Code: AC73/AT73   **Subject: C# AND .NET**

AMIETE – CS/IT (Current Scheme)

Time: 3 Hours   **JUNE 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. .NET framework provides an extensible set of classes that can be used by any .NET compliant programming language is _____.
      (A) Common Language Specification   **(B)** Common language Runtime
      (C) Virtual Execution Engine   **(D)** Unified class library

    b. Common Type System (CTS)
      (A) describes set of rules for all compilers to generate intermediate code
      (B) defines the data types to be run under CLR
      (C) describe features for language interoperability
      (D) none of these

    c. Which of the following statements is true about arrays in C#?
      (A) Arrays can be single dimensional or multidimensional
      (B) Array elements can be declared as character type only
      (C) The rank of an Array is the total number of elements it can contain.
      (D) The length of an Array is the number of dimensions in the Array

    d. Boxing is a concept that allows a user to convert
      (A) Integer to double   **(B)** Reference type to value type
      (C) Value type to reference type   **(D)** Integer to any other type

    e. class Car : Vehicle { } shows that
      (A) Car may be an abstract class
      (B) Allows class Car to be inherited from Vehicle
      (C) Allows class Vehicle to be inherited from Car
      (D) Class Car cannot be inherited

    f. Which of the following class contains the method of reading from and writing to the console?
      (A) System.ReadLine   **(B)** System.Println
      (C) System.Console   **(D)** System.Text

g. Polymorphism occurs when the methods of the derived class
   (A) Overload the parent class methods
   (B) Maintain the same return type and arguments as the parent class, but implement it differently
   (C) Have different return types and arguments than the parent class
   (D) Are abstract

h. Defining more than one method with the same name but with different parameters is called
   (A) property   (B) delegate
   (C) overloading   (D) multiplexing

i. A method _____an exception when it encounters a problem occurred during runtime in a class.
   (A) Try   (B) Catches
   (C) Throws   (D) Finally

j. _____ keyword makes a class visible only within its assembly.
   (A) private   (B) protected
   (C) new   (D) internal

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

Q.2 a. Explain the working of Common Language Runtime (CLR) in .NET environment. **(10)**

b. Describe the role of Base Class Libraries in .NET Platform. **(6)**

Q.3 a. Explain using example, how multiple source files in C# application can be compiled using CSC.exe? **(8)**

b. Briefly describe command line debugger (cordbg.exe). **(8)**

Q.4 a. Differentiate between Rectangular and Jagged Array in C# with suitable example. **(8)**

b. Explain the concept of boxing and unboxing with suitable example. **(8)**

Q.5 a. What is polymorphism? How virtual functions enforce polymorphism in C#? **(8)**

b. What do you understand by C# partial types? Illustrate with suitable example. **(8)**

Q.6 a. What is the purpose of finalize() method in the process of garbage collection? **(8)**

b. How multiple exceptions are handled in C#? Illustrate with an example. **(8)**

Q.7 a. With C# code show how an interface can be derived from multiple interfaces? **(8)**

b. Briefly explore any two classes of System.Collections Namespace. **(8)**

Q.8 a. What are Multicasting delegates? How they are implemented in C#? **(8)**

b. What are events? How they are defined in C#? **(8)**

Q.9 a. Describe all the elements of .NET Assemblies with the help of neat diagram. **(8)**

b. Discuss the problems with COM Versioning and COM deployment. **(8)**