NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
COMPUTER SCIENCE DEPARTMENT
MAY 2001 EXAMINATION

SUBJECT: **VISUAL PROGRAMMING AND DEVELOPMENT CONCEPTS**

CODE: **SCS1206**

INSTRUCTIONS TO CANDIDATES

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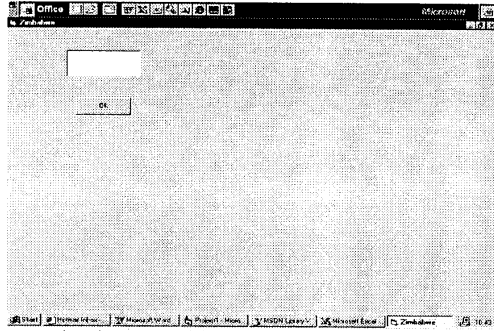*All questions carry equal marks [20 each]*

Time: 3 hours

SECTION A

1a) What do you understand by the term event driven programming? [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

    ii.   Object

    iii.   Property

    iv.   Method

    v.   Application [10]

d) What are the three main steps to designing an application in a Visual programming environment? [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

2)   As a newly qualified NUST graduate an insurance firm has just approached you about a new product that allows clients to contribute towards an annuity fund to accrue, and to be payable at the end of an agreed term (in months). Clients are able to select a term, and a fixed amount to

$$S = R\left[\frac{(1+i)^n - 1}{i}\right]$$

invest monthly (in dollars) Required is a Visual Basic application that will accept the term (*iTerm*), instalment (*dblInst*) and will calculate the maturity value of the Annuity using the formula give below, so as to help staff with enquiries:

where S is the future value

R is the instalment

.i is the interest rate (assumed to be constant at 2% per annum)

Your program should display the instalment, term and the future value. [20]

3) Write an application that accepts a group of students taking 5 degree courses each. Your program should accept, their names, student numbers, marks for the 5 courses and grades them and outputs the results as follows on a form:

Student :   William Gates

Student # : N98010169J

Course	Mark	Grade
SCS2201	85	1
SCS2202	65	2.1
SCS2203	73	2.1
SCS2204	55	2.2
SCS2205	43	F

[20]

4. Give a detailed description of the Visual Basic IDE.

(NB.marks will be given for detailed description of the components as opposed to merely listing them.) [20]

5a. What are the main differences between a check box control and an option button control?

[4]

b. Write an application that will allow a student to enter his/her name, then for a selection of courses (Computer Science, Mathematics, and Physics) and on the same form select a University (NUST, UZ, SUM, SOLUSI, AU). On submitting this selection form a confirmation, with the results of the selections is given, in form format, with an option of reselecting, or confirming the selection (say perhaps with an OK button). On cornfirmation store the student name, and selection in a specified database. [16]

6a. Give the Visual Basic constructs for (i) Selection

(ii) 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 intergers. [15]

7a. What is the difference between (i) Public and Private

(ii) Implicit declaration and explicit declaration

(iii) Image control and Picture control

(iv) Caption and Name of an object

(v) Passing arguments by value and passing objects by reference

[10]

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]

END OF QUESTION PAPER