

DiplETE – CS (Current Scheme)

Time: 3 Hours

JUNE 2015

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. The _____ is responsible for managing the execution of code compiled for the .NET platform.

- (A) MSIL
(C) CLR

- (B) CTS
(D) CLS

b. Which of the following is / are not Relational operator in C# .NET?

- (A) >=
(C) <>=

- (B) !=
(D) <=

c. Select the relevant output for set of code:

```
m = 5;  
int y, x;  
y = m++;  
x = ++m;
```

- (A) y = 5, m = 6; x = 5, m = 5
(C) y = 5, m = 6; x = 7, m = 7

- (B) y = 6, m = 6; x = 7, m = 6
(D) y = 5, m = 6; x = 7, m = 8

d. Number of constructors a class can define

- (A) 1
(C) Any number

- (B) 2
(D) None of these

e. Correct way to find if contents of two strings are equal or not?

- (A) is (s1 = s2)
(C) is (strcmp(s1,s2));

- (B) if (strcmp(s1 == s2))
(D) if (strcmp(s1,s2));

- f. Which of these is used as default specifier for a member of class if no access specifier is specified for it?
- (A) private (B) public
(C) public, within its own class (D) protected
- g. Which of this method of Thread class is used to suspend a thread for a period of time?
- (A) sleep() (B) terminate()
(C) suspend() (D) stop()
- h. Select the method which returns the number of bytes from the array buffer?
- (A) void write Byte(byte value)
(B) int Write(byte[] buffer, int offset, int count)
(C) write()
(D) none of these
- i. Choose correct statements about enum used in C# .NET from the following statements:
- (A) An enum variable cannot have a private access modifier
(B) An enum variable can be defined inside a class or a namespace
(C) An enum variable cannot have a protected access modifier
(D) An enum variable cannot have a public access modifier
- j. What will be the output of the given code snippet?
- ```
{
 try {
 int []a = { 1, 2, 3, 4, 5 };
 for (int i=0; i < 7; ++i)
 Console.Write(a[i]);
 } catch (IndexOutOfRangeException e) {
 Console.Write("0");
 }
}
```
- (A) 12345 (B) 123450  
(C) 1234500 (D) Compile time error

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

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- Q.2** a. What are the benefits of .Net strategy advanced by Microsoft? (6)
- b. What is the Microsoft Intermediate Language? (4)
- c. With the help of example, explain Boxing and Unboxing. (6)

- Q.3** a. With the help of syntax and example, explain “foreach” statement used in C# programming. (5)
- b. What is “fallthrough” in switch statement? How it is achieved in C#? (5)
- c. 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)
- Q.4** a. What is method overloading? Explain. Write a program to illustrate the concept of method overloading. (8)
- b. Explain the two different ways to initialize an array. Give example. (4)
- c. What is a variable size array? How is it different from a rectangular array? (4)
- Q.5** a. Describe any four methods that can be used to create immutable strings using ‘string’ or ‘String’ objects. (8)
- b. What is structure? How values are assigned to the members of structure? State the important differences between structure and class. (8)
- Q.6** a. Explain with suitable examples the three pillars of object-oriented programming. (6)
- b. What is an Indexer? How does an indexer differ from a property in terms of implementation? (5)
- c. What are the constraints that C# imposes on the accessibility of members and classes when they are used in the process of inheritance? (5)
- Q.7** a. What is an Interface? What do you mean by “Extending” and interface and “Implementing” interface? Explain with the help of example. (8)
- b. What is operator overloading? Write a program in C# to overload binary plus (+) operator to add two complex number of type  $x = a + iy$ . (8)
- Q.8** a. What is delegate? Discuss the syntax of delegate declaration. What are the modifiers that can be applied to a delegate? Give examples. (8)
- b. Explain the general format of the “Standard Numerical format”. (8)

**Q.9** a. Consider the following code for nested-try block:

```
try {
 // Point P1

 try {
 // Point P2

 }
 catch {
 // Point P3

 }
 finally {

 }
 // Point P4

}
catch {

}
finally {

}
```

Explain how exceptions that are thrown as at points P1, P2, P3, and P4 are handled? (2×4)

b. What is thread pooling? Write a program in C# to illustrate the use of thread pool. (8)