1. (a) (i) Describe the *toolbox* of a Visual Basic program Integrated Development Environment. (2 marks)

   (ii) Outline **four** properties associated with a form that may be used to vary its shape in Visual Programming (2 marks)

   (b) Describe the following controls as applied in Visual Basic:

   (i) ProgressBar; (2 marks)

   (ii) DateTimePicker. (2 marks)

   (c) (i) Distinguish between *ListBox* and *CombBox* controls used in Visual programming. (4 marks)

   (ii) Outline the steps taken when building a Visual Basic application. (2 marks)

   (d) Fig. 1 shows a web form used for login. Use it to answer the question that follows:

   Please Login

   Username: _____

   Password: _____

   [Login] [Reset]

   Fig. 1

   Write a JavaScript code embedded in HTML that displays the page as it appears and checks that all the fields are not empty. If any of the fields is empty, an alert message is displayed. (6 marks)

2. (a) State the circumstances under which frames may be used when designing a web page in HTML. (4 marks)

   (b) (i) Outline **two** HTML tags that could be used to break a line of text. (2 marks)

   (ii) Explain the function of each of the following commands as used in Visual FoxPro program:

   I. Seek; (2 marks)

   II. Erase. (2 marks

(c) Write HTML code that will generate the following table when run in a web browser: (6 marks)

Referees

NAME	Telephone Contact	
John	080078	097045
Alex	080111	010145
Peter	080775	

(d) State **four** advantages of using code generators during web design. (4 marks)

3. (a) Write HTML statement that would be used to:

   (i) embed a video file named *mystory.wav* on a web page when the browser loads. (1 mark)

   (ii) insert a picture named sunset.jpg as background image. (1 mark)

   (iii) jump to a section of a page with text HOME when the text UP is clicked. (1 mark)

   (b) Fig. 2 shows a form used for online transaction. Use it to answer the question that follows:

   AMOUNT: [＿＿＿＿＿＿＿＿＿＿＿]

   PAYMENT MODE:
   ○ Cash
   ○ Cheque
   [Submit] [Reset]

   Fig. 2

   Write HTML code that will generate the form when run in a web browser. (6 marks)

   (c) Write a JavaScript program embedded in HTML that will prompt a user to enter three numbers, multiply the three numbers through the use of a function and display the results. (7 marks)

   (d) Distinguish between *logical tags* and *physical tags* as used in HTML. (4 marks)

4. (a) Outline the scope and the data type for each of the following variables declared in a FoxPro program:

      (i)   lnCounter;   (1 mark)

      (ii)   pdBeginDate;   (1 mark)

      (iii)   lcMyString   (1 mark)

   (b) Write a FoxPro program that will prompt a user to enter two numbers. The program then determines the larger of the two numbers and outputs the results. Use the *if-else* statement.   (7 marks)

   (c) Table 1 shows details in a relation named **Students** in a school database system. Use it to answer the questions that follow.

Table 1

AdNo	Name	House	FeesBalance	Class
7789	Samson	Tana	60000	2X
260	Mary	Arthi	34000	2Z
6414	Lucy	Nzoia	40000	2Y
9601	Susan	Tana	55000	2X
8932	William	Mara	25000	2Y
3499	Sylvia	Mara	65000	2Z

Write SQL statement that will:

      (i)   extract the fields; names and AdNo for those students whose fee balance is over Ksh. 50,000.   (2 marks)

      (ii)   extract details of all students from Tana house who are in class 2X.   (2 marks)

      (iii)   extract all students whose names begin with S or L and resides in Mara house.   (3 marks)

      (iv)   Find the total fees owed by all the students.   (3 marks)

5. (a) Evaluate each of the following Visual Basic program statements:

      (i)   1 + 2 * 4 / 2   (1 mark)

      (ii)   (1 + 2) * 4 / 2   (1 mark)

      (iii)   1 + 2 * (4 / 2)   (1 mark)

      (iv)   (1 + (10 - (2 + 2)))   (1 mark)

(b) (i) Distinguish between a *linker* and a *debugger* as used in programming.

(4 marks)

(ii) Differentiate between *source code* and *object code*. (4 marks)

(c) State the function of each of the following operators as used in Visual Basic program.

(i) And (1 mark)

(ii) Xor (1 mark)

(iii) Not (1 mark)

(iv) & (1 mark)

(d) Distinguish between the *floor* and *ceil* functions as used in Visual FoxPro programming language. (4 marks)

6. (a) Explain **two** advantages of using *local variables* when developing program.

(4 marks)

(b) Show the steps that would be used to sort the following list in descending order using burble sort algorithm. (6 marks)

56 34 56 20 21

(c) Rewrite the following Visual Basic program using if..*then else* statement.

```
Dim grade As String
Dim mark As Single
Private Sub Compute_Click()
'Examination Marks
mark = mrk.Text
Select Case mark
Case 0 to 49
    comment.Caption = "Need to work harder"
Case 50 to 59
    comment.Caption = "Average"
Case 60 to 69
    comment.Caption = "Above Average"
Case 70 to 84
    comment.Caption = "Good"
Case Else
comment.Caption = "Excellence"
End Select
```

(6 marks)

(d)   A telephone company stores details of its customer accounts on a computer file. This file is queried to in order to calculate and send out bills to its customers at regular times of the year. The file is can also be queried to provide immediate response to a customer who calls in to make an enquiry about their account.

Explain **two** reasons for the preference of *indexed sequential* access to the data in this case.   (4 marks)

7.   (a)   Interpret the following Visual Basic program.   (4 marks)

```
Private Sub txtPassword_KeyPress(KeyAscii As Integer)
Dim KeyChar As String
KeyChar = Chr$(KeyAscii)
KeyChar = LCase(KeyChar)
KeyAscii = Asc(KeyChar)
End Sub
```

(b)   Outline the function of each of the following terms a used in Visual Basic Programming:

(i)   LBound;   (1 mark)

(ii)   UBound;   (1 mark)

(iii)   ReDim.   (1 mark)

(c)   Write a Visual Basic program that calculate the square root of the sum of the squares of the first 40 odd integers. Use For..next loop and an array. Attach the code to a command button click event.

Hint: $\sqrt{1^2 + 3^2 + 5^2 + \ldots}$ (7 marks)

(d)   Fig. 3 shows a simple calculator interface created using Visual FoxPro program. Use it to answer the questions that follow.

Fig. 3

Write the code attached to the command button captioned:

(i)   Compute;   (4 marks)

(ii)   Clear.   (2 marks)

8.   (a)   Explain each of the following errors in programming:

(i)   logical;   (2 marks)

(ii)   syntax.   (2 marks)

(b)   Table 2 shows a relation named WORKERS in a database. Use it to answer the questions that follow:

Table 2

LAST_NAME	FIRST_NAME	DEPT_CODE	PAY_RATE
Mwiriti	Alex	56	300
Shito	Ben	44	280
Penkat	Ritchie	44	350
Kingo	Naomi	56	180

Determine the output from each of the following SQL statements:

(i)   SELECT PAY_RATE
        FROM WORKERS
        WHERE (DEPT_CODE=44);   (2 marks)

(ii)   SELECT LAST_NAME, DEPT_CODE
        FROM WORKERS
            WHERE (PAY_RATE)>=300)
        ORDER BY DEPT_CODE;

(3 marks)

(c)   (i)   Distinguish between a view and a query as used in Visual FoxPro program.

(4 marks)

       (ii)   Fig. 4 shows the interface of a menu editor in Visual Basic program. Use it to
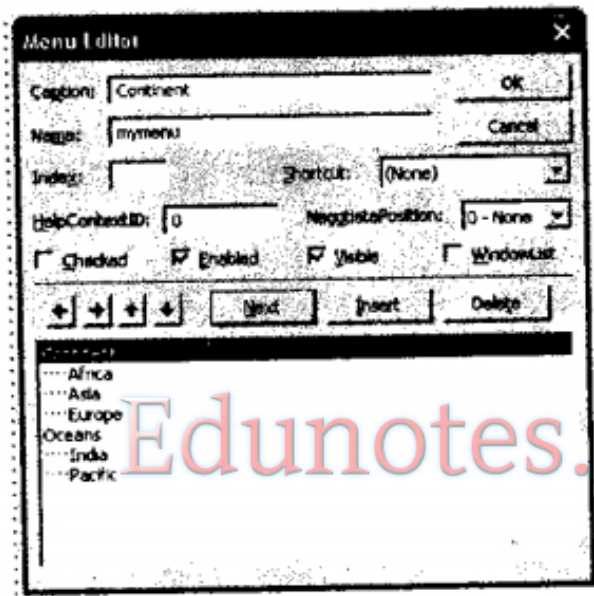   answer the question that follows:

Fig. 4

Display the output generated when the program is executed.   (2 marks)

(d)   Write a HTML code that will display the following list as it appears when run on a
       browser.

Computer Software

A.   Software
B.   Operating System
C.   Application Software
■   Software
      o System software
      o Application
■   Operating System
■   Application Software
What is utility program?
      It is a program that assists in the operations of a computer.

(5 marks)