

C#

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Science Information Technology

TYBSc-IT

Semester 6

University Exam

University of Mumbai

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- N.B. (1) Question No. 1 is compulsory.
 (2) From Question Nos. 2 to 7, attempt any four questions.
 (3) Make suitable assumptions wherever necessary and state the assumptions made.
 (4) Answer to the same question must be written together.
 (5) Numbers to the right indicates marks.
 (6) Draw neat labeled diagrams wherever necessary.

1. Answer the following questions :-
 - (a) "C# is modern, type-safe, versionable and inter-operable language". Justify 4
 - (b) What are the benefits of Microsoft .NET strategy? 4
 - (c) Describe Concat and Substring methods of String class. 4
 - (d) What are properties? How do you define a property as read-only or write only? 4
 - (e) State four important features of a constructor. Also list various types of constructors available in C#. 4
2.
 - (a) Explain the functioning of while loops with an example. When do you use break and continue statements inside a while loop? 6
 - (b) Explain params parameter with an example. Also state three restrictions in declaring it. 6
 - (c) Write a program that swaps any two rows of a 3 x 3 matrix. The matrix must be implemented as a two dimensional array. Accept row numbers of the rows to be swapped from the user. 8
3.
 - (a) When do you use override modifier in a method definition? What are the differences between using a new modifier and override modifier? 6
 - (b) What are structures? Differentiate between structures and classes. 6
 - (c) Create an enumerated data type called Sides with members uni, bi, tri, tetra, penta and hexa. The constant value associated with uni is 1, bi is 2, tri is 3 and so on. Create an ArrayList object and add every members of the above enumeration into it. Print the name and value of every enumeration member from the ArrayList using a for each loop. 8
4.
 - (a) Give a brief account on -
 - (i) indexers
 - (ii) method overloading.
 6
 - (b) What are jagged arrays? Describe the syntax of creation and initialization of jagged arrays. 6
 - (c) Define a class called Kilometer with a double data type variable and a constructor to initialize it. include operator methods such that you will be able to perform the following operation.


```

          int i = (new Kilometer(22)*3) - new Kilometer(10);
          System.Console.WriteLine("22 * 3 = ");
          8
          
```

5. (a) What are delegates ? Discuss the steps involved in creating and using a delegate.
(b) Explain inclusion polymorphism with a suitable example.
(c) Define a structure called Date with members day, month and year. This structure has an input() method to accept values for its data members from the user and a print() method to print them. It has three properties in order to get and set day, month and year. Write a program that exercises the above structure by creating a Date variable and calling its input() and print() methods. The program has to make use of try and catch blocks wherever required.
6. (a) How do you get formatted output using System.Console.WriteLine() method ? Describe Integer and currency numeric formatting.
(b) List all possible members of an interface. Explain explicit interface member implementation with an example.
(c) Write a program that counts the number of occurrences of a given word in a given string using regular expressions.
7. (a) Discuss Boxing and Unboxing in the context of value types and reference types.
(b) Explain simple if and nested if conditional statements with suitable examples.
(c) Define a class Student with data members rollno to hold the roll number and year to hold the year of examination of students. It has an input() method that accepts the year and the roll number of a student from the user. It also has a property that automatically sets the register number of the student as rollno preceded by the year. For year less than 2000, consider the last two digits only. Also assume that the class strength is 60.