First Semester M.Tech. Degree Examination, Dec.2013/Jan.2014

C# and .Net

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1   a. Explain the features and basic building blocks of .NET frameworks.   **(10 Marks)**
    b. Explain CLR. Illustrate the workflow that takes place between the source code, given .NET compiler and the .NET execution engine.   **(06 Marks)**
    c. What is the role of .NET type metadata?   **(04 Marks)**

2   a. Explain the command line options for C# compiler. Explain the use of response files.
                    (10 Marks)
    b. What is cordbg.exe? List and explain any five command line flags recognized by cordbg.exe.   **(06 Marks)**
    c. Explain boxing and unboxing with an example.   **(04 Marks)**

3   a. Explain the following terms with examples:
        i)   foreach
        ii) ref
        iii) params
        iv) verbatim
        v)   enum   **(10 Marks)**
    b. Explain with C# code the use of (i) static method, (ii) static constructor.   **(06 Marks)**
    c. Briefly explain C# nullable types.   **(04 Marks)**

4   a. How would you enforce encapsulation using accessors and mutators? Explain with examples class properties and static properties in C#.   **(10 Marks)**
    b. Demonstrate the use of abstract class, abstract methods and virtual methods by implementing the hierarchy of classes in C#
            abstract class shape with field petname, methods:
            abstract CALCULATE_AREA and Virtual DRAW
            write appropriate constructors and properties.
    Class Square: derived from shape
                    override methods DRAW and CALCULATE_AREA
                    field length
                    write appropriate constructors
    Class Circle: derived from shape
                    override methods DRAW and CALCULATE_AREA
                    field radius
                    write appropriate constructors
    Write a driver program to create an array of shapes with 2 squares and 2 circles. Call the methods DRAW and CALCULATE_AREA for each.   **(10 Marks)**

5 a. When is overriding of Finalize( ) required? Detail the finalization process. Give any six members of system.GC. **(08 Marks)**

  b. Differentiate between bugs, errors and exceptions. Explain the concept of .NET exception handling with relevant examples. **(08 Marks)**

  c. Enumerate what is meant by TargetSite property, StackTrace property, HelpLink property and Data property in System.Exception. **(04 Marks)**

6 a. Explain the different methods of interface member invocation. **(06 Marks)**

  b. Write an explanatory note on IEnumerable and IEnumerator with examples. **(06 Marks)**

  c. Briefly explain any four classes of System.Collection. Also give the key interfaces implemented by them. **(08 Marks)**

7 a. What are delegates? Explain the members of System.MultiCast.Delegates. Give a program that implements multicasting. **(10 Marks)**

  b. What do you understand by event based programming in C#? Give an example. **(10 Marks)**

8 a. Explain the following keywords:
  i) checked
  ii) unchecked
  iii) size of
  iv) unsafe
  v) stack alloc **(10 Marks)**

  b. Explain shared and private assemblies. **(10 Marks)**

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