

AMIETE – CS/IT (New Scheme)

Time: 3 Hours

June 2018

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 utilities can be used to compile managed assemblies into processor-specific native code?
(A) gacutil (B) ngen
(C) sn (D) ildasm
- b. Which of the following statements are TRUE about the .NET CLR?
(i) It provides a language-neutral development & execution environment.
(ii) It ensures that an application would not be able to access memory that it is not authorized to access.
(iii) It provides services to run "managed" applications.
(iv) The resources are garbage collected.
(v) It provides services to run "unmanaged" applications.
(A) Only (i) and (ii) (B) Only (i),(ii) and (iv)
(C) (i),(ii),(iii),(iv) (D) Only (iv) and (v)
- c. The CLR is physically represented by an assembly named _____
(A) mscoree.dll (B) mcoree.dll
(C) msoree.dll (D) mscor.dll
- d. Choose the correct statements about enum used in C#.NET?
(A) An enum variable cannot have a private access modifier
(B) An enum variable can be defined inside a class or a namespace
(C) An enum variable cannot have a protected access modifier
(D) An enum variable cannot have a public access modifier
- e. Boxing converts a value type on the stack to an _____ on the heap.
(A) Bool type (B) Instance type
(C) Class type (D) Object type

- f. The reason that C# does not support multiple inheritances is because of _____.
(A) Method collision (B) Name collision
(C) Function collision (D) Interface collision
- g. What is the use of SuppressFinalize method of garbage collector class ?
(A) suppressFinalize method stops garbage collector acting upon an object which is passed to it.
(B) suppressFinalize method stops garbage collector from calling a destructor of an object which is passed to it.
(C) suppressFinalize method used for calling garbage collector explicitly.
(D) Statements (A) and (B) are correct.
- h. Given an interface named IWriteable. What type of object can be passed to the method with the following declaration? public bool Save(Iwriteable obj)
(A) any object
(B) any object that implements the IWriteable interface
(C) any object that implements the Save method
(D) only objects created from the IWriteable class
- i. Which of the following statements is valid about advantages of generics?
(A) Generics shift the burden of type safety to the programmer rather than compiler.
(B) Generics require use of explicit type casting.
(C) Generics provide type safety without the overhead of multiple implementations.
(D) Generics eliminate the possibility of run-time errors.
- j. Why is it a bad practice to use iteration variables in lambda expressions?
(A) Iteration variables can cause problems with accessing a modified closure.
(B) Iteration variables are passed by value, which produces unexpected results.
(C) Iteration variables are passed by reference, which produces unexpected results.
(D) It is perfectly valid to use iteration variables in lambda expressions.

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

- Q.2** Write the building blocks of .Net platform in detail (CLR, CTS and CLS) features of .NET (16)
- Q.3** Examine methods and parameter modifiers and explain how do arguments are passed to the method? (16)
- Q.4** Explain the role of allocating objects with the new keyword, default and custom constructor, this and static concepts with necessary example code snippets. (16)
- Q.5** a. Write a C# program to display cost of rectangle plot for real-estate purchase using inheritance. The values for the code can be fixed with any length, width and amount. (8)

- b. How does the programmer handle runtime anomalies in C# code through the use of structured exception handling? Differentiate application-level and system-level exceptions. Discuss the role of the System.Exception base class. (8)
- Q.6** How does the CLR manage the allocated objects in heap memory using garbage collection? How to programmatically interact with the garbage collector using the System.GC class type? What the Virtual System.Object.Finalize() method does? (16)
- Q.7** How will you define and implement interfaces? Write the benefits of building types that support multiple behaviors. Explain the steps to obtain interface references, explicit interface implementation and the construction of interface hierarchies. (16)
- Q.8** What is the issue with non-generic collection and role of generic type parameters? Give an overview of the various generic namespaces and types found within the .NET base class libraries. (16)
- Q.9** Write about .NET delegate type and defining a delegate type in C#, How to create and manipulate delegate types, the System.MulticastDelegate and System.Delegate base classes? Give the simple possible delegate example for sending object state notifications. (16)