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

AMIETE – CS/IT (New 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. Which of the following statements are TRUE about the .NET CLR?
   1. It provides a language-neutral development & execution environment.
   2. It ensures that an application would not be able to access memory that it is not authorized to access.
   3. It provides services to run "managed" applications.
   4. The resources are garbage collected.
   (A) 1 and 2   **(B)** 1, 2 and 4
   (C) All   **(D)** 4 and 5

b. Which of the following statements is correct about Managed Code?
   (A) Managed code is the code that is compiled by the JIT compilers.
   (B) Managed code is the code where resources are Garbage Collected.
   (C) Managed code is the code that runs on top of Windows.
   (D) Managed code is the code that is written to target the services of the CLR.

c. Which of the following utilities can be used to compile managed assemblies into processor-specific native code?
   (A) gacutil   **(B)** ngen
   (C) ildasm   **(D)** dumpbin

d. Which of the following .NET components can be used to remove unused references from the managed heap?
   (A) Common Language Infrastructure
   (B) CLR
   (C) Garbage Collector
   (D) Class Loader

e. Which of the following assemblies can be stored in Global Assembly Cache?
   (A) Private Assemblies   **(B)** Friend Assemblies
   (C) Shared Assemblies   **(D)** Public Assemblies

f. Code that targets the Common Language Runtime is known as
   (A) Unmanaged   **(B)** Distributed
   (C) Legacy   **(D)** Managed Code

g. Which of the following is the root of the .NET type hierarchy?
   (A) System.Object   **(B)** System.Type
   (C) System.Base   **(D)** System.Root

h. Which type of delegate allows you to create a single delegate that can point to
   numerous methods that receive objects related by classical inheritance?
   (A) Covariance   **(B)** Contra variance
   (C) Relaxed Delegates   **(D)** Generic Delegates

i. Which is not the Possible Constraints for Generic Type Parameters
   (A) struct   **(B)** new
   (C) NameOfBaseClass   **(D)** NameOfDerivedClass

j. Which are the interfaces supported for LinkedList<T>
   (A) Idictionary & IEnumerable   **(B)** IEnumerable & ICollection
   (C) IDictionary & ICollection   **(D)** Only IDictionary

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

Q.2 a. List and explain core features of .NET   **(8)**

  b. Explain in brief the building blocks of the .NET Platform.   **(8)**

Q.3   Explain the following   **(16)**
   (i) for-each   (ii) unchecked keyword
   (iii) new operator   (iv) ?? operator

Q.4 a. Summarize the core distinctions between value types and reference types.   **(8)**

  b. Explain with example static constructor and rules associated in defining static
      constructor.   **(8)**

Q.5 a. Explain the significance of following in C#.
      (i) sealed keyword   (ii) virtual keyword   **(8)**

  b. Explain abstract classes and abstract methods with example program.   **(8)**

Q.6 a. Explain the select members of the System.GC type in detail.   **(8)**

  b. Briefly describe, how to override the System.Object.Finalize() with an example
      program?   **(8)**

Q.7 a. Explain multiple inheritance with interface types with an example program. **(8)**

   b. Explain the following
      (i) IEnumerator   (ii) IEnumerable
      (iii) ICloneable   (iv) IComparable   **(8)**

Q.8 a. Explain Commonly used Classes of System.Collections and Key Interfaces
         Supported by Classes of System.Collections.   **(8)**

   b. Explain the working with Queue <T> class with an example program.   **(8)**

Q.9 a. Describe the System.MulticastDelegate and System.Delegate Base Classes along
         with its select members.   **(8)**

   b. Explain Anonymous method and accessing local variables in anonymous
      methods with an example.   **(8)**