

DiplETE – CS (Current Scheme)

Time: 3 Hours

June 2018

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following: (2×10)

- Which of the following Statement rethrows Exception?
(A) throw new System.Exception(); (B) throw;
(C) rethrow Exception(); (D) rethrow;
- _____ are symbols used for grouping and separating code. They define the shape and function of a program.
(A) Literals (B) Operators
(C) Punctuators (D) None of these
- _____ technology is used by microsoft to enable interprocess communication.
(A) COM (B) OLE
(C) .NET (D) None of these
- Using which of the following modifier, a method can be accessed within the class in which it is defined and from a derived class.
(A) private (B) public
(C) static (D) protected
- Which of the following statements is correct about Bitwise / operator used in C#.NET?
(A) The / operator can be used to put ON a bit.
(B) The / operator can be used to Invert a bit.
(C) The / operator can be used to check whether a bit is ON.
(D) The / operator can be used to put OFF a bit.
- Which of the following statements is correct about classes and objects in C#.NET?
(A) Class is a value type.
(B) Objects are always nameless.
(C) Objects of smaller size are created on the heap.
(D) Since objects are typically big in size, they are created on the stack.

- g. Contents of assembly file can be investigated using
(A) ILDASM.inc (B) ILDASM.dll
(C) ILDASM.exe (D) ILDASM.aspx
- h. Select the method which returns the number of bytes from the array buffer?
(A) int Write(byte[] buffer, int offset, int count)
(B) void write Byte(byte value)
(C) write()
(D) None of these
- i. _____ represents a compliance level that most languages should adhere to attain interoperability.
(A) Common Type System
(B) Common Language Runtime
(C) Unified Base Classes
(D) Common Language Specification
- j. For modulo division, the sign of the result is always the sign of
(A) both first & second operand (B) second operand
(C) first operand (D) neither first nor second operand

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

- Q.2** a. What is common language specification? How does the CLR implements a C# program? (8)
- b. Draw the .NET framework architecture & explain in detail. (8)
- Q.3** a. Given a number, write a program using while loop to find the sum of digits of the number. The number should be READ through keyboard. For example if the entered number is 12345, the output should be (1+2+3+4+5). (6)
- b. Briefly explain precedence and associativity of operators in C#. (4)
- c. Write a program in C# to print the sum of squares of all odd numbers from 1 to 100. (i.e. $1^2 + 3^2 + 5^2 + \dots + 99^2$) (6)
- Q.4** a. Explain in detail the concept of jagged arrays with examples. (8)
- b. Differentiate between Arraylist and List. How we can insert and remove elements with the insert and remove methods in Arraylist. (8)
- Q.5** a. What are regular expressions? Where they can be applied? (8)
- b. Explain compare(), equals() methods and == operator used to compare strings with an example for each. (8)

- Q.6** a. Explain the different C# access modifiers used to control accessibility of members of a class. (8)
- b. What do you mean by a property? What are various features of property? Why they are referred to as smart fields? (8)
- Q.7** a. What is an Interface? What do you mean by “Extending” interface and “Implementing” interface? Explain with the help of example. (8)
- b. Write a program in C# to overload unary minus (-) operator on complex number of type $C = x + iy$. (8)
- Q.8** a. What is the need of operator overloading? Give examples of overloading unary operators, overloading binary operators, overloading comparison operators. (8)
- b. What are events? How does C# handle events? Give example where events are used. (2+4+2)
- Q.9** a. What is multithreading? Explain. Write a C# code to create and start threads. (6)
- b. What are run-time errors? (4)
- c. Briefly describe the usage and purpose of finally statement while handling exceptions. (6)