ROLL NO. _____

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

AMIETE – CS/IT

Time: 3 Hours **DECEMBER 2014** **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. The _____ is a related specification that defines a subset of common types and programming constructs that all .NET programming languages can agree on.

(A) Common Type System
(B) Common Language Runtime
(C) Common Language Specification
(D) All of these

b. The Intermediate Language Disassembler utility (ildasm.exe), which ships with .NET Framework 3.5 SDK, allows to load up any .NET assembly and investigate its content(s) which includes

(A) The associated manifest **(B)** CIL code
(C) Type metadata **(D)** All of these

c. The benefit of invoking the default constructor of a structure is that each piece of field data is automatically set to its

(A) Default value **(B)** Garbage value
(C) Zero value **(D)** None of these

d. Which array contains some number of inner arrays, each of which may have a unique upper limit?

(A) Single dimensional array **(B)** Rectangular array
(C) Jagged array **(D)** Row-Major array

e. Polymorphism provides a way for a subclass to define its own version of a method defined by its base class, using the process termed as

(A) Interface **(B)** Inheritance
(C) Method Overloading **(D)** Method Overriding

f. Name the property which contains a string that identifies the sequence of calls that triggered the exception?

(A) StackTrace **(B)** Message
(C) TargetSite **(D)** Source

g. Exceptions that are thrown by the .NET platform are called _____.

(A) .NET exception **(B)** Platform exception
(C) System exception **(D)** Application exception

h. Name the interface that may be implemented when you wish to equip your custom types to support the ability to return an identical copy of itself to the caller?

(A) ICloneable **(B)** IEnumerable
(C) IComparable **(D)** IComparer

i. Which benefit(s) the generic containers provide over their nongeneric counter-parts?

(A) Provide better performance
(B) More type safe
(C) Reduce the need to build custom collection types
(D) All of these

j. The .NET runtime resolves the location of a private assembly using a technique termed _____ which is much less invasive than it sounds.

(A) Probing **(B)** Xcopy deployment
(C) Assembly Binding **(D)** Remoting

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

Q.2 Explain the following: **(4×4)**
(i) The role of the Base class libraries
(ii) Compiling CIL to platform-specific instructions
(iii) The role of the Assembly Manifest
(iv) CTS Enumeration types

Q.3 a. Explain the process of configuring the C# Command-line compiler. **(6)**

b. With the help of an example, illustrate the process of compiling an application that make use of types defined in a separate .NET assembly. **(5)**

c. Which class in C# allows you to obtain a number of details regarding the context of operating system hosting .Net application. Write a small code in C# to illustrate. **(5)**

Q.4 a. What do you mean by static methods and static classes in C#? List some of the properties of static constructor. **(8)**

b. With the help of syntax and an example, explain "foreach" statement used in C# programming. **(8)**

Q.5 a. Explain the three core principles of object-oriented programming, often called the famed "pillars of OOP". **(6)**

b. How we prevent a class that cannot be further subclassed i.e. no further derivation of that class is possible? Explain. **(5)**

c. Explain the meaning and use of C# keywords: virtual and override. **(5)**

Q.6 a. Differentiate between System-Level and Application-Level exceptions. What are the different ways to build your own custom exceptions? **(10)**

b. Explain the following: **(2×3)**
(i) Generic catch Statements
(ii) Rethrowing Exceptions
(iii) The finally Block

Q.7 a. What is an Interface? What do you mean by "Extending" an interface and "Implementing" interface? Explain with the help of example. **(8)**

b. Explain with the help of program code, how interfaces can be passed to methods as parameters and can also be used as method return values. **(8)**

Q.8 a. What is .NET delegate type? Explain the concept and syntax of delegate in C#. **(8)**

b. Explain the meaning of following members of System. Multicast Delagate / System Delegate: **(2×4)**
(i) Target
(ii) Combine( )
(iii) GetInvocation List( )
(iv) Remove( )

Q.9 a. What do you mean by shared assemblies? Describe the process of assigning a strong name to assembly before you can deploy an assembly into the Global Assembly Cache (GAC). **(9)**

b. Compare and contrast Single-file and Multifile Assemblies with suitable figure. **(7)**