NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
COMPUTER SCIENCE DEPARTMENT
JUNE EXAMINATIONS 2004

SUBJECT: VISUAL PROGRAMMING CONCEPTS AND DEVELOPMENT
CODE: SCS1206

INSTRUCTION TO CANDIDATES

Answer all questions in Section A.
Answer any two questions of your choice in Section B.

Time: 3 hours

QUESTION ONE

a) Explain the relationship between an Object and a Message. [5]
b) What is the function of a dot (.) in an object oriented language like Visual Basic. [5]
c) Make five variable declarations and explain the type and maximum values in can hold. [5]
d) Compare and contrast a sequence and a selection. [5]

QUESTION TWO

a) Distinguish between local variables and global variables. Write Visual Basic code to declare the following:
   i) pi is a global variable that holds a constant 3.143.
   ii) iResult is a local variable for an integer in the range 0 to 255. [10]

b) TWrite Visual Basic code to input ten integers from 1 to 10 and computes their sum. The program must also display the sum on the screen at the end of execution. [5]

QUESTION THREE

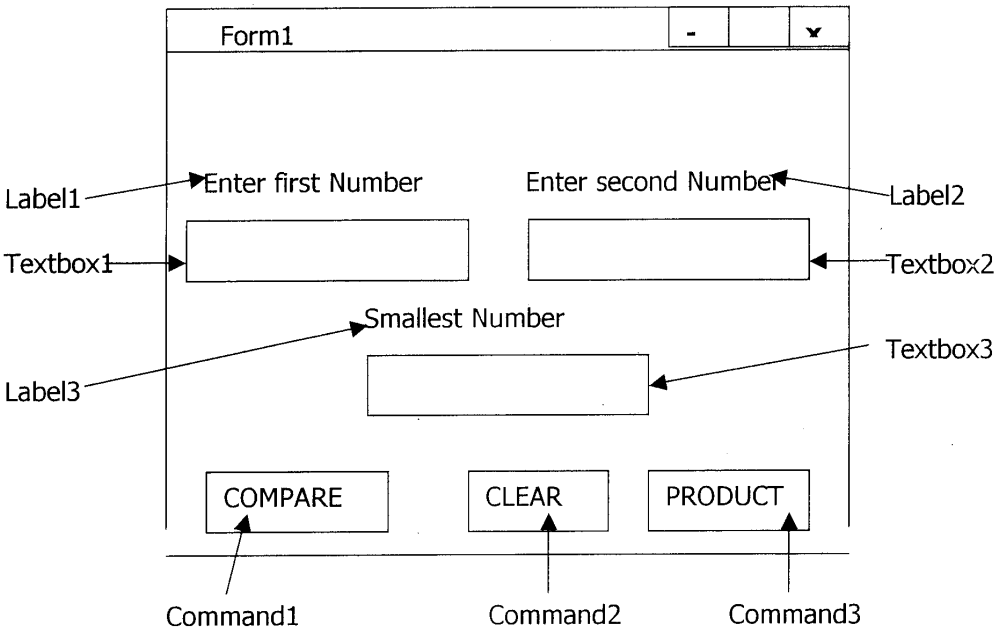
How does inheritance reduce the complexity of writing program Visual Basic programs? Clearly demonstrate your understanding by explaining inheritance in relation to the following objects when writing Visual basic programs:

- Form
- Command button
- Check box [15]

SECTION B

QUESTION FOUR

a) Give a step-by-step procedure on how to create the form below and write the Visual Basic code you would insert for the command objects given.



COMPARE – enables the program to extract contents of textbox1 and textbox2 ,determines the smallest value and display the smallest value on textbox3.

CLEAR – clears all text boxes.

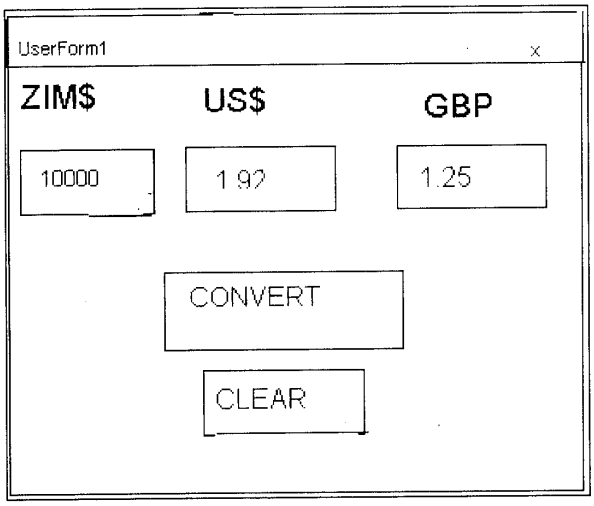
PRODUCT – computes the product of value entered in textbox1 and textbox2 and display the result on textbox3.

[20]

b) Draw a class diagram of Form i. [5]

QUESTION FIVE

Write an application that converts Zimbabwean Dollars to the US Dollar and GB Pound.
Use Z$5200.00 is to US$1, and Z$8000.00 is to £1.



[15]

b) Design a small calculator application that handles the following operations, +, -, /, and *. Your application should also allow for clearing of the display control, in case of erroneous data entry. [10]

QUESTION SIX

An asset Management program calculates the maturity value of an investment using the following equation:

$$V= (d-b) * i/12 *P+P$$

Where V = maturity value (i.e. the amount paid to the client)
d = the date the investment was deposited
b = the date the investment was withdrawn (Note the difference is in days)
i = interest quoted per annum (i.e. interest percentage per year)
P = the investment amount (i.e. the money deposited)

a) Show a Windows screen that will process this information. Indicate the object names and show the properties that you feel are important to your user interface. [10]

b) Write the program that will calculate the maturity value. [15]

QUESTION SEVEN

A good visual development environment will offer Universal Modeling Language (UML) capabilities in order to assist in documenting the entire development cycle. Demonstrate your understanding of the use of the following tools:

- Use case diagrams
- Class diagrams

In each case identify the symbols used and give an example of how the diagrams are used in a system you are familiar with. [25]

END OF QUESTION PAPER

GOOD LUCK!