

1. (a) (i) State **two** advantages of visual programming languages. (2 marks)
- (ii) Figure 1 shows a user interface created by a student during a programming lesson.
- (I) Identify **four** controls used in the interface other than the form;
- (II) For each of the controls identified in (i) state **two** methods associated with it. (6 marks)

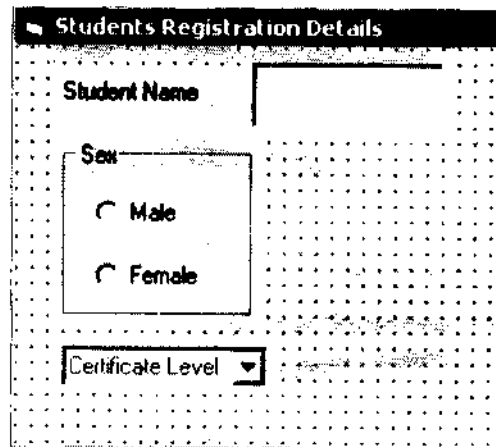


Fig.1

- (b) The following data was extracted from a student's database in a certain institution.
- Sketch the output produced when each of the following SQL statements are executed.

- (i) Select \* From Students where Age between 23 and 26;
- (ii) Select name from students where Department in ('Engineering', 'Hospitality') AND Sex = 'Female'

(4 marks)

**Students**

StudentNo	StudentName	Sex	Age	Department
E20-0321/11	John	Male	23	Engineering
B23-0023/11	Mary	Female	26	Business
E20-0514/11	Alice	Female	24	Engineering
E20-0413/11	Carol	Female	27	Hospitality

- (c) (i) Explain **two** types of errors that may be encountered during program execution. (2 marks)
- (ii) Write a Visual Basic program that will prompt a user to enter the dimensions of a rectangular wall in meters. The program then computes the area of the wall and the cost of paint to be used. Assume that a 4 litre tin of paint costs Ksh. 800 and that it can be used to paint an area of 0.8 M<sup>2</sup>. The program should then output the results in a message box. Attach the code to a form load event. (6 marks)

2. (a) (i) Explain the term *function call* as applied in Visual Basic programming language. (2 marks)

(ii) Classify the following Visual Basic operators as either relational, arithmetic or logical.

^	<	Xor	Mod	
&	Not	=	And	(2 marks)

(b) (i) A programmer intends to store details of products which include: *ProdID*, *ProdName* and *Price*. Assuming Visual Basic programming language, declare a user defined data type that can be used to store the details. (3 marks)

(ii) Explain the circumstance under which each of the following data structures may be used:

(I) tree;

(II) linked list. (4 marks)

(c) (i) Explain **two** advantages of using a web publishing tool with code generators. (3 marks)

(ii) The following HTML code was created by a student during a web development computer lesson. Sketch the output generated when the code is run in a web browser. (6 marks)

```
<HTML>
<HEAD>
<TITLE> DOUBLE FRAMES </TITLE>
</HEAD>
<BODY>
<CENTER>
<H1> These frames were created by a Module II student </H1>
<H4> They are side by side </H4>
<Br>
<IFRAME>
SRC = "http:// blankframe.com"
Width = 400
Height = 400
</IFRAME>
<IFRAME>
SRC = "http:// blankframe.com"
Width = 400
Height = 400
</IFRAME>
</CENTER>
</BODY>
</HTML>
```

3. (a) (i) With the aid of an example in each case, distinguish between *static* and *dynamic* data structures. (4 marks)
- (ii) Figure 2 shows a data structure created by a student during a programming lesson.
- (I) identify the data structure; (1 mark)
- (II) redraw the data structure when three items are removed from the data structure and five other items, namely 5,6,7,8 and 9 are added into the structure in that order. (2 marks)

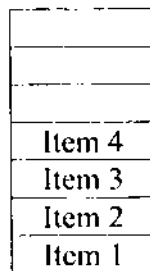


Fig. 2

- (b) Write a pseudocode that can be used to represent the logic of the *binary search algorithm*. (4 marks)
- (c) Write a Visual Basic program that would display multiples of 5 upto 100 in a list box using a *for* loop. Attach the code to a form load event and display the multiples in a list box. (4 marks)
- (d) Write a JavaScript program embedded in a HTML document that would generate the following output when run in a web browser.
- ```
5
6
7
8
9
```
- Use *while* control structure. (5 marks)
4. (a) (i) Explain the purpose of each of the following SQL functions:
- (I) SIGN ( )
- (II) POWER (a, b) (4 marks)
- (ii) Distinguish between *recall()* and *reclaim()* functions as used in SQL. (2 marks)

- (b) Table 1 shows details of applicants for various courses in a particular college. Write SQL statements that would extract each of the following:
- (i) Details of students who had applied for an ICT course;
  - (ii) RefNo and names of students who scored a grade of B;
  - (iii) RefNo, names and sex of students who were not admitted.
- (6 marks)

**ApplicantsTable**

**Table 1**

| RefNo | Name   | Sex    | Department | Course     | Grade | Remark       |
|-------|--------|--------|------------|------------|-------|--------------|
| B0001 | Judith | Female | Business   | Accounting | B     | Admitted     |
| B0002 | James  | Male   | Business   | Marketing  | C-    | Not Admitted |
| C0001 | Carol  | Female | Computing  | ICT        | C-    | Not Admitted |
| C0002 | Alexar | Female | Computing  | ICT        | C     | Admitted     |
| E0001 | Roys   | Male   | Electrical | Power      | B     | Admitted     |

- (c) (i) Outline the function of each of the following FoxPro commands:
- (I) DROP TABLE;
  - (II) SET EXCLUSIVE.
- (2 marks)
- (ii) Table 2 shows details of data in a database. Use it to answer the question that follows:

**Table 2**

| Field Name   | Data type | Field size |
|--------------|-----------|------------|
| PatientNo    | int       | 16         |
| PatientName  | char      | 20         |
| DateAttended | date      | 10         |
| DoctorName   | char      | 8          |

Write a FoxPro program that will be able to create a table named PatientRecord with the named fields. The program should then add a record in the table with the values *1234, Mary James, 08/02/2010, Jao*.

(6 marks)

5. (a) State two web browsing tools. (2 marks)
- (b) Sketch the output generated when the following HTML code is run in a web browser.

```
<html>
<body>
<a href="http://www.my web page" target="_blank">Visit My Web Page
now!</a>
```

```
<p>If you set the target attribute to "_blank", the link will open in a new
browser window.</p>
```

```
<p>Create a link of an image:
<a href="default.asp">

</a></p>
</body>
</html>
```

- (c) Write a HTML code that would generate the following table in a web browser. (6 marks)

Score	Points	Remark
90-100	1	<i>Distinction</i>
80-89	2	
70-79	3	<i>Credit</i>
60-69	4	
Source: Academic Board		

- (d) Write a Visual Basic program that would prompt a user to enter admission number, name and sex of three students through the use of a control array. The program should then produce the output in the following format.

AdmNumber	Name	Sex
xxxxxx	xxxxx	xxxx
xxxxxx	xxxxx	xxxx
xxxxxx	xxxxx	xxxx

Use *Do while..* control structure. (7 marks)

5. (a) Table 3 shows various suffixes used in Visual Basic programming language. State the data type corresponding to each suffix. (2 marks)

**Table 3**

Suffix	Data type
&	
!	
#	
@	

- (b) Write a JavaScript program embedded in a HTML document that would prompt a user to enter his name and age. If the age is greater than 21, the program outputs the name and the message "you are eligible to be elected an MP" otherwise it outputs the name and the message "you are not eligible to be elected an MP". (6 marks)
- (c) Figure 3 shows a program flow chart created by a student during a programming lesson. Write a FoxPro program that would implement the logic represented by the flow chart. Use *Do while ..* command. (5 marks)

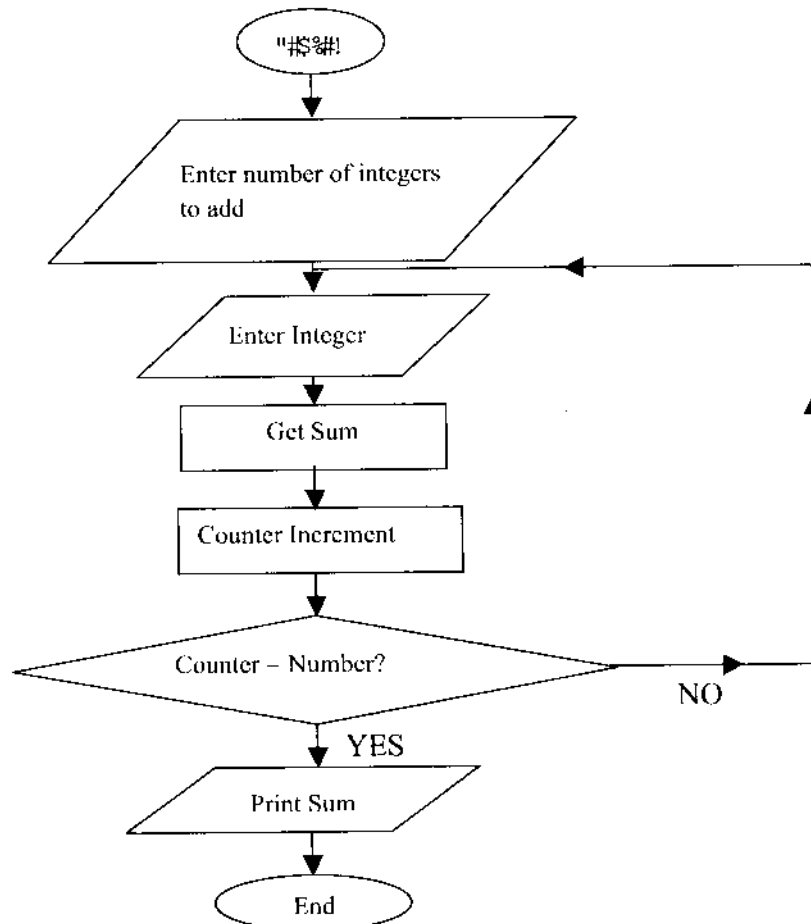


Fig. 3

- (d) (i) Distinguish between *local* and *global* variables as used in Visual Basic programming language. (4 marks)
- (ii) Explain the purpose of each of the following FoxPro functions:  
 (I) STR( )  
 (II) STUFF( ) (4 marks)
7. (a) (i) Outline the purpose of each of the following functions as applied in Visual Basic programming language:  
 (I) chr;  
 (II) asc. (2 marks)
- (ii) State a Foxpro function that would carry out each of the following:  
 (I) remove trailing spaces on the right of a string;  
 (II) assign access rights to a user. (2 marks)
- (b) Write a Visual Basic program that would create a text file named *Knec* in drive C, accept a student name through the use of an input box and then store the name in the file. The program should then close the file and display the message "File closed" through the use of a message box. Attach the code to a command click event. (8 marks)
- (c) Explain the purpose of the *scan* command as applied in FoxPro programming language. (2 marks)
- (d) Table 4 shows the outcome of a dice game and the points awarded. Use it to answer the question that follows:

Faceup	Remark
6	1000 points awarded
5	750 points awarded
4	500 points awarded
3	300 points awarded
2	100 points awarded
1	Try another throw

Table 4

Write a FoxPro program to prompt a user to enter the number on the faceup. The program should then output an appropriate remark on the 5<sup>th</sup> row and 10<sup>th</sup> column. Use *case* command.

(6 marks)

- 8 (a) Outline the purpose of each of the following FoxPro functions:
- (i) GetPic()
  - (ii) LocFile() (2 marks)
- (b) Write a Visual Basic program that would prompt a user to enter the radius of a circle. The program then computes the area of the circle through the use of a function and then displays the results on the screen. Use the formula for the area of a circle as  $A = \pi r^2$  and that of the circumference as  $C = 2\pi r$ . Attach the code to a command click event. (6 marks)
- (c) Distinguish between *pset* and *line* methods as applied in Visual Basic programming language. (4 marks)
- (d) (i) Explain the purpose of the *uniform resource locator*. (2 marks)
- (ii) Write an HTML code that would generate the following output when run in web browser. (6 marks)

## SAMA TECHNICAL TRAINING INSTITUTE

Computer Resource Centre

Log in Form

User Number:  User Password:

User Category

Student       Staff       Guest

Membership

Member       Non-Member