3.23 COMPUTER STUDIES (451)

3.23.1 Computer Studies Paper 1 (451/1)

SECTION A (40 marks)

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

1 State **two** circumstances under which warm booting of a computer may be necessary. (2 marks)

2 List **six** file manipulation activities that may be carried out using an operating system. (3 marks)

3 **Figure 1** shows relationships between tables in a database.

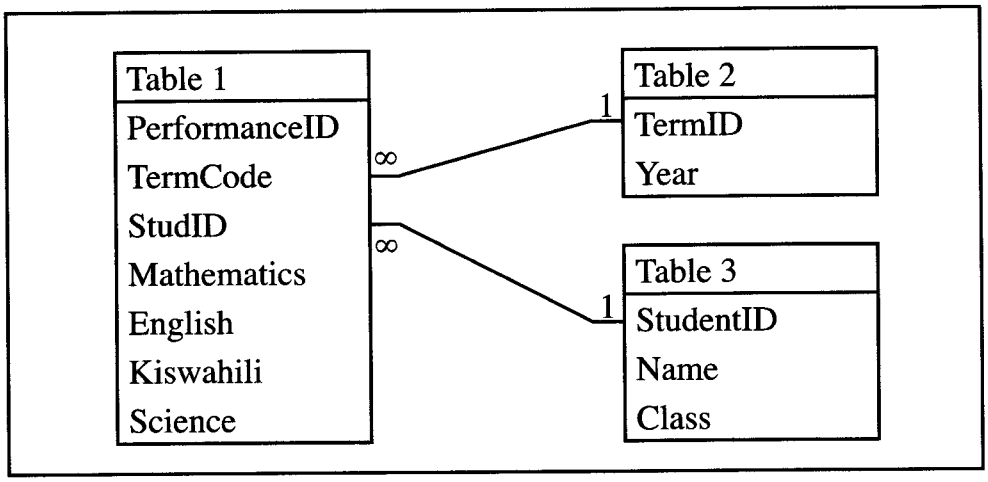

Figure 1

Identify **two** primary and **two** foreign keys used in the relationship. (2 marks)

4 State **two** advantages of using portable computers. (2 marks)

5 (a) Write the acronym MODEM in full. (1 mark)

(b) Explain the purpose of a modem when connecting to the internet. (2 marks)

6 Distinguish between an *assembler* and an *interpreter* as used in programming. (2 marks)

7 State **three** possible causes of fire outbreak in a computer laboratory. (3 marks)

8 State **three** benefits of using optical magnetic reader to register candidates for an examination. (3 marks)

9 List **four** factors to be considered when acquiring a printer. (4 marks)

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10 State **three** circumstances under which voice input would be preferred over other methods of data capture. (3 marks)

11 A computer technician found it necessary to disable a firewall when working on a computer system. State **two** reasons that may have necessitated disabling of the firewall. (2 marks)

12 State **two** advantages of making payments through a mobile phone. (2 marks)

13 State **three** reasons why it is important to define datatypes of fields in a database correctly. (3 marks)

14 Explain **two** uses of a system documentation in system development. (4 marks)

15 Distinguish between a *systems administrator* and a *database administrator* as used in computers. (2 marks)

SECTION B (60 marks)

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

16 (a) List **four** web programming languages. (2 marks)

(b) State **four** ways in which a programmer can make program code easy to follow. (4 marks)

(c) Draw a program flowchart to represent the following pseudocode. (9 marks)

```
Begin
    While scores exist
        initialize sum to zero
        initialize counter to zero
        input a score
        increment counter by 1
        Add score to sum
        If there are more scores to read,
            compute average as sum divided
            by counter
            Print the average
        Else
            input next score
        End if
    Else
        Print no records exist
    End while
End
```


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17 (a) (i) In the BCD number coding scheme, letter A is represented by 110001 and letter B by 110010. Determine how the word CAB is coded in BCD. (2 marks)

(ii) Convert the decimal number 11.125 to its binary number system equivalent. (3 marks)

(iii) Perform the binary arithmetic:
$111.01 + 1011.111 - 101.011$
and convert the answer to decimal notation. (3 marks)

(b) Explain the importance of each of the following in word processing:

(i) tab stops; (2 marks)

(ii) section breaks. (2 marks)

(c) State **three** documents that are used during mail merging in word processing. (3 marks)

18 (a) State **three** functions of networking operating systems other than providing network security. (3 marks)

(b) Explain **three** ways in which an operating system provides data security in a computer system. (6 marks)

(c) Explain **three** circumstances under which observation method may be preferred during data collection. (6 marks)

19 (a) (i) List **two** techniques of acquiring electronic images to be used in a desktop publishing program. (1 mark)

(ii) Describe **two** layout guides in a desktop publishing program (DTP) that assist a user to place an object in a preferred position. (4 marks)

(b) Explain **three** ways of ensuring that data submitted for processing is accurate. (6 marks)

(c) An engineering company requires a computer system to design roads and bridges. Explain **one** suitable choice for:

(i) output device; (2 marks)

(ii) software. (2 marks)

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20 (a) Explain **two** ways in which the use of internet could make reporting of corruption easier. (4 marks)

(b) Explain **two** circumstances under which the use of wireless communication would be preferred in data communication. (4 marks)

(c) **Figure 2** is an extract of a spreadsheet showing what the students had targeted to score and the actual score in a computer remedial class.

	A	B	C	D	E
1	**NAME**	**TARGET SCORE**	**ACTUAL SCORE**	**PERFORMANCE FACTOR**	**REMARKS**
2	Abdi	40	45		
3	Alex	30	65		
4	Ben	50	60		
5	Betty	30	20		
6	Bena	45	45		
7	Sheila	70	60		

Figure 2

A performance factor is obtained by subtracting the target score from the actual score and dividing the difference by the target score.

Write a formula that uses cell references only that would be entered in cell:

(i) D2 to compute the performance factor. (2 marks)

(ii) E2 to display the statement 'more remedials' if the performance factor is less than zero, 'exempted' if the factor is greater than zero and 'optional remedials' if otherwise. (4 marks)

(iii) D8 to display the best performance factor. (1 mark)

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3.23.2 Computer Studies Paper 2 (451/2)

1 (a) (i) Create a folder and name it as the last three digits of your index number.
(1 mark)

(ii) Open a word processing program and create the document below as it appears.
(30 marks)

BENEFITS OF SPORTS IN LEARNING INSTITUTIONS

Why We Should Take Part in Sports

Physical exercises when integrated in curriculum help learners to acquire a balanced growth. The following are some of the reasons why students should be encouraged to engage in sports while in learning institutions.

PHYSICAL EXERCISE IS GOOD FOR MIND, BODY AND SPIRIT

Athletes perform better in academics

Engaging in a sport requires a lot of time and energy. Sports require the skills of memorization, repetition and learning which are directly relevant to class work.

Sports encourage team-work and help to achieve goals

Aggressively going for a common goal with teammates and a team manager, teaches one how to shape a collective team synergy and effectively communicate the best way to solve problems en route to victory. This will be very helpful in later life when one encounters problems at the place of work or at home.

Sports offer many health benefits

Sports improve fitness and help in weight reduction. Sports also encourage healthy living. Athletes avoid smoking and alcohol drinking which offers health benefits in later life.

Sports boost self-esteem

Realising that hard work pays off brings about self-confidence. Winning a sport inspires an athlete to achieve any other goal set. This is very exciting and rewarding.

For all these reasons, it is always a great decision to get involved in sports.

SPORTS SCHEDULE FOR THE YEAR

<table>
<tr><th></th><th>SEASON 1</th><th>SEASON 2</th><th>SEASON 3</th><th>SEASON 4</th></tr>
<tr><td>Secondary Schools</td><td colspan="2">Football</td><td>Indoor Games</td><td rowspan="3">Athletics</td></tr>
<tr><td>Primary Schools</td><td>Indoor Games</td><td>Football</td><td>Swimming</td></tr>
<tr><td>Teacher Colleges</td><td rowspan="2">Swimming</td><td>Indoor Games</td><td>Football</td></tr>
<tr><td>Technical Colleges</td><td colspan="2">Football</td><td rowspan="2"></td></tr>
<tr><td>Universities</td><td>Rugby</td><td>Swimming</td><td>Motor Sports</td></tr>
</table>

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(iii) Save the document as **Sportsfile** in the folder created in (i). (1 mark)

(b) Insert the text "Department of Sports Resources" as a footer. Apply italics to the footer and align it to the centre. (2 marks)

(c) Insert a section break at the end of the document created such that the new section starts on a new page. (1 mark)

(d) (i) Insert a bar chart in the new section to represent the information shown in the following table. (5 marks)

	Season 1	Season 2	Season 3	Season 4
Primary Schools	20	18	4	20.4
Secondary Schools	10	8	20	15
Teacher Colleges	10	8	20	9
Technical Colleges	5	20	15	15
Universities	9	7	5	6

(ii) Apply a grey background to the chart area created in (i). (1 mark)

(iii) Insert a caption "The Annual Projected Cost of Organising Sports (Ksh.000,000)" to the chart. (2 marks)

(iv) Change the orientation of the page containing the chart to landscape. (1 mark)

(e) Apply line page border of thickness 3 pt to the page containing the chart. (2 marks)

(f) Insert page numbers at the top right hand corner of the document. (2 marks)

(g) Save the document and print it on both sides of the paper. (2 marks)

2 A non-governmental organisation is interested in maintaining a database of youth who are talented in different sporting activities in a certain village.
You have been tasked to assist in developing the database.

(a) (i) Create a database named **Talents** in the folder created in question 1a(i). ($\frac{1}{2}$ mark)

(ii) Create tables named: **PlayersTable**, **SportsTable**, and **TeamsTable** in the database created in (i) to store the information below using appropriate data type for each field. ($20\frac{1}{2}$ marks)

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Table 1: **PlayersTable**

PlayerId	SportId	FirstName	LastName	TeamId
PL004	BAS001	CHRIS	DAVIES	Z001
PL003	FTB003	ANDREW	MERRYS	Z002
PL005	VOL002	TIMOTHY	ANNE	Z001
PL002	BAS001	MARION	ANTHONY	Z003
PL010	FTB003	MELICER	ALI	Z003
PL013	VOL002	ANDREW	TAABU	Z002
PL009	BAS001	MERCY	TOLLY	Z001
PL011	FTB003	DAN	SHIDA	Z001
PL012	VOL002	BEATRICE	AMINA	Z002
PL015	VOL002	MATRINA	MAITHA	Z001

Table 2: **SportsTable**

SportsId	SportsName
BAS001	BASKETBALL
VOL002	VOLLEYBALL
FTB003	FOOTBALL

Table 3: **TeamsTable**

TeamsId	TeamName	RegistrationFeePerPlayer
Z001	EAGLE	300.00
Z002	SIMBA	400.00
Z003	KIFARU	200.00

(iii) Assign an appropriate primary key to each table. ($1\frac{1}{2}$ marks)

(b) Create the relationships among the tables. (2 marks)

(c) Modify the PlayersTable so as to capture the Year of Birth for the players as shown below. (4 marks)

PlayerId	YearOfBirth
PL004	2001
PL003	2002
PL005	2000
PL002	2002
PL010	1999
PL013	1998
PL009	2002
PL011	2001
PL012	2000
PL015	2002

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(d) Create a form named **PlayersForm** used to enter data in the database to appear as shown
in **figure 1.** (7 marks)

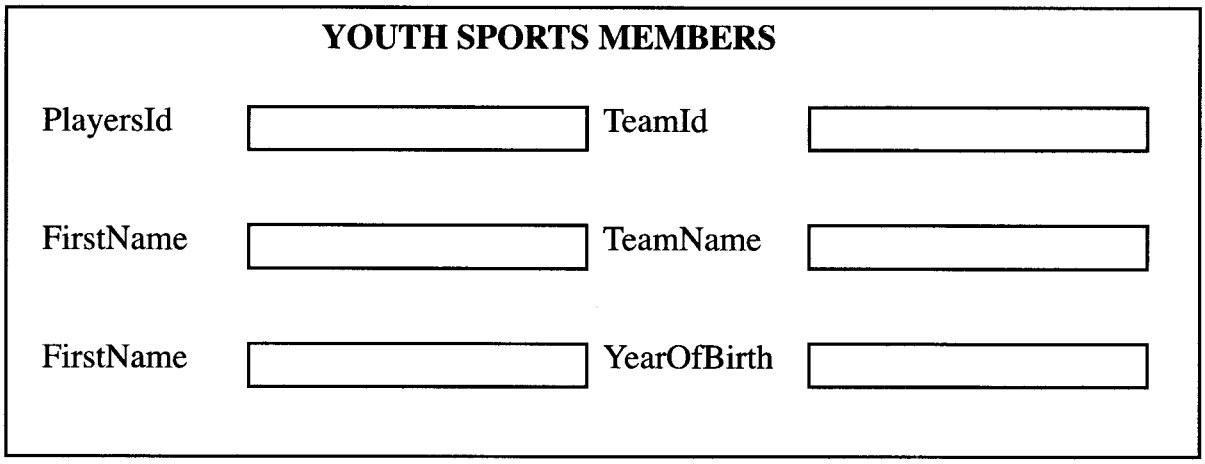

Figure 1

(e) (i) Create a query named **EagleAgeQuery** to display the fields: PlayersId, FirstName, LastName and Age, for those players whose TeamName is EAGLE. The calculated field Age is obtained by subtracting the year of birth from the current year.

(5 marks)

(ii) Create a query to show all fields from the PlayersTable for players whose FirstName starts with letter "M" and TeamId is "Z003". Save the query as **MQuery**.

(3 marks)

(f) Create a report named **RegReport** to display the total registration fee collected from all the players in each team.

(3$\frac{1}{2}$ marks)

(g) Print each of the following:

(3 marks)

(i) PlayersTable, SportsTable and TeamsTable;

(ii) EagleAgeQuery and MQuery;

(iii) RegReport.

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