29.14 COMPUTER STUDIES (451)

29.14.1 Computer Studies Paper 1 (451/1)

SECTION A (40 marks)

*Answer **ALL** the questions in this section in the spaces provided.*

1 Give a reason for each of the following:

(a) changing a password regularly; **(1 mark)**

(b) typing and re-typing a new password when changing it. **(1 mark)**

2 With reference to quality of print, noise level and cost, compare a dot matrix with a Laser printer. **(3 marks)**

3 A computer accessories vendor needs to order supplies. A spreadsheet is used to calculate the order part of which is shown below.

	A	B	C	D
1.	Item	Price per unit	Number ordered	Cost (Kshs)
2.	56K modem	8,565.00	60	
3.	128 MB Ram	4,950.00	40	
4.	Pentium IV Processor	13,525.00	55	
5.			Total	

(a) Write the formula that can be used in:

(i) D2 **(1 mark)**

(b) If a value added tax (VAT) of 16% was charged on each item and the number ordered was decreased by 10%, write a new formula that can be used in D2. **(2 marks)**

4 List **two** uses of computers in meteorology. **(2 marks)**

5 Explain the following terms as used in desktop publishing: **(2 marks)**

(a) embedded object

(b) autoflow.

6 (a) Name **four** approaches that may be used to replace a Computerised Information system. **(2 marks)**

(b) Which of the approaches named in (a) above is appropriate for critical systems? Explain. **(2 marks)**

7 Explain the following operating system functions:

(a) job scheduling; **(1 mark)**

(b) interrupt handling. **(1 mark)**

8 Name **four** toggle keys on a standard computer keyboard. **(2 marks)**

9 A computer user typed the name Kajiado as **Kajaido** and 8726 as 8126.

(a) State the type of each error. (1 mark)

(b) Explain how such errors can be controlled. (2 marks)

10 Describe Third Generation Languages and name **two** examples. (2 marks)

11 (a) (i) What is an internet protocol (IP) address? (1 mark)

(ii) Why is an IP address necessary? (1 mark)

(b) What is the purpose of the following internet domains? (1 mark)

(i) .org

12 (a) Name **two** types of buses found on the computer motherboard. (2 marks)

(b) State the purpose of each of the types of buses named in (a) above. (2 marks)

13 (a) Name the **two** files commonly used in mail merge. (1 mark)

(b) Name and explain the **two** types of dropcaps. (2 marks)

14 Give **three** ways in which horticultural farmers can benefit from the use of Information and Communication Technology (ICT). (3 marks)

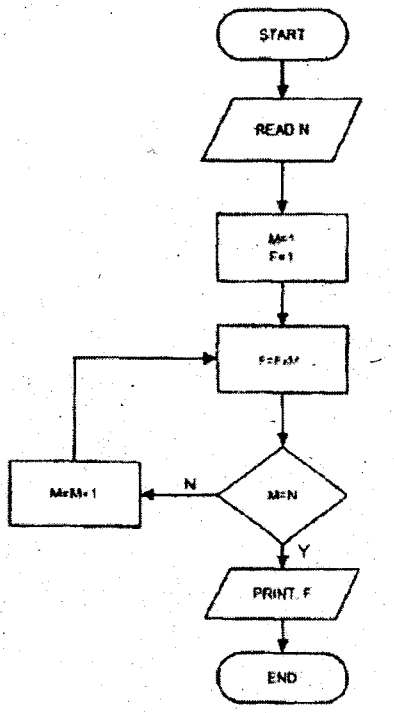
15 Arrange the following job titles in the order of their seniority.

Database administrator, ICT manager, Systems analyst. (1 mark)

SECTION B (60 marks)

*Answer question **16** and any other **three** questions from this section in the spaces provided.*

16 Study the flowchart below and answer the questions that follow.



(a) What would the flowchart generate as output if the value of N at input was:

(i) 6? (2 marks)

(ii) 12 (2 marks)

(b) Write a pseudocode that does the same thing as the flowchart above. (7 marks)

(c) Modify the flowchart so as to reject an input below 0 and to avoid the looping when the input is 0. (4 marks)

17 A lecturer keeps the following student details in a database: name, age, course.

(a) Write an expression you would use to compute the year of birth of a student using this year as the current year. (2 marks)

(b) What query expressions would the lecturer use to list the students whose age is above 15 years and below 25 years? (3 marks)

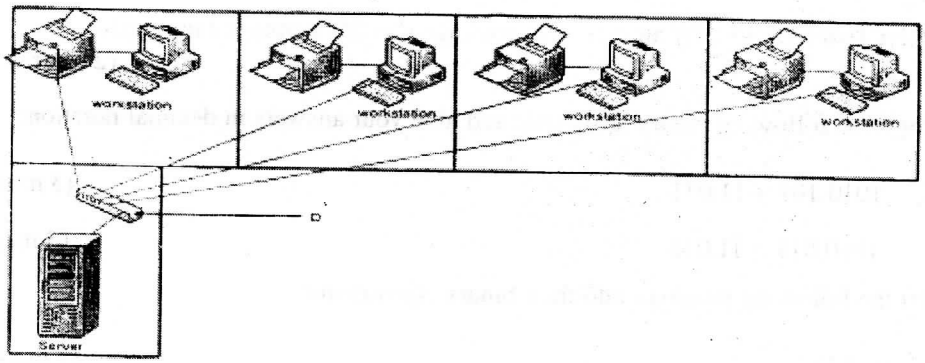
(c) Which expression would the lecturer use to generate:

(i) the number of students in the database? (2 marks)

(ii) the mean age of the students in the database? (2 marks)

(d) Name and describe any **two** types of database models. (6 marks)

18 (a) The diagram below shows a layout of a computer network used by a law firm. A workstation and a printer are located in every consulting room.



(i) Name the network topology depicted in the diagram. (1 mark)

(ii) Name the device labelled D. (1 mark)

(iii) State **four** functions of the device labelled 'server'. (4 marks)

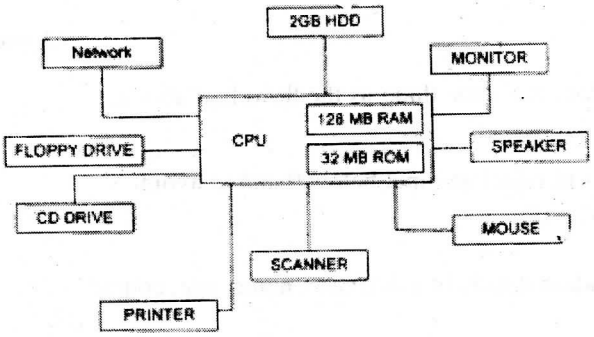
(iv) Give **two** advantages and **one** disadvantage of the above network design. (3 marks)

(v) If the firm intends to open extra offices in two different towns, name any **three** hardware devices that would be required. (3 marks)

(vi) State any **two** security problems that might arise by linking the offices in different towns. (2 marks)

(b) What is spyware? (1 mark)

19 (a) Study the following diagram and answer the questions that follow.



From the diagram:

(i) Name **two** devices that are used for long term storage. (2 marks)

(ii) Name **three** peripherals shown on the diagram that are used for input. (3 marks)

(iii) Name **two other** devices that a Computer Aided Design (CAD) user might wish to add to the set-up above. (2 marks)

(b) A customer wishes to purchase a computer system. The customer can buy word processor, spreadsheet, database and a drawing package separately or as an integrated package. State **three** advantages why many computer users prefer integrated packages to separate packages. (3 marks)

(c) (i) An anti-virus software installed in a computer is loaded into the main memory each time the computer is switched on.
Explain **three** ways in which computer viruses are spread from one computer to another. (3 marks)

(ii) Give **two** reasons why an anti-virus package should be updated regularly. (2 marks)

20 (a) Perform the following binary arithmetic and give your answers in decimal notation:

(i) 1010.101 + 11.011 (3 marks)

(ii) 1010.011 – 11.011 (3 marks)

(b) Covert the following numbers into their binary equivalents:

(i) 0.5625_{10} (3 marks)

(ii) 0.3125_{10} (3 marks)

(c) Using four-bit twos compliment, perform the following arithmetic (3 marks)

$101_2 - 111_2$

29.14.2 Computer Studies Paper 2 (451/2)

1 Design a newspaper publication to appear as indicated in the next page using the following instructions.

(a) Launch the DTP package and set the preference measurements to centimetres and the document margins to 2cm on all sides. (2 marks)

(b) The heading 'Digital Bulletin' to have the following styles; (4 marks)
- Centred across the page
- Font face: Arial
- Font size: 45
- Background colour: grey

(c) The other two headings in the publication to have the styles:
- Font face: Arial narrow
- Font size: 20
- Text weight: Bold
- Character spacing: 150%
- Alignment: centred across the page (5 marks)

(d) The text under the heading 'Basic Networking and Connectivity' to be in three columns and having the following styles: (22 marks)
- Font size: 14
- First character of the paragraph to have a 3 lines dropcap
- Hyphenation: disabled
- Fully justified

(e) The text under the heading 'Antivirus Information Corner' to be in a single column. (3 marks)

(f) Design the Mercury Digishop advertisement in the position shown. (10 marks)

(g) Insert the two lines of 4 and 0.75 points respectively in their positions. (3 marks)

(h) Print the publication. (1 mark)

Digital Bulletin

Basic Networking and Connectivity

The ability to expand beyond the limit of a single computer in a single office has extended the reach of the PC to global proportions. Two technologies have driven this expansion; a Computer network and the global network known as the Internet.

A network is defined as two or more computers linked together for the purpose of communicating and sharing information and other resources. Most networks are constructed around cable connection that link computers. This connection permits the computers to *talk* (*and listen*) through a wire. More recently, a number of wireless solutions have become available. Infrared ports, Bluetooth, radio links and other protocols allow variety of new devices to link with PCs. In order for the network to function, three basic requirements must be met:

- The network must provide connections, communication and services.
- Connection include the hardware (physical components) required to hook up a computer to the network.
- Communication establishes the rules concerning how computers talk and understand each other. Computers often run different software and therefore they must speak a shared language.
- A service defines those things a computer shares with the rest of the network. For example, a computer can share a printer or specific directories or files. Unless computers on the network are capable

Antivirus Information Corner

Viruses are small programs that hide themselves on your disks (diskettes and hard disks). Unless you use virus detection software the first time that you know that you have a virus is when it is active. Different viruses are activated in different ways, for instance, the famous Friday the 13th Virus will activate only when it is both a Friday and the 13th of the month. **Be aware, virus can destroy all your data.**

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2 The Central Bank of Kenya (CBK) exchange rates on a certain day for foreign currencies against the Kenya Shilling (Ksh) were as follows:

Currency	*CBK Mean Rate (Ksh)*
1 US Dollar	67.0222
1 Sterling pound	137.7984
1 Euro	96.6552
1 S.A. Rand	10.3100
1 Sweddish Kroner	10.4509

Kariuki, Hamisi, Mumbua, Otieno and Nekesa trade in buying and selling of foreign currencies. On that day, they bought the following foreign currencies from CBK.

Name	*U.S Dollars*	*Sterling Pounds*	*Euros*	*S.A Rands*	*Swedish Kroner*
Kariuki	400	200	340	1200	290
Hamisi	500	400	400	2000	3000
Mumbua	200	600	300	4000	5000
Otieno	600	200	200	1000	3000
Nekesa	400	200	600	2000	1000

They then sold their foreign currencies at the following rates:

Name	*U.S Dollars*	*Sterling Pounds*	*Euros*	*S.A Rands*	*Swedish Kroner*
Kariuki	70.5	139.0	96.7910	10.4213	10.6725
Hamisi	69.0	138.5	96.79	10.5712	10.2676
Mumbua	70.0	141.5	96.76	10.3974	10.7432
Otieno	69.55	139.0	96.80	10.6371	10.5942
Nekesa	69.5	138.5	96.40	10.7218	10.6155

(a) Using a spreadsheet package, represent the above information in one worksheet and save it as FOREX. (13 marks)

(b) Using formulae with absolute and relative cell references, determine the total profit made by each trader. (14 marks)

(c) Format the profit for each trader to zero decimal places. (2 marks)

(d) Create a well labelled bar graph on a different worksheet showing the cost incurred on buying US dollars by each trader. (13 marks)

(e) Use a function to determine the trader who got the highest profit. (3 marks)

(f) Format the first table as follows:

- Set the direction of the labels to 45^{0}. (2 marks)
- Centre vertically all the records. (1 marks)

(g) Print the worksheet and the graph. (2 marks)