

# KASSU JOINT EXAMINATION

Kenya Certificate of Secondary Education

## 451/1 - COMPUTER STUDIES – Paper 1

### FORM 4 (THEORY)

January. 2021 – 2½hrs

Name..... Index Number.....

Admission Number..... Class.....

Date.....

#### Instruction to candidates

- a) Write your name and index number in the space provided above.
- b) Sign and write the date of examination in the spaces provided above.
- c) This paper consists of **two** sections **A** and **B**.
- d) Answer **all** the questions in section **A**.
- e) Answer question **16** and any other **three** questions from section **B**.
- f) All answers should be written in the space provided in the question paper.
- g) This paper consists of **14** printed pages.
- h) Do not remove and pages from this booklet.
- i) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
- j) Candidates should answer the questions in English.

#### For Examiner's Use Only

Section	Question Number	Candidate's Score
A	1-15	
	16	
	17	

<b>B</b>	<b>18</b>	
	<b>19</b>	
	<b>20</b>	
<b>Total Score</b>		

**SECTION A (40 MARKS)**  
**ANSWER ALL QUESTIONS IN THIS SECTION**

1. a) Computer memory determines the processing power of a computer. State the memory capacities of the following computer generations. (1mark)

i. First Generation

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ii. Third Generation (1 mark)

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b) State the storage devices used by the generations named in (a) above. (1mark)

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2. Differentiate between dedicated computers and special purpose computers. (2 marks)

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3. (a) State the meaning of *computer output on Microform (COM)* as used in output devices. (1 marks)

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(b) State **two** types of *computer output on Microform*. (2 marks)

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4. (a) State **one** limitation of each of the following cables as used in computer interfacing.

(i) Parallel cables; (1 mark)

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(ii) Serial port (1 mark)

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(b). State **two** advantages of using firewire over USB cables. (2 marks)

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5. Apart from use of carpets, suggest **three** possible ways of reducing dust in a computer room. (3 marks)

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6. (a) Explain how a mouse can be used to perform the operations listed below.

i. Selecting objects and commands (1 mark)

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ii. Opening files and folders (1 mark)

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iii. Invoking context menus (1 mark)

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7. A computer system is composed of several microchips, each having different functions in the operation of a computer.

a. Write the acronym *BIOS* in full as used in computing. (1 mark)

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b. State the function of the *BIOS* during booting process. (1 mark)

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c. Explain the meaning of the term *cold booting process*. (2 marks)

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8. Due to the risks involved in using the traditional classroom teaching method during this covid-19 period, many schools have embraced online teaching methods. State the meaning of the following teaching methods:

a. Distance learning (1 mark)

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b. Interactive learning (1 mark)

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9. In a calculation, the actual result obtained was 0.7649326 but the computer presented it as 0.764.

a. With reference to data processing, identify the type of error above and state how it can be minimized (1 mark)

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b. Distinguish between Sequential file organization and indexed Sequential file organization (2 marks)

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10. State **two** circumstance which may prompt a teacher to use computer simulations when teaching in a school. (2 marks)

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**11.** State the meaning of the term *multi-user* operating system as used in computing.  
(2 marks)

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**12.** State **two** ways in which operating system manages memory in a computer system.  
(2 marks)

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**13.** State **three** reasons why system maintenance is necessary in system development life cycle (SDLC).

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**14.** Table 1 and Table 2 are related tables in a database. Use them to answer the questions that follow.

DeptID	Dept Name
001	Computer
002	Aviation
003	Engineering

Table 2

DeptID	Std Registration No.	Student's Name
001	St01	Alex Too
003	St02	Naomi Komi
002	St03	Peter Kengo

- (a) State the names of the fields shown in table 2 above;
  - (i) DeptID ..... (1 mark)
  - (ii) Std Registration No. .... (1 mark)
- (b) State **two** reasons for adding **DeptID** field in Table 2 above. (2 marks)

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15. Explain the term *bookmark* feature as used in when accessing the internet. (2 marks)

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**SECTION B (60 marks)**

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

16. (a) Explain the meaning of the term *pseudocode* as used in program development. (2 marks)

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(b) State the function of the following language translators during program development.

(i) Interpreter (1 mark)

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(ii) Compiler (1 mark)

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(c) State the stage of program development in which:

(i) a flowchart would be drawn (1 mark)

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(ii) the program runs as intended and performs as required. (1 mark)

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(iii) the user guide would be written (1 mark)

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(iv) a programmer seeks to better understand the problem. (1 mark)

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(d) A bookshop owner contracted a programmer to design a program that can be used to manage *N* number of books in his business as follows;





17. (a) XYZ company is facing challenges with their current information system, hence the need for a new application software that could solve their problems. The management has assigned the ICT department to develop its own in-house programs.

- i. Define the term in-house developed programs (1 mark)

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- ii. State any two advantages and one disadvantage of in-house developed programs (3 marks)

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(b) Data communication is known to have greatly changed the way people exchange and access information around the world.

- (i) Define the term topology as used in data communication (1 mark)

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- (ii) Distinguish between the terms listed below
  - (I) Message switching and packet switching (2 marks)

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(II) Half duplex and full duplex mode of data transmission (2 marks)

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(c) Identify the ICT personnel responsible for each of the following duties in an organisation:

(i) Ensuring up-to-date maintenance of ICT records (1 mark)

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(ii) Identify and fixing security loopholes (1 mark)

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(iii) Testing and debugging program (1 mark)

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(d) State the function of each of the following keyboard keys in a keyboard.

(i) tab key (1 mark)

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(ii) Space bar (1 mark)

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(iii) Delete key (1 mark)

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18. (a) (i) Distinguish between real time and online data processing. (2 marks)

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(ii) State the significance of the following types of files to a business (1 mark)

I. Backup

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II. Master (1 mark)

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III. Archive (1 mark)

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(b) Explain **two** benefits of displaying information in a computer system using a monitor compared to printer. (4 marks)

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(c) Explain the purpose of each of the following in system implementation stage.

(i) file conversion (2 marks)

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(ii) Staff training (2 marks)

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(d) State how data in a computer system is secured using;

(i) Antivirus (1 mark)

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(ii) Password (1 mark)

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**19.** (a) Explain any **three** types of human computer interfaces as used in computing.

(3 marks)

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(b) State **four** ways in which computers are used in the lands department in a county government.

(4 marks)

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(c)(i) Explain the following types of errors as found in Microsoft excel.

I. #NUM! (1 mark)

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II. #VALUE! (1 mark)

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(ii) Outline **three** cell referencing methods giving examples. (3 marks)

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(d) State a situation when each of the following Desktop Publishing program features may be used when creating a publication.

(a) Layout guides ; (1 mark)

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(b) Layering; (1 mark)

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(c) Bring Forward; (1 mark)

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20. (a) Bob was advised to format a hard disk for a computer. Explain **two** circumstances which may prompt a technician to format a hard disk in the computer room. (4 marks)

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(b) Explain a situation when each of the following Word Processing program may be used when creating a document.

(i) Wrap text (2 marks)

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(ii) Watermark (2 marks)

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(c) Perform the binary arithmetic:  
 $1101_2 + 101_2 - 1001_2$  and convert the answer to decimal notation (3 marks)

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