

Subject: C# & .NET

Time: 3 Hours

Max. Marks: 100

DECEMBER 2010

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after half an hour of the commencement of the examination.
- Out of the remaining EIGHT Questions, answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following: (2×10)

- a. The benefits of CLR to C# when implemented on .NET platform are:
- (A) Interoperability (B) Automatic garbage collection
(C) Procedure Orientation (D) both (A) and (B)
- b. Which of the following coding block is must in C# program:
- (A) Interface section (B) Classes section
(C) Main Method section (D) Using directive section
- c. _____ is not a user defined reference type in C#.
- (A) Classes (B) Delegates
(C) String type (D) None of the above
- d. The _____ operator in C# has right to left associatively
- (A) Size of (B) logical bitwise AND
(C) Right shift (D) Unary plus
- e. To allocate memory for an object instantiation, you must use the _____ operator.
- (A) mem (B) alloc
(C) new (D) instant
- f. What is the output of the following code segment?
- ```
int a=3, b=4;
if (a==b)
Console.Write("Black");
Console.Write("White");
```
- (A) Black (B) White  
(C) BlackWhite (D) Nothing

- g. If you do not indicate a return type for a method, its return type is \_\_\_\_\_ by default.
- (A) void (B) int  
(C) Public (D) Private
- h. The \_\_\_\_\_ accessibility control makes the member available in the containing programs or assembly and in the derived class.
- (A) Internal (B) Protected Internal  
(C) Protected (D) None of the above
- i. The \_\_\_\_\_ modifier in C# is used to prevent a class from being subclassed further.
- (A) Sealed (B) Abstract  
(C) Virtual (D) Pure Virtual
- j. \_\_\_\_\_ is not a method of the Thread class
- (A) Join (B) Start  
(C) Stop (D) Resume

**Answer any FIVE Questions out of EIGHT Questions.  
Each question carries 16 marks.**

- Q.2** a. Explain the .NET framework with the help of a neat block diagram (8)
- b. Explain the concept of Boxing and Unboxing in C# giving appropriate examples. (8)
- Q.3** a. Write a C# program to find the roots of quadratic equation  $ax^2 + bx + c = 0$ . (8)
- b. What is “fallthrough” in switch statement. How is it achieved in C#. (4)
- c. What is the error generated from the following code. If it was written to print values from 0 to 9. (4)
- ```
using System;
class WhileExample
{
    Static void main( )
    {
        int count = 0;
        while (count <= 10)
        {
            Console.WriteLine(count);
        }
    }
}
```

- Q.4** a. Explain the need for array variables .Write a C# program that creates a `MinVal()` which returns the minimum element from a given set. (8)
- b. Explain the concept of overloading in C#. Write a program to demonstrate the concept of method overloading using the example of calculating the volume of cube, cylinder and box. (8)
- Q.5** a. Explain in brief the different types of C# strings. Illustrate with examples how copying and concatenating of strings can be done in C#. (8)
- b. State any four differences between classes and structures. (8)
- Q.6** a. Write a C# program to implement the class Date with the following members:
(i) Day, Month, Year
(ii) Use constructors to provide values to the data members.
(iii) Write a method to display the date in format day/month/year (8)
- b. Explain the concept of Sealed classes and Methods used in C#. (8)
- Q.7** a. What is the use of interfaces in C#? Write code snippets to define an interface. (8)
- b. What is the need for operator overloading. Write a C# program to add to two complex numbers and display the result. (8)
- Q.8** a. What are delegate methods and events, explain giving their general syntax. (8)
- b. Distinguish between Write and WriteLine methods. Write a C# code that displays the following output. (8)
- ```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5.
```
- Q.9** a. What are run time errors? Give examples. Write the syntax of a exception handling code. (8)
- b. What is multithreading explain. Write a C# code to create and start threads. (8)