each type of the user interface in e (ii) above operates (2mks)

18. a) Using eight bits and twos complement, subtract 78_{10} from 17_{10} . Give your answer in decimal notation (3mks)
- b) Convert 11011011111.1111_2 to:
- i) Octal (2mks)
 - ii) Hexadecimal (2mks)
 - iii) Decimal (2mks)
- c) State any **Two** methods used to gain illegal access to a computer system (2mks)
- d) i) Distinguish between peer-to-peer and client –server LANs. (2mks)
- ii) Atieno was very happy when she bought a Safaricom 2G modem for she was able to easily connect her computer to the Internet. After six months she noticed it was taking her too long to connect to the Internet. State two possible causes of the problem.
19. a) i) Explain any **two** causes of system change. (2mks)
- ii) Explain any **THREE** causes of system maintenance. (2mks)
- b) i) Use of questionnaire is one of the most popular fact finding method. State any **TWO** advantages and **TWO** disadvantages of using this method to gather data.
- ii) Explain the importance of requirement specification phase of Systems development. (2mks)
- c) Explain **TWO** reasons why a new system is tested before implementation. (2mks)
- d) i) State two duties performed by a system administrator. (1mk)
- ii) The principal of a school is attempting to convince his staff to us CAL and CAI software. State one benefit and one limitation of using such software. (2mks)
- e) State one advantage and one disadvantage of using expert systems in medicine (2mks)

20. a) Explain three types of communication links that may be used to get an Internet connection (3mks)
- b) Differentiate between the Internet and World Wide Web. (2mks)
- ii) Technology has been blamed for polluting the environment. Explain how computer technology has contributed to this. (2mks)
- c) A Company that makes and sells vehicles receives orders from various clients. The company wants to enter their orders into a database. Study the table structure below and answer the questions that follow.

Field Name	Data Type	Field Size
Order Number	Number	Long Integer
Order Date	Date/Time	
Supply Date	Date/Time	
Product code	Tex	5
Customer ID	Number	Long Integer
Delivery address	Text	30
Product Type	Tex	15
Product Name	Tex	10
Quantity Ordered	Number	Long integer
Product Prize	Number	Long Integer

- i) split the above structure into **THREE** tables and for each table identify an appropriate primary key. (5mks)
- ii) Design well labeled tables structures and identify foreign keys (3mks)