

NATIONAL OPEN UNIVERSITY OF NIGERIA

FACULTY OF SCIENCE

CIT834: Object Oriented Programming Using C# [3 units]

INSTRUCTION: Attempt any five questions (all questions carry equal 14 marks)

Time: 2 ½ HOURS

1a. Define the following terms:

- (i) .NET Framework
- (ii) Keyword: (10 Marks)

1b. State specific setup instructions upon which C# development varies (4 Marks)

2a. Study the following C#.NET code snippet.

- (a) Explain what namespace' refers to (7 Marks)
- (b) What will be the output of the code? (7 Marks)

```
namespace NounConsoleApplication
```

```
{  
    class SampleProgram  
    {  
        static void Main(string[ ] args)  
        {  
            object[] o = new object[] {"1", 4.0, "Abuja", 'B'};  
            fun (o);  
        }  
        static void fun (params object[] obj)  
        {  
            for (int i = 0; i < obj.Length-1; i++)  
                Console.Write(obj[i] + " ");  
        }  
    }  
}
```

3(a). In C#, what is the role of Method Overloading? (4 Marks)

3(b) Mention five important features of Static constructors. (10 Marks)

4. Study the following C# code and answer the question that follows:

```
namespace NounConsoleApplication
```

```
{  
    class SampleProgram  
    {  
        static void Main(string[ ] args)  
        {  
            // Your code here  
        }  
    }  
}
```

```
int a = 5;

int s = 0, c = 0;
s, c = fun(a);
Console.WriteLine(s + " " + c) ;
}

static int fun(int x)
{
    int ss, cc;
    ss = x * x; cc = x * x * x;
    return ss, cc;
}
}
```

Select, at most, two correct statements among the following:

- (i) An error will be reported in the statement `s, c = fun(a);` since multiple values returned from a function cannot be collected in this manner.
- (ii) It will output 25 125.
- (iii) It will output 25 0.
- (iv) It will output 0 125.
- (v) An error will be reported in the statement `return ss, cc;` since a function cannot return multiple values.

[Total = 14 marks]

5(a) Describe a destructor within the context of Object-Oriented Programming
(5 marks)

5(b) Select combination of correct statements about subroutines usage in C#.NET? (choose only from the options (A, B, C, D) provided.

- (i) If we do not return a value from a subroutine then a value -1 gets returned.
- (ii) Subroutine definitions cannot be nested.
- (iii) Subroutine can be called recursively.
- (iv) To return the control from middle of a subroutine exit subroutine should be used.
- (v) Subroutine calls can be nested.

A. [(i), (ii), (iii)] **B.** [(ii), (iii), (v)] **C.** [(iii), (v)] **D.** [(iii), (iv)]

(9 marks)

6(a). What is the criterion for using the static property in C#.NET (6 marks)

6(a). List four characteristics of object-oriented programming (8 marks)

7(a) Define what constructors are and their role in C# programming (8 marks)

7(b). Write the correct syntax for adding two integer variables to a Parallelogram class (6 marks)