NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
COMPUTER SCIENCE DEPARTMENT
MAY EXAMINATIONS 2002

SUBJECT: VISUAL PROGRAMMING AND DEVELOPMENT CONCEPTS
CODE: SCS 1206

INSTRUCTION TO CANDIDATES
Answer the question in Section A and any *FOUR* in Section B
All questions carry equal marks [20 each]

Time: 3 hours

QUESTION ONE

a) What features of Visual Programming Languages borrow from Object Oriented programming methodology? [3]

b) What are the main differences between traditional (textual) programming and visual programming? In your comparison include advantages of one over the other. [4]

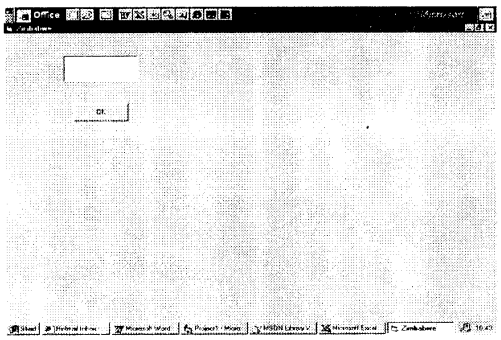
c) Define the following terms, giving examples, as applied to visual programming:
   i. Event Handler
   ii. Control
   iii. Property
   iv. Method
   v. Application [10]

d) Explain how Visual programming supports modular programming? [3]

Section B

In this section answers are to be in Visual Basic 6.0 and standard answers are to be structured as follows:

(i) Give a diagram of objects to be used,



(ii) Also give any special properties of objets used in the form of a table as given in the example below:

Object	**Property**	**Setting**
Form	Caption	Zimbabwe
Text box	Text	(Empty)
Command button	Caption	OK

(iii) Also give the code to the methods, in Visual basic language

QUESTION TWO

Design a small application that accepts a user's name (first name and surname) into a textbox, then tests how many vowels are in the name and output the result. Your application should then output the name in reverse e.g. if the user inputs Fred Flintstone your application should display that there are four(4) vowels and the name in reverse is :Enotstnilf Derf. (Pay particular notice to the capitals). [20]

QUESTION THREE

Design an application that accepts a user's salary, then calculates their salary after taxation, using the following rules:

If salary is below $20 000 tax rate is 0%
If salary is between $20 000 and $50 000 then tax is 15%
If salary is between $50 001 and $70 000 then tax is 20%
If salary is between $70 001 and $90 000 then tax is 25%
If salary is between $90 000 and $100 000 then tax is 30%
If salary is between $100 001 and $150 000 then tax is 35%
If salary is above $150 000 then tax is 40%

Assume overtime is paid a flat rate of $1 500 an hour and taxed at 45%
Foreigner are allowed a rebate of 10% of all taxes paid

Your system should accept the following inputs:

Name of employee
Basic salary
Hours worked over time
Nationality (option buttons)

It should the output the following

Name of employee
Basic Salary
Overtime Due
Gross (Basic + Overtime)
Tax Payable (tax on basic salary + tax on over time)
Net Salary

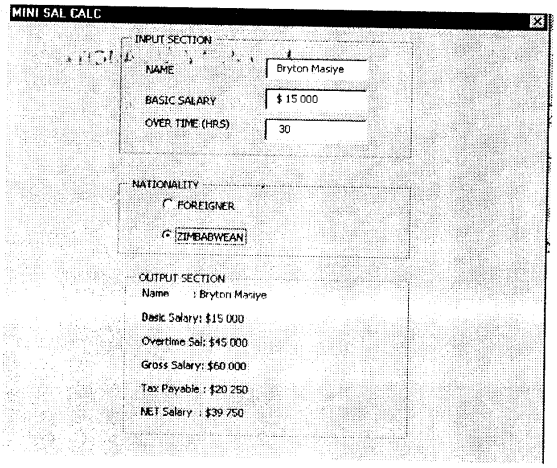


Figure B3

[20]

QUESTION FOUR

a) State and describe the two main styles of user interface in Visual Basic [5]

b) Briefly describe the steps involved in creating a menu using a Menu Editor in Visual Basic. [5]

c) Design a calculator with the functionalities of those shown in figure B4 below.

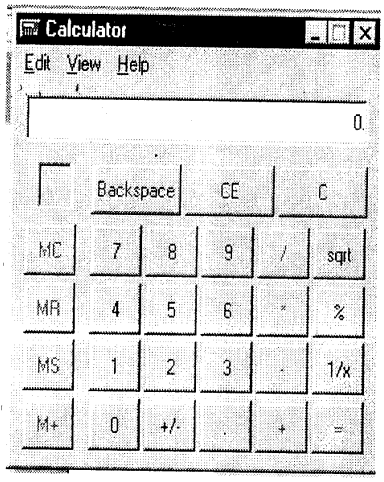


Figure B4

[10]

QUESTION FIVE

A computer shop would like a small application that displays a customer's details as shown in figure B5 below. The application should allow the user to

(i) Lookup customer details by entering the customer's number and clicking on the "Look up" button resulting in the customer's detail being displayed.

(ii) Add a new client by filling the new client's details and clicking "Add New Customer" button

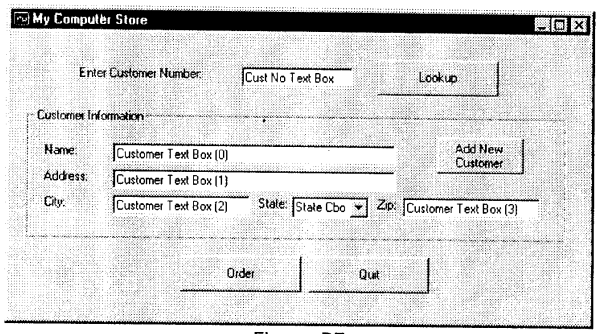


Figure B5

Assume there is a database called c:\shop.mdb with a table clients, which contains the following fields:
Name, Address, City, State, Zip and Custno which is autonumber [20]

QUESTION SIX

a) Give the Visual Basic constructs for
(i) Selection
(iii) Iteration

also give example with these constructs. [5]

b) Write a function to perform a Binary search, accepting a keyField (which is the sought item), form a list of integers. [15]

QUESTION SEVEN

a) By using the additem method, and string concatenation write a program that will get a name of a boy (from a text box) and a girl's name. Your program should then concatenation these names and add them onto a listbox, as shown in figure B3 below

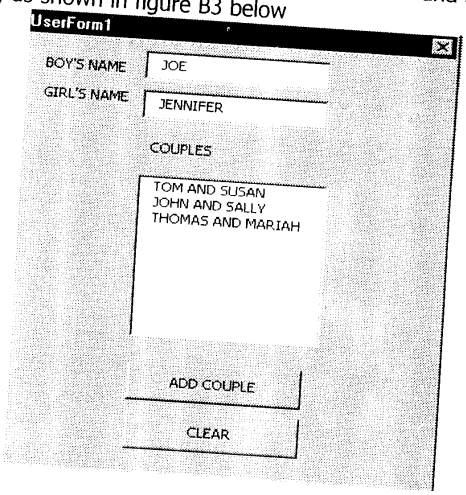


Figure B7

To this project add a form that is loaded when this form (figure B7) is unloaded. Your new form should inherit the old list box's contents, then on clicking split couple (where the add button used to be), the boy's name is displayed in the boy textbox, and the girl's name in the girl textbox. When this happens the couple is removed from the list box.

[20]

END OF QUESTION PAPER

GOOD LUCK!