

AMIETE – CS/IT (Current Scheme)

Time: 3 Hours

December 2016

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

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 45 minutes 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. Suppose a Generic class called as SortObjects is to be made capable of sorting objects of any type(integer, single, byte etc), then, which of the following programming constructs is able to implement the comparison function?
(A) interface (B) encapsulation
(C) delegate (D) attribute
- b. _____ Namespace is not defined in the .NET class library.
(A) System (B) System.CodeDom
(C) System.IO (D) System.Thread
- c. The System.Array.Clone () function
(A) Copies elements into another existing array
(B) Returns a shallow copy object containing all elements in original array
(C) Returns a deep copy object containing all elements of original array
(D) Creates a new instance resulting in identical object
- d. SOAP stands for
(A) Simple object access protocol
(B) Specific object access protocol
(C) Simple object application protocol
(D) Special object access protocol
- e. Can “this” be used within a static method?
(A) Yes (B) No
(C) Only in some special cases (D) None of these
- f. Which of the following statement is not true for multicast delegates?
(A) Maintains a list of functions that can be called when delegate is invoked
(B) Are used with events
(C) The return type of methods pointed by delegate can return different value from delegate return type
(D) Multicast delegate can have arguments

g. What happens when the below code is executed?

```
abstract class Shape{
    public abstract void draw();
}
class Rectangle: Shape{
    public override void draw();
    //Some more member functions.....
}
class CCheck{
    public static void Main()
    {
        Shape objShape;
    }
}
```

- (A) The code will compile and run
(B) Compile error for draw method will be encountered first
(C) Defining the body of the draw() method in class Rectangle would let the class compile
(D) None of these
- h. Can you overload a function with the same number and types of arguments (parameters) but with a different return type?
(A) Yes
(B) No
(C) Yes, but only if function is static
(D) Yes, but only if function is virtual
- i. _____ helped overcome the DLL conflict (faced by the versions prior to .NET).
(A) CLR (B) JIT
(C) CTS (D) GAC
- j. Which access specifier will you use to make base class members accessible in the derived class and not accessible for the rest of the program?
(A) public access specifier (B) private access specifier
(C) protected access specifier (D) static access specifier

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

- Q.2** a. Explain the basic building block of .NET framework. (8)
- b. What are namespaces? List and explain the purpose of at least five namespaces. (8)

- Q.3** a. What do you understand by 'params' method of parameter passing? Give an example. (5)
- b. How do you create object instance in C#? With examples, describe default assignments of .NET data types. (8)
- c. What is the role of command line compiler(csc.exe)? (3)
- Q.4** a. What is boxing and unboxing? Explain with an example for each. (5)
- b. Explain the C# static data with a program. (5)
- c. Write a program to illustrate the difference between passing reference types by reference and by value. (6)
- Q.5** a. What are the three pillars of object – oriented programming in c#? Differentiate between “in - a” and “has - a” relationships with appropriate programs. (12)
- b. Illustrate with an example polymorphic support in C#. (4)
- Q.6** a. How do .NET framework manage garbage collection? Explain using 1 disposable interface. (10)
- b. Write C# application to illustrate handling multiple exceptions. (6)
- Q.7** a. Write a C# program which contains the following: (10)
- An interface called dimension with the methods length() and width(), which returns length and width in centimeters.
 - Another interface called metric dimension with the methods lengthinches() and widthinches(), which returns length and width in inches.
 - A class box that implements both the above said interfaces. This class has two data members lengthinches and widthinches.
 - Define appropriate constructor for the class box. Write a main program to create an instance of box and to display the box length and width in inches and centimeters by invoking the appropriate methods of two interfaces.
- b. Briefly explain, with an example, explicit interface implementation. (6)
- Q.8** a. What is a delegate? Differentiate between synchronous and asynchronous delegate, with examples. (10)
- b. Explain the interfaces and class types of System.Collections. (6)
- Q.9** a. Write the steps involved in building a shared assembly under .NET environment. (10)
- b. Briefly explain the probing process of private assembly. (6)