

DiplETE – CS (Current Scheme)

Time: 3 Hours

JUNE 2016

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)

- a. CLR stands for

(A) Cross Language Runtime	(B) Cross Language Reference
(C) Common Language Runtime	(D) Common Language Reference
- b. For modulo division, the sign of the result is always the sign of

(A) first operand	(B) second operand
(C) both first & second operand	(D) neither first nor second operand
- c. &, |, ^, ~, >> and << are classified as

(A) Arithmetic Operators	(B) Bitwise Operators
(C) Relational Operators	(D) Logical Operators
- d. Which of the following is an entry controlled loop

(A) for loop	(B) while loop
(C) do ... while loop	(D) Both (A) & (B)
- e. Which of the following is the default access modifier in C#

(A) private	(B) public
(C) protected	(D) internal
- f. Static variables are also known as

(A) Instance Variable	(B) Local Variable
(C) Class Variable	(D) Global Variable
- g. Which of the following will be the correct output for the C#.NET code snippet given below?


```
int a = 10, b = 20, c = 30;
int res = a < b ? a < c ? c : a : b;
Console.WriteLine(res);
```

(A) 10	(B) 20
(C) 30	(D) Compile Error / Syntax Error

- h. Which of the following .NET components can be used to remove unused references from the managed heap?
 (A) Common Language Infrastructure (B) Garbage collector
 (C) Class Loader (D) CLR
- i. Which of the following statements are correct about constructors in C#.NET?
 1. Constructors cannot be overloaded.
 2. Constructors always have the name same as the name of the class.
 3. Constructors are never called explicitly.
 4. Constructors never return any value.
 5. Constructors allocate space for the object in memory.
 (A) 1,3,5 (B) 3,5
 (C) 2,3,4 (D) 4,5
- j. Which of the following will be the correct output for the C#.NET code snippet given below?

```
String s1 = "ALL MEN ARE CREATED EQUAL";
String s2;
s2 = s1.Substring(12, 3);
Console.WriteLine(s2)
```

 (A) CRE (B) CR
 (C) ARE (D) REA

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

- Q.2** a. Briefly explain the following: (8)
 (i) CLR (ii) CTS
 (iii) CLS (iv) MSIL
- b. C# is a type safe language. State any four measures incorporated in C# to make it type safe. (4)
- c. What do you mean by scope of a variable? State the scope of the following types of variables in C# (1+3)
 (i) Static variables
 (ii) Instance variables
 (iii) Local variables
- Q.3** a. Briefly explain precedence and associativity of operators in C#. (4)
- b. 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)
- c. Differentiate between : (6)
 (i) while & do.. while loop in C#
 (ii) break & continue statement in C#
 (iii) break & goto statement in C#

- Q.4** a. Differentiate between passing parameters to a method by value and by reference along with an appropriate example. (10)
- b. How does an array of ArrayList class differ from an array of Array class? Explain with an example. (6)
- Q.5** a. Briefly explain the various methods for comparing two strings for equality in C#. (6)
- b. Distinguish between String and StringBuilder class in C# (4)
- c. What is enumeration? Explain along with its syntax and an appropriate example. (6)
- Q.6** a. What do you understand by access modifiers? Briefly explain the various access modifiers available in C#. (6)
- b. Briefly explain static variables and static methods in C#. (4)
- c. Differentiate between the following: (6)
- (i) static binding & dynamic binding
 - (ii) method overloading & method overriding
 - (iii) abstract class & sealed class
- Q.7** a. What are the various similarities and differences between a class & an interface? (4)
- b. Write a program in C# to overload unary minus (-) operator on complex number of type $C = x + iy$. (6)
- c. Briefly explain Inheritance and its types. (6)
- Q.8** a. Enumerate the steps involved in creating and using a delegate. (6)
- b. Distinguish between the following:- (4)
- (i) Read and ReadLine methods
 - (ii) Write and WriteLine methods
- c. What is a custom numeric format? Why do we need custom format strings? (6)
- Q.9** a. What is exception handling? Describe the steps involved in exception handling. (6)
- b. List any four exceptions that occur commonly in C# program. (4)
- c. Define thread. What are the various states in a thread life cycle? (6)