BINDURA UNIVERSITY OF SCIENCE EDUCATION

COMPUTER SCIENCE DEPARTMENT

DIPLOMA IN SCIENCE EDUCATION

COMPUTER PROGRAMMING 1 (VISUAL BASIC): CS008

DURATION: 3 HOURS

INSTRUCTION TO CANDIDATES

This paper carries **five (5)** questions. Answer **ALL.**

Marks are indicated in brackets at the end of each question. Total marks are **100**.

SECTION A - THEORY

Question 1

a) Define the following object oriented programming terminology, giving examples where necessary:

i. Object **[2]**

ii. Property **[2]**

iii. Method **[2]**

iv. Event **[2]**

v. Class **[2]**

b) Describe the type of data stored in any **five** visual basic datatypes and how much memory they take up in bytes. **NB: Use table format with relevant headings.** **[10]**

Question 2

a) Compile the result of the following expressions using the order of precedence applied in visual basic, assume that: X=2, Y=4, and Z=3 :

Problem	Result
X + Y ^ Z	
16 / Y / X	
X * (X + 1)	
X * X + 1	
Y ^ X + Z * 2	
Y ^ (X + Z) * 2	
(Y ^ X) + Z * 2	
((Y ^ X) + Z) * 2	

[8]

b) Complete the following table by giving the equivalent VB expression for the mathematical notation shown:

Mathematical Notation	VB Expression
2X	
3(X + Y)	
(X + Y)(X – Y)	
πr^2	

[4]

c) With the aid of an example of each, describe the use of the following operators in visual basic:

i. The plus symbol combined with an equal sign (+=) **[4]**

ii. The minus symbol combined with an equal sign (-=) **[4]**

[Total 20 marks]

SECTION B - PRACTICAL - (TOTAL MARKS 60)

(All your answers to be saved in a folder named as your registration number on the desktop)

Question 3

a) A firm needs to be able to quickly compute the value of any item in inventory. Build a form that will

   i. enable inputting values into three textboxes: (1) product description, (2) quantity on hand, and (3) product cost.

   ii. Clicking a Compute button should display the total value of the inventory product to an output textbox.

   iii. Clicking Reset or Exit button resets the form or closes the form respectively. **[10]**

b) A sales tax estimator form will be used to assist customers who struggle with mathematical calculations— customers need to know in advance of purchases the cost of an item including sales tax. Build a form that will enable inputting values into two textboxes:

   i. (1) product price and (2) quantity purchased.

   ii. The sales tax rate is 5%. Clicking a Compute button should display the net amount due (price times quantity), sales tax due, and total amount due for the sale to three output textbox controls.

   iii. Clicking a Reset or Exit buttons will reset the form or close the form respectively.

   iv. Set Option Strict On. **[10]**

Question 4

Write a program that assists a lecturer to compute a student's Final Course Mark(FCM) based on Coursework and Exam marks using the following guidelines:

Coursework:

   i. 2 Assignment marks are entered, each with a total of 100. The assignments contribute 40% of the coursework mark.

   ii. 2 tests are entered, the first one with a total of 60 and the second one with a total of 40. The marks are combined and the tests contribute 50% of the coursework mark.

   iii. 1 inclass presentation out of 100 contributing 10% of the final mark.

   iv. The coursework contributes 30% of the final mark for a course.

Exam Mark

   v. Exam mark is entered out of 100 and contributes 70% of the final course mark.

FCM

   vi. **FCM= Coursework + Exam Mark** **[20]**

Question 5

A furniture shop sales its merchandise on credit to customers who qualify for their credit scheme. A customer can only buy one product per time. For every purchase the following information for a customer and purchased product is captured. :

Customer Name

Account Number

Address

Item Purchased

Date of Purchase

Balance

a) Create an interface that captures input through textboxes except Item Purchased which should be captured through radio buttons with options Electronic and Furniture. Marks will be awarded for goo user interface design and relevant additional controls to the form. **[8]**

b) Create a database linked to the interface in a) above which enables a user to add, update and delete records from the user interface designed. **[12]**

****** END OF PAPER******