Name: …… Index no ……..….....

School: ……...…. Candidate's sign ……....

Date: ……

451/1
COMPUTER STUDIES
PAPER 1
(THEORY)
TIME 2 ½ HOURS.

Kenya Certificate of Secondary Education (K.C.S.E.)

Computer Studies
Paper 1

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 16 and any other **THREE** questions from section **B.***
- *All answers should be written in the spaces provided on the question paper.*

FOR OFFICIAL USE ONLY

SECTION	QUESTIONS	QUESTION'S ACTUAL SCORE	CANDIDATES SCORE
A	1-15		
B	16		
	17		
	18		
	19		
	20		
	TOTAL SCORE		

This paper consists of 8 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing

SECTION A: (40 MARKS)

Answer all the questions in this section in the spaces provided

1. (a) What is an embedded computer? (1mk)

……

(b) State the main component that formed the basis for second generation computers. (1mk)

……

2. (a) Give **one** function of a main frame operating system which you would not expect to find in the operating system of a micro-computer. (1mk)

……

(b) Name **four** examples of application software. (2mks)

……

……

……

……

3. List **four** of the fields which would be expected in a database file of information about school students. (2mks)

……

……

……

……

4. (a) Name **four** examples of document readers. (2mks)

……

……

……

(b) Give **one** application for each of the input methods in 4.(a). (2mks)

……

……

……

5. Subtract 01011_2 from 11001_2 (2mks)

……

……

……

6. Explain the following computer crimes. (2mk)

(i). Fraud

……

(ii). Alteration

……

7. (a) Define

(i). Firewalls. (lmk)

……

(ii). Data encryption. (lmk)

……

8. Identify **three** advantages of using modular programming in system development. (3mks)

……

……

……

9. Explain the following terms as used in computing cycle. (3mks)

(i) Fetch phase

……

……

……

(ii) Decode phase

……

……

……

(iii) Execution phase.

……

……

……

10. (a) Differentiate between Cache and Buffer memories. (2mks)

……

……

(b) List and give the functions of computer buses. (3mks)

……

……

……

11. (a) Explain any **two** factors that should be considered during output design. (2mks)

……

……

……

(b) Why is observation sometimes disadvantageous when used in fact finding? (1mk)

……

……

……

12. Outline **two** major functions of UPS in computer laboratory. (2mks)

……

……

13. (a) State the use of:

(i) Light pen (1mk)

……

(ii) Graphics tablet. (lmk)

……

(b) Name any advantage of solid-state memories over other storage media. (1mk)

……

14. Outline **four** data types that can be entered into a spreadsheet. (2mks)

……

……

……

……

15 (a) Define virtual reality. (1mk)

……

(b) List any **two** applications of virtual reality. (1mk)

……

……

SECTION B: (60 MARKS)

Answer question <u>16</u> and any other <u>three</u> questions from this section in the spaces provided.

16. (a) List **two** examples of

(i) Third generation languages. (2mks)

……

……

(ii) Object oriented languages. (2mks)

……

……

(b) Define (2mks)

(i) Object code

……

……

(ii)Source code

……

……

(c) Differentiate between a compiler and an interpreter. (2 mks)

……

……

(d) A car rental firm leases its cars for Ksh..2500.00 per day. The manager giver a discount based on the number of days that the car is rented. If the rental period is greater than or equals to 7 days then a 25% discount is given. Write a peudocode to accept a car number and the rental period, and calculate the total amount earned by the company when a car is leased. (7mks)

17. (a) State any **three** duties of the following ICT personnel
(i) Systems analyst. (3mks)

……

……

……

(ii) Database administrator. (3mks)

……

……

……

(iii) Web master (3mks)

……

……

……

(b) Name any **three** ICT courses offered in the Kenyan universities. (3mks)

……

……

……

(c) Outline **three** advantages of telecommuting. (3mks)

……

……

……

18. (a) Define artificial Intelligence. (1mk)

……

(b) Explain the application of artificial intelligence in the following areas (6mks)
(i) Natural language processing

……

……

(ii) Robotics

……

……

(iii) Expert systems

……

……

(c) Give any **three** symptoms of the following computer work-related disorders and two of their methods of prevention.

(i) Computer vision syndrome. (4mks)

……

……

……

……

(ii) Repetitive strain injury. (4mks)

……

……

……

……

19. (a) Define the term ergonomics (1mk)

……

……

(b)(i) Give any **three** advantages of using a fibre optic cable in data transmission. (3mks)

……

……

……

……

(ii) Name **two** types of fibre optic. (1mk)

……

……

(d) Explain the following terms. (3mks)

(i) Multiplexing

……

(ii) Bandwidth

……

(iii) Baseband signal

……

(e) Explain the use of these communication devices. (4mks)

(i) Routers

……

……

(ii) Hub

……

……

20. (a) Define Internet. (1mk)

……

……

(b) Describe the transmission of data over a telephone line (4 mks)

……

……

……

……

(c) Outline the 'line of sight' principle in wireless transmission. (2mks)

……

……

(d) The first column in the table below contains the formula stored in cell Fl0 of a spreadsheet. Enter the formula as they would appear when copied to cell M20 of the same spreadsheet. (3mks)

Formula in F10	Formular in M 20
= D10* E10 = A $ 25 = 4 * D $ 13	

(e) (i) Differentiate between multiprogramming and multiprocessing. (2mks)

……

……

(ii) Give application areas of the following data processing modes. (3 mks)

(a) Batch

……

(b) ReaL time

……

(c) On line

……