

**4.9 COMPUTER STUDIES (451)**

**4.9.1 Computer Studies Paper 1 (451/1)**



**SECTION A (40 marks)**

*Answer ALL the questions in the spaces provided.*

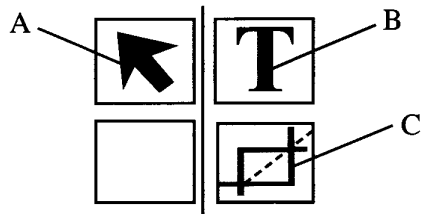
- 1** State **two** functions of the Control unit of a computer. (2 marks)
- 2** (a) Differentiate between hardware and software portability. (2 marks)
- (b) State **two** disadvantages of CD-ROM over magnetic disks. (2 marks)
- 3** One way in which an organisation enforces security of its computer systems is by restricting the use of removable media such as floppy disks and flash memories. Give **two** reasons for this. (2 marks)
- 4** (a) What is meant by Data Communication Equipment? (1 mark)
- (b) List **six** examples of Data Communication Equipment. (3 marks)
- 5** When purchasing a computer, the clock speed, RAM size, Hard disk size and monitor size are often quoted. State the unit for measuring: (2 marks)
- (a) Clock speed; .....
- (b) RAM size;.....
- (c) Hard disk size;.....
- (d) Monitor size.....
- 6** Name **three** types of graphics used in a word processor. (3 marks)
- 7** A student saved a document in a diskette. Later on, the student found that the diskette could not open and therefore the work got lost. Give **three** precautions the student should have taken to ensure the work was not lost. (3 marks)
- 8** Differentiate between relative cell referencing and absolute cell referencing. (2 marks)
- 9** State **two**:
- (a) functions of an email software; (1 mark)
- (b) protocols used in sending and receiving of emails. (1 mark)

- 10 With reference to word processing, describe the term:
- (a) superscript; (1 mark)
  - (b) section breaks. (1 mark)

- 11 Describe the following types of relationships as used in Database design: (4 marks)
- (a) One-to-one;
  - (b) One-to-many.

- 12 State the stage of system development life cycle in which each of the following activities take place:
- (a) determination of the cost-effectiveness of a system; (1 mark)
  - (b) interviews; (1 mark)
  - (c) replacement of an old system with a new one. (1 mark)

13 The figure below is a toolbar for a DTP package.



State the functions of the tools labelled A, B and C. (3 marks)

A: .....

B: .....

C: .....

14 State **two** roles of a programmer in system development life cycle. (2 marks)

- 15
- (a) What is meant by disk defragmentation? (1 mark)
  - (b) State the purpose of disk defragmentation. (1 mark)

**SECTION B (60 marks)**

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

- 16** (a) State the use of each of the following flowchart symbols. (3 marks)

(i)

(ii)



(iii)



- (b) Below is an algorithm that is used to compute the values of R, S and T.

P = 5

Q = 6

INPUT N

If N is GREATER OR EQUAL TO 10

R = P \* Q

S = Q - P

T = P + Q + R + S

ELSE

R = P + Q

S = Q

T = R + S

END IF

PRINT R, S and T

From the algorithm, determine the output if the input value of N is:

- (i) 7; (3 marks)

- (ii) 10. (3 marks)

- (c) Draw a flowchart for the algorithm in Question 16 (b). (6 marks)

- 17** (a) Convert each of the following binary numbers to decimal equivalent given that the left most digit is a sign bit.

- (i) 0 0 1 0 1 1 0 1 (2 marks)

- (ii) 1 1 0 0 1 0 0 1 (2 marks)

- (b) Convert the decimal number 0.42 to 6 bit binary notation. (4 marks)
- (c) Using two's complement, subtract  $11_{10}$  from  $8_{10}$ , leaving your answer in binary notation. (5 marks)
- (d) Perform the following binary operation. (2 marks)
- $$11001 + 1101 - 101$$
- 18** (a) State **three** techniques used by a network administrator to detect and prevent computer crimes. (3 marks)
- (b) A company in town wishes to link its offices together. The linking may be through wireless or fibre optic network media.
- (i) State **two** benefits that the company would gain from the use of metropolitan area network (MAN). (2 marks)
- (ii) State **three** advantages of using wireless over fibre optic network media. (3 marks)
- (iii) State **two** limitations of wireless communication. (2 marks)
- (iv) State **two** transmission media used in wireless transmission. (2 marks)
- (c) State **three** ways in which computer virus infection can be prevented other than through restricting the usage of removable storage media. (3 marks)
- 19** (a) (i) What is an information system? (1 mark)
- (ii) State **two** roles of an information system. (2 marks)
- (b) Describe the following file organisation methods:
- (i) random file organisation; (2 marks)
- (ii) sequential file organisation. (2 marks)

- (c) The following records were extracted from two files that contained student data.

**File A:**

<u>Reg. No.</u>	<u>Student Name</u>	<u>Sex</u>	<u>Address</u>
3002	Christine Onyancha	F	Box 8932 Kisii
3008	John Otieno	M	Box 7222 Nairobi
3001	Amina Muthee	F	Box 1243 Butere
3015	Peter Musyoki	M	Box 6621 Nyeri

**File B:**

<u>Reg. No.</u>	<u>Fees Payments</u>	<u>Date of Payment</u>
3002	1000	04/05/2011
3008	1500	03/09/2011
3001	900	02/09/2011
3015	400	21/09/2011

- (i) Which of the two files above represents a Transaction file? (1 mark)
- (ii) Give a reason for your answer in c(i) above. (1 mark)
- (iii) Name the other type of file represented above. (1 mark)
- (d) An airline uses an information system whereby if a passenger at station A books a plane seat, this transaction is immediately shown at stations A and B such that no other passenger can book the same seat.
- (i) Identify this data processing mode. (1 mark)
- (ii) State **two** advantages and **two** disadvantages of this data processing mode. (4 marks)
- 20** (a) With the aid of a diagram, describe the Hierarchical Database Model. (4 marks)
- (b) List **three** factors that should be considered when developing a database application and give reasons why each should be considered. (6 marks)
- (c) (i) Name **three** types of validation checks during data entry. (3 marks)
- (ii) Differentiate between primary key and index key. (2 marks)

#### 4.9.2 Computer Studies Paper 2 (451/2)

1 Tip Top consultants has shortlisted candidates for an interview for various positions in their organization. The following is a standard letter for each of the candidates to be interviewed. The information enclosed in << >> represents details about recipients, positions, dates and time of the interview.

- (a) Using a word processor, type the document as it appears and save it as **LetterMain**.  
(16 marks)

### **Tip Top Consultants** *Top Human Resources Consultants*

P.O. Box 456,  
Nairobi.

Tel: 0322232514233

Email: Info@tiptop.co.ke

Monday, 11 April 2009.

<<First Name>> <<Second Name>>,  
P.O. Box <<Address>>,  
<<Town>>.

Dear <<Title>> <<Second name>>,

#### **RE: INVITATION FOR AN INTERVIEW**

Following your application for the position of <<Position>> , I am glad to inform you that you have been shortlisted. You will be required to report for an interview on <<Date>> at <<Time>>. You are required to bring the following documents with you.

- Identity Card
- Original Certificates
- Two passport size photographs
- A reference letter.

We are looking forward to seeing you.

Yours faithfully,

Suku Nzolata  
**Consulting Partner**

- (b) Insert the following as a footer:  
Vision: *"To be a leader in the provision of quality Human Resource for development"*  
(2 marks)
- (c) Create the logo in Figure 1 and position it below the statement *'Top Human Resources Consultants'*.

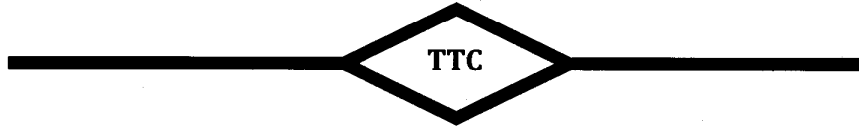


Figure 1 (6 marks)

- (d) Table 1 shows details about shortlisted candidates. Create a data source to store information in the table and save it as **ListFile**. (11 marks)

Title	First Name	SecondName	Address	Town	Position	Date	Time
Miss	Anyango	Wafula	365675	Kisumu	ICT Assistant	6 <sup>th</sup> Dec	11:30 am
Ms	Caroline	Kandai	3456	Kajiado	Accountant	6 <sup>th</sup> Dec	12:30 pm
Mr	Zachary	Esokon	123	Lodwar	ICT Assistant	7 <sup>th</sup> Dec	1:30 pm
Mrs	Susan	Chemutai	721	Eldoret	Accountant	7 <sup>th</sup> Dec	2:30 pm
Mr	Jilo	Buya	222	Mombasa	Accountant	8 <sup>th</sup> Dec	12:00 pm
Mr	Sospeter	Kamau	912	Kiambu	Accountant	9 <sup>th</sup> Dec	12:30 pm

Table 1

- (e) Using mail Merge feature, merge the files **LetterMain** and **ListFile** and save the document as **Merged Document**. (5 marks)
- (f) Insert page numbers at the top right hand side in the merged document saved in (e) above. (2 marks)
- (g) Using **ListFile** as a data source, create a list of addresses to be printed on envelopes as shown in Figure 2 and save it as **envelopes**. (4 marks)

<<Title>> <<First Name>> <<Second Name>>,  
P.O. Box <<Address>>,  
<<Town>>.

Figure 2

- (h) Print the following: (4 marks)
- (i) LetterMain;
  - (ii) ListFile;
  - (iii) Page 5 of the Merged document;
  - (iv) Address to be printed on the first envelope.

- 2 Company XYZ sells products P, Q and R. Figure 3 shows an extract of a spreadsheet for the company's salespersons and their respective sales in shillings for each product.

	A	B	C	D	E	F	G	H
1	<b>SALES PERSON</b>	<b>PRODUCT P</b>	<b>PRODUCT Q</b>	<b>PRODUCT R</b>	<b>TOTAL SALES</b>	<b>POINTS</b>	<b>CATEGORY</b>	<b>TOTAL PAY</b>
2	Thomas	4,000.00	6,230.00	7,500.00				
3	Jane	4,500.00	6,700.00	8,000.00				
4	Gabriel	5,678.00	10,000.00	7,800.00				
5	Kipkorir	3,200.00	4,000.00	9,600.00				
6	Anyango	8,000.00	7,005.00	8,900.00				
7	Nekesa	9,800.00	9,670.00	10,000.00				
8	Kinuthia	2,700.00	3,400.00	2,300.00				
9	<b>TOTAL</b>							

Figure 3

- (a) (i) Using a spreadsheet package, enter the above information and save it as **SALES\_TABLE**. (9 marks)
- (ii) Format the worksheet to appear as it is. (4 marks)
- (b) (i) Type a formula:
- (I) at cell B9 to compute the total sales for product P; (1 mark)
- (II) at cell E2 to compute the total sales for Thomas. (1 mark)
- (ii) Apply the formulae to the appropriate cells. (2 mark)
- (c) A salesperson earns points for the sales of each product based on the following criteria;
- 1 point for every shs 50 for product P,
  - 2 points for every shs 65 for product Q,
  - 3 points for every shs 40 for product R.
- (i) Type a formula in cell F2 to compute the total points earned by Thomas; (3 marks)
- (ii) Apply the formula in (c)(i) to the rest of the salespersons. (1 mark)



- (d) A salesperson is categorized based on points earned as follows.

POINTS RANGE	CATEGORY
over 1300	Gold
1101-1300	Silver
Up to 1100	Bronze

Those salespersons attaining a Gold category earn a promotion.

- (i) Type a formula in G4 to determine Gabriel's category. (5 marks)
- (ii) Apply the formula in (d)(i) to other appropriate cells. (1 mark)
- (iii) Type a formula at G10 to determine the number of salespersons who will earn a promotion. (4 marks)
- (e) Each salesperson earns a total pay of Shs 20,000 plus 2% commission of their total sales. Using absolute referencing, determine the total pay for each salesperson if the value 2 is entered in cell B12. (5 marks)
- (f) Create a bar chart showing Product P and product R sales for each sales person. Insert appropriate labels on the chart. (9 marks)
- (g) Rename the worksheet containing the data as **SalesData** and the chart sheet as **SalesChart**. (2 marks)
- (h) Print the following: (3 marks)
- (i) **SalesData**;
  - (ii) **SalesData** showing the formulae;
  - (iii) **SalesChart**.