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

(An Autonomous Institution affiliated to VTU, Belgaum)

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

Semester End Examination; June - 2016

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. Listing the core features of .NET, explain the role of the Base class library relationship with the three key entities CLR, CTS and CLS. 10
- b. How can Namespace be accessed programmatically with a code snippet? Explain in detail. 10
- 2 a. Build a simple single file assembly using the C# command-line compiler and Notepad. 10
- b. Explain the following : 10
 - i) C# Preprocessor Directives
 - ii) Command Line Debugger

UNIT - II

- 3 a. Explain the role of constructor in a C# program. 5
- b. Write a C# program to enter and display student information using different constructors. 5
- c. List and explain the members of System.Boolean and System.char. 4
- d. Explain Boxing and Unboxing in C# with example. 6
- 4 a. 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
- b. Explain any four members of the System.Enum class with examples. 4
- c. What are accessors and mutators? Consider the employee program and illustrate encapsulation using class properties. 10

UNIT - III

- 5 a. Develop a C# code to generate electricity bill. If the unit consumed is less than 100 then charge 50 ps. Per unit, else charge 75 per unit. Define a class Electricity to compute the cost. Define a derived class More_electricity and override the bill to compute for units >100. 10
- b. Explain the following keywords with examples : 10
 - i) virtual
 - ii) override
 - iii) sealed
 - iv) abstract
- 6 a. Explain the role of exception handling in .NET with the four interrelated entities. 10
- b. With a code snippet illustrate the implementation of an interface in C#. 10

UNIT - IV

- 7 a. Write the block diagram of the System.Collections interface hierarchy and explain the role of ICollection interface and IDictionary Interface. 10
- b. What is a callback mechanism in C#? Illustrate callback interface with a code snippet. 10
- 8 a. Develop a simple calculator to add, subtract, multiply and divide using multicast delegate. 10
- b. Write the two-step process for defining an event and demonstrate with an example. 5
- c. Develop a C# program to illustrate overloading '+' operator and '>' operator. 5

UNIT - V

- 9 a. Consider a C# program with base class Shapes and derived classes Rectangle and Square and illustrate the creation of custom conversion routines. 10
- b. Explain single file and multi file assemblies with block diagram. 10
- 10 a. Create a console application using Visual Studio .NET and explain the steps involved in it. 10
- b. Explain the process of building and consuming a multi file assembly with a code snippet. 10

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