



TECHNICAL UNIVERSITY OF MOMBASA

INSTITUTE OF COMPUTING AND INFORMATICS

UNIVERSITY EXAMINATION FOR:

BSIT/SEP2023/J/S-FT, BTIT/SEP2023/J/S-FT, BBIT/SEP2022/J/S-FT

CSE 4202: WINDOWS DESKTOP APPLICATION PROGRAMMING

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: JULY 2024

TIME: 2 HOURS

DATE:

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other **TWO** questions.

Do not write on the question paper.

Question ONE

- (a.) (i.) What is Microsoft.NET? Explain. (4 marks)
- (ii.) What does Microsoft .NET try to achieve? Discuss. (4 marks)
- (b.) (i.) What naming convention of referring to controls in most programming languages in Visual Studio.NET? As you give, outline with three examples of controls. (8 marks)
- (ii.) Why are coding conventions important in software development? (8 marks)
- (c.) (i.) Define the term property as used in a class definition. As you define give the general syntax of a defining a property in C#. (2 marks)
- (ii.) Is there any member element you can compare with a property in C++? Discuss. (2 marks)
- (iii.) The following is an excerpt of a Course class
- ```
class Course
{
```

```
//attributes
private string courseCode;
private string courseTitle;
private byte noOfUnits;
....

}
```

Using the code excerpt above

1. Define a constructor for the class, which has three parameters, whose values will be used to initialize the three instance variables.
2. Define a property for each instance variable.

(10 marks)

(d.) What does each of the following acronyms stand for:

- (i.) CLR
- (ii.) SOAP
- (iii.) COM
- (iv.) MSIL

(4 marks)

### Question TWO

- (a.)
- (i.) What is class member method? Discuss.
  - (ii.) Which storage class modifier is used to define a class member method? Outline.
  - (iii.) Give two class member methods that can be used with the class Console.

(7 marks)

- (b.)
- (i.) What is a control? Define.
  - (ii.) Give two controls that you know, as you give, outline two properties that these two controls share.

(8 marks)

(c.) What do each of the following acronyms stand for? Outline.

- (i.) ADO
- (ii.) ODBC

(2 marks)

(d.) Outline the three methods that are created when we include a Windows form in an application.

(3 marks)

### Question THREE

The form layout below has three textboxes called txtBasePayRate, txtShiftCode and txtHoursWorked respectively, three label boxes called lblGrossPay, lblWithHoldingTax and lblNetPay, and a command button called cmdComputePay.

Write a click event handler for the command button that gets data values entered into the three textboxes as input to a payroll program, which consists of base pay rate, shift code and hours worked. The event handler should then compute an employee's gross pay, with - holding tax and net pay and display these results in the corresponding label boxes in form above.

The gross pay is calculated by multiplying the hours worked by the pay rate, where the pay rate is the product of the base pay rate and shift factor. The shift factor comes from the following table:

| SHIFT CODE | SHIFT FACTOR |
|------------|--------------|
| 0          | 1            |
| 1          | 1.25         |
| 2          | 1.5          |

The with-holding tax is the product of the gross pay and the tax rate. The tax rate is found in the following table:

| GROSS PAY                            | TAX RATE |
|--------------------------------------|----------|
|                                      | %        |
| Less than Kshs. 6000                 | 0        |
| Kshs. 6000 but less than Kshs. 7500  | 8        |
| Kshs. 7500 but less than Kshs. 9000  | 12       |
| Kshs. 9000 but less than Kshs. 10500 | 15       |
| Kshs. 10500 or more                  | 17.5     |

The net pay is computed by subtracting the with-holding tax from the gross pay.

(20 marks)

#### Question FOUR

- (a.) (i.) The Command object is one of the objects in ADO.NET, briefly explain why this object is important in the object model.
- (ii.) Give three properties of the Command object which must be set before execution of any SQL command using this object.

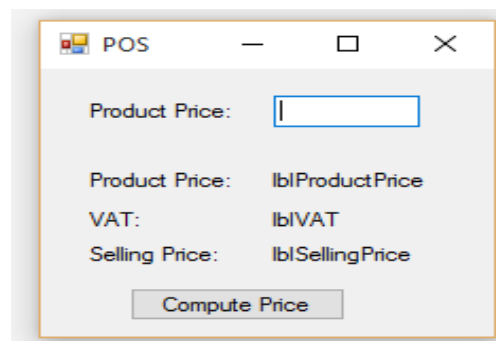
(5 marks)

- (b.) (i.) What does the acronym OLE DB stand for? Outline.
- (ii.) Briefly explain what is OLE DB and why is it important as a data access technology.
- (5 marks)
- (c.) (i.) Write a code segment that creates a connection object of a Microsoft Access database called Student.mdb and opens the connection object.
- (ii.) Briefly explain the function of each of the following methods used with a Command object.
1. ExecuteReader()
  2. ExecuteNonQuery()

(10 marks)

### Question FIVE

- (a.) The form layout below has a textbox control named txtProductPrice, three labels called lblProductPrice, lblVAT and lblSellingPrice, with a command button called cmdComputePrice; amongst other controls:



Write a click event handler for the command button that gets data values entered into the textbox as input of a product price. The event handler should then compute the corresponding Value Added Tax (VAT) of the product, hence also compute the selling product price - that is the price after tax and then display the product price, VAT and selling price after tax, in the corresponding label boxes in the form above. Assume a 16% VAT rate.

(13 marks)

- (b.) Give the tools used include the followings controls in a Windows form.
- (i.) A status bar
  - (ii.) A tool bar
  - (iii.) A menu bar

What is common in all the controls above? Outline.

(7 marks)