

**451/1**  
**COMPUTER STUDIES**  
**Paper 1**  
**(THEORY)**  
**Time 2 ½ HOURS**

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

**451/1**  
**COMPUTER STUDIES**  
**Paper 1**  
**(THEORY)**  
**Time 2 ½ HOURS**

**INSTRUCTIONS TO CANDIDATES**

1. This paper consist of TWO sections; A and B
2. Answer all questions in section A
3. Answer question 16 and any other three questions from section B.

**FOR EXAMINERS USE ONLY.**

<b>SECTION</b>	<b>QUESTION</b>	
<b>A</b>	1 – 15	
<b>B</b>	16	
	17	
	18	
	19	
	20	
	<b>TOTAL MARKS</b>	

*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 MKS)**

**Answer ALL the questions in this section**

1. Define the following terms (4mks)
- (i) Multiplexing  
.....  
.....
  - (ii) Baseband signal  
.....  
.....
2. Explain the difference between digital signal and analog signal in data communication (2mks)  
.....  
.....  
.....
3. List down **Four** types of computer viruses (2mks)  
.....  
.....  
.....
4. Define the following terms as used in disk management
- (i) Partitioning (1mk)  
.....  
.....
  - (ii) Defragmenting (1mk)  
.....  
.....
5. Explain the following terms as they are used in internet
- (i) Sign in (1mk)  
.....  
.....
  - (ii) Surf (1mk)  
.....  
.....
  - (iii) Downloading (1mk)  
.....  
.....
6. State **Three** ways in which your school librarian can use a computer (3mks)  
.....

.....  
.....  
.....  
7. Distinguish between simulation and virtual reality (2mks)

.....  
.....  
.....  
8. Convert  $11011011111_2$  to Octal (3mks)

.....  
.....  
.....  
9. (a) One of the challenges that computer organizations face is unauthorized access to computer systems. Distinguish between logical access and physical access. (2mks)

.....  
.....  
.....  
(b) State **One** way in which each of the types of unauthorized access to computer systems can be controlled. (2mks)

.....  
.....  
.....  
10. Give **Two** possible ways of fitting the document in one page (2mks)

.....  
.....  
.....  
11. Differentiate between real time processing and batch processing giving examples where each could be used (2mks)

.....  
.....  
.....  
12. Give **Two** advantages of an electronic spreadsheet over traditional analysis ledger sheet (2mks)



(c) Program documentation is writing of support materials explaining the program.

State **Three** types of program documentation (3mks)

.....

.....

.....

.....

17. (a) Define the term 'Data integrity' (2mks)

.....

.....

(b) Give **Three** ways in which one would curb threat to data integrity (3mks)

.....

.....

.....

.....

(c) Explain the following electronic data processing modes giving relevant examples  
Where they are used.

(i) Real time processing (2mks)

.....  
.....

(ii) Distributed data processing (2mks)

.....  
.....

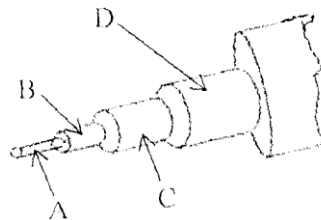
(d) Give **Three** components of a computer based information system (3mks)

.....  
.....  
.....

(e) Computer hardware is categorized according to the types of operations it performs. List **Three** operations. (3mks)

.....  
.....  
.....

18. Study the diagram below and answer the questions that follow.



(a) (i) Name the above cable as used in data communication media (1mk)

.....

(ii) Name the parts labeled A, B, C and D (4mks)

A .....

B.....

C.....

D.....

(iii) Highlight any **Three** advantages of the above cable. (3mks)

.....  
.....  
.....

(b) (i) What is an Uninterruptible Power Supply (UPS) (2mks)

.....

.....  
(ii) Explain **Two** functions of UPS (2mks)

.....  
(c) (i) Give **Two** advantages of sound output devices (2mks)

.....  
(ii) Why are CD-ROM and CD-R referred to as WORM? (1mk)

.....  
19. Information and Communication Technology is relatively a new area of study which is advancing. Due to this reason, everyone is expected to keep a breast with the changing trend of information and Communication Technology (ICT)

(a) (i) Explain how ICT has affected employment (3mks)

.....  
(ii) Explain **Two** health problems that have resulted from prolonged use of computers (4mks)

.....  
(b) (i) What is artificial neural network? (2mks)

.....  
(ii) Give **Two** features (arributes) of neural networks. (2mks)

.....  
(c) Explain characteristics of a system

(i) Holistic thinking (2mks)

.....  
(ii) System entropy (2mks)

.....  
20. (a) (i) Distinguish between a system analyst and a programmer (2mks)

.....  
(ii) List **Two** types of job opportunities that are available in the field of computer hardware. (2mks)  
.....

(b) Highlight any **Two** factors you would consider before enrolling for an ICT course in a college. (2mks)  
.....

(c) Give **Two** disadvantages of observation when used in fact finding. (2mks)  
.....

(d) Explain the following changeover strategies  
(i) Parallel changeover (2mks)  
.....

(ii) Phased changeover (2mks)  
.....

(e) Explain briefly each of the following in data security.  
(i) Firewalls (1mk)  
.....

(ii) Data encryption (1mk)  
.....

(iii) Sabotage (1mk)  
.....  
.....

End