



## P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

**Sixth Semester, B.E. - Information Science and Engineering**

**Semester End Examination; June - 2017**

**C# and .NET**

Time: 3 hrs

Max. Marks: 100

**Note:** Answer *FIVE* full questions, selecting *ONE* full question from each Unit.

### UNIT - I

1. a. List out the core features of .NET. 3
- b. State the uses of following terms: 8
  - i) CLS ii) CIL
  - iii) Assembly iv) Manifest.
- c. Illustrate the basic workflow that takes between source code, a given. NET Compiler and mscoree.dll. 9
- 2 a. Illustrate : 10
  - i) Referencing External Assemblies ii) Compiling Multiple Source Files
  - iii) Response Files iv) Generating Bug Report

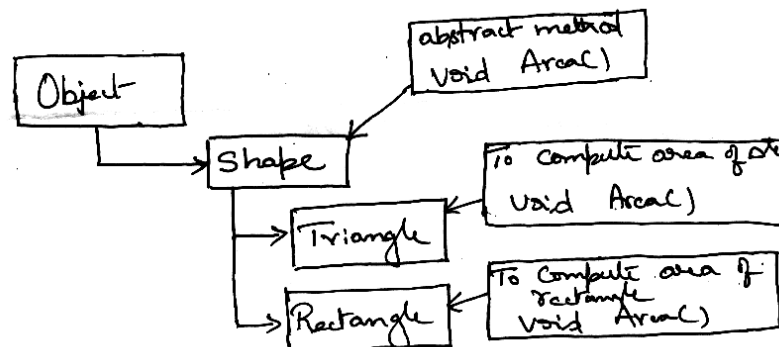
With respect to C# program in command prompt.
- b. Identify and state the uses of any four command line flags recognized by cordbg.exe while running .NET assemblies under debug mode. 4
- c. With a code snippet, illustrate the uses of the following: 6
  - i) #region, #endregion
  - ii) # line
  - iii) Conditional code compilation.

### UNIT - II

- 3 a. Differentiate between Value types and Reference types. 8
- b. Write a C# program in which a method accepts two arguments as parameters from the user and returns four output values as add, sub, mul and division operations on arguments. 6
- c. Write a function searchAndReplace (src, pattern, replace) to replace the 'pattern' string with the 'replace' string in the 'src' string, if found, else leave 'src' unaltered. Use only System String members. 6
- 4 a. Identify the two forms of relationships in C# inheritance. Illustrate its uses with real world example. 5
- b. State the purpose of encapsulation. Explain the two ways of enforcing encapsulation with an example for each. 10
- c. Write the need of static read-only fields with an example. 5

**UNIT - III**

- 5 a. Illustrate polymorphism with a C# program to compute the area of triangle and rectangle for the following hierarchy.



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- b. Develop a method that would sort an array of integers. Incorporate exception handling mechanism for “Index out of bounds” situation. Develop a main program that employs this method to sort a given set of integers. 8
- c. Write a C# program to illustrate the use of system.GC type. 5
6. a Why do we need an interface? Explain the three different ways of obtaining interface references with examples. 10
- b. How do build cloneable and comparable objects, illustrate with examples. 10

**UNIT - IV**

7. a Briefly explain any three interfaces of System.Collections and any three class types of system.Collections. 6
- b. Illustrate the use of callback interfaces with a C# program. 6
- c. Write a complete C# program to compute and display sum, difference and multiplication of two numbers by writing appropriate methods which could be called through multicast delegate method of programming. 8
- 8 a. With an example, discuss, the advanced keywords of C# checked, unsafe, stack alloc, volatile and sizeof. 10
- b. Write a C# program to demonstrate overloading of the following operators: 10
- i) ++            ii) --            iii) +            iv) - .

**UNIT-V**

- 9 a. Illustrate the use of creating custom conversion routine with a C# program. 10
- b. Illustrate the two conceptual views of a .NET assembly with neat diagrams. 10
- 10 a. Does C# support for Cross language inheritance? If yes illustrate with example. 10
- b. State the purpose of multiple assemblies. How to build and consume a multiple assembly. 10