



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

(An Autonomous Institution affiliated to VTU, Belagavi)

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

Semester End Examination; Dec - 2017 / Jan - 2018

C# Programming & .NET

Time: 3 hrs

Max. Marks: 100

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

UNIT - I

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|------|---|----|
| 1 a. | State the purpose of CLR (Common Language Runtime). Illustrate the work flow that takes place between the source code, given .NET compiler and the .NET execution engine. | 10 |
| | b. List and explain the intrinsic CTS data types. List any two uses of namespaces in C#. | 10 |
| 2 a. | List and explain output centric options of the C# compiler with examples. | 10 |
| | b. Illustrate the purpose of following C# preprocessor directives : | |
| | i) # region and #endregion | 5 |
| | ii) conditional code compilation. | |
| c. | Write a C# program to find the factorial of a given number and write the steps/commands to compile this program. | 5 |

UNIT - II

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|------|---|----|
| 3 a. | Write a C# program to count the number of object instances created of a particular class. | 6 |
| | b. Differentiate between value types and reference types. | 8 |
| | c. Demonstrate boxing and unboxing with a code snippet. | 6 |
| 4 a. | List and explain C# access modifiers. | 10 |
| | b. Explain static methods with an example. | 4 |
| | c. Explain any six core members of System.Object class. | 6 |

UNIT - III

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|------|--|----|
| 5 a. | What are the three pillars of object oriented programming in C#? Differentiate between "is-a" and "has-a" relationships. | 10 |
| | b. What are bugs, errors and exceptions? List and explain the core members of System.Exception type. | 10 |
| 6 a. | What is meant by object life time? Explain the garbage collection optimization process in C#. | 10 |
| | b. What is an interface? Explain the three methods to obtain interface references. | 10 |

UNIT - IV

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|------|--|----|
| 7 a. | List and explain in detail any five interfaces of System.Collections. | 10 |
| | b. What is meant by the .NET delegate type? Illustrate the concept with an example code. | 10 |

- 8 a. Differentiate between synchronous and asynchronous delegates with suitable example. 10
- b. What is an indexer? Explain with an example. List any two differences between indexer and property. 10

UNIT - V

- 9 a. With an example program, explain how to create custom conversion routines in C#? 10
- b. Explain the two conceptual views of .NET assembly with neat diagram. 10
- 10 a. Explain single file assembly and multiple assemblies with neat diagram. 10
- b. Is cross language inheritance is possible on .NET platform? If yes, explain how it is achieved with an example program? 10

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