Code: AC121/AT121   **Subject: C# AND .NET**

AMIETE – CS/IT (New 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.**

Q1.   Choose the correct or best alternative in the following: (2 x 10)

a.   .NET framework is an environment for:
   (A) building, deploying and running web services, web applications, windows and other applications.
   (B) building, deploying and running only web applications.
   (C) building, deploying and running only windows applications.
   (D) building, deploying and running only distributed applications.

b.   Common Language specification
   (A) is a compiler
   (B) is an execution engine in .NET environment
   (C) defines set of rules for .NET compliant languages
   (D) defines tasks of garbage collector

c.   Which of the following type is not a access modifier in C#?
   (A) internal   **(B)** protected
   (C) protected internal   **(D)** protected external

d.   int keyword target to which .NET type
   (A) System.Int8   **(B)** System.Int16
   (C) System.Int32   **(D)** System.Int64

e.   Which of the following statement is not correct?
   (A) CLR is the execution engine of .NET
   (B) JIT compiles source code into CIL
   (C) Assembly is the logical unit of deployment
   (D) .NET provides cross language interoperability

f.   Two accessors available for accessing properties are
   (A) getdata&setdata   **(B)** virtual & override
   (C) abstract & override   **(D)** get and set

g.   _____ is the mechanism that binds together the code and data it manipulates, and keeps both safe from outside interference and misuse.
   (A) Polymorphism   **(B)** Encapsulation
   (C) Inheritance   **(D)** Exception

h. _____ is the base class in .NET from which all other classes are derived.
    (A) System.Class   **(B)** System.Object
    (C) System.Text   **(D)** System.Data

i. Which class is immutable?
    (A) System.Text.StringBuilder   **(B)** System.StringBuilder
    (C) System.String   **(D)** System.Text.Builder

j. The default return type of an event is _____.
    (A) void   **(B)** int
    (C) double   **(D)** string

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

Q.2   a.   Describe the role & benefits of Common Intermediate Language (CIL) in .NET. **(6)**

      b.   Explain the Common Type System in .NET Framework. **(10)**

Q.3   a.   Explain how switch-case selection construct in C# handles program flow? Illustrate with suitable example. **(8)**

      b.   Describe **params** modifier to support using parameter arrays in C#. **(8)**

Q.4   a.   What is the role of **this** keyword in C#? How it is used to chain constructor calls? **(8)**

      b.   Explain data encapsulation using properties in C# with suitable example. **(8)**

Q.5   a.   What do you mean by member shadowing? How it is implemented in C#? **(8)**

      b.   What is an exception? Explain the purpose of try, catch and finally block in exception handling using suitable example. **(8)**

Q.6   a.   Why and how garbage collection is forced in .NET? **(8)**

      b.   Briefly describe Lazy Object Instantiation. **(8)**

Q.7   a.   What are the advantages of interface over abstract class? How it is implemented in C#? **(8)**

      b.   Briefly describe IClonable interface, with suitable example. **(8)**

Q.8   a.   What is the role of generic type parameters? Describe Stack<T> generic class defined in System.Collections.Generic namespace. **(8)**

      b.   How can you create custom generic methods in C#? **(8)**

Q.9   a.   Write the steps and show to send object state notification using delegates. **(8)**

      b.   Explain C# event handling with example. **(8)**