ROLL NO. _____

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

AMIETE – CS/IT (New Scheme)

Time: 3 Hours **JUNE 2017** **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 is not a .NET compatible language?
(A) C# **(B)** J#
(C) VB.NET **(D)** Java

b. Content of assembly can be viewed using
(B) ILDASM.exe **(B)** ILDASM.dll
(C) ILDASM.inc **(D)** ILDASM.aspx

c. An Event has _____ as default return type
(A) No return type for events **(B)** Double
(C) Integer **(D)** String

d. int keyword targets to which .Net type?
(A) System.Int8 **(B)** System.Int16
(C) System.Int32 **(D)** System.Int64

e. Difference between Convert.ToString() and ToString()
(A) Convert.ToString() handle null values but ToString() don't
(B) ToString() output as per format supplied
(C) Convert.ToString() only handle null values
(D) ToString() handle null values but Convert.ToString() don't

f. Which of the following is NOT an Integer?
(A) Char **(B)** Byte
(C) Integer **(D)** Long

g. Which of the following is NOT a .NET Exception class?
(A) StackMemoryException
(B) DivideByZeroException
(C) OutOfMemoryException
(D) InvalidOperationException

h. In C#.NET if we do not catch the exception thrown at runtime then which of the following will catch it?
(A) Compiler **(B)** CLR
(C) Linker **(D)** Loader

i. Which of the following statements is valid about generic procedures in C#.NET?
(A) Only those procedures labeled as Generic are generic.
(B) Generic procedures can take at the most one generic parameter.
(C) Generic procedures must take at least one type parameter.
(D) None of these

j. Which of the following statements is incorrect about delegate?
(A) Delegates are object oriented.
(B) Delegates are type-safe.
(C) Delegates serve the same purpose as function pointers in C and pointers to member function operators in C++.
(D) Only one method can be called using a delegate.

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

Q.2 a. Explain the core features of .NET platform. Explain the various intrinsic CTS data types expressed in .NET language. **(8)**

b. Explain the role of the Common Intermediate Language. Describe the workflow that takes place between the source code , the .NET compiler, and the .NET execution engine. **(8)**

Q.3 a. Explain the Anatomy of a Simple C# Program. Explain different types of Main function contained within a C# class definition. **(8)**

b. Explain static keyword in C#. Explain the difference between reference type and value type. **(8)**

Q.4 a. Explain processing of default constructor. Explain Chaining Constructor Calls in C#. **(8)**

b. Explain Encapsulation using .NET Properties in C#. Explain Object Initializer using an example in C#. **(8)**

Q.5 a. Which class is called the master parent class in C#? Explain it in brief. Describe various access modifiers in C#. **(8)**

b. Explain how C# supports the three core principles of object-oriented programming called the "pillars of OOP"? **(8)**

Q.6 a. What are the basics of object lifetime? Describe the role of application roots. **(8)**

b. Explain the significance of System.GC Type. What is Lazy Object Initialization? **(8)**

Q.7 a. How can you build a Cloneable Object? Explain with the help of example. **(8)**

b. Can we pass interfaces as a parameter and can a method returns an interface? Justify your answer by giving an example. **(8)**

Q.8 a. What is the role of Generics in C#? Explain creating Custom Generic Methods? Give an example in C# to illustrate its implementation. **(8)**

b. Explain the generic List<T> and Stack<T> classes with the help of example. **(8)**

Q.9 a. What is a delegate? Explain multicast delegate with example in C#. **(8)**

b. Explain the following using C# program code wherever required: **(8)**
(i) Events (ii) Lambda Expression