

DiplETE – CS

Time: 3 Hours

JUNE 2013

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. In .NET, CLR means

- (A) Common language runtime (B) Computer language runtime
(C) Compiler language runtime (D) None of these

b. Namespace logically groups _____

- (A) Logical units (B) Classes
(C) Objects (D) DLL files

c. Boxing in .Net allows the user to convert

- (A) An integer type to double (B) A reference type to a value type
(C) A value type to a reference type (D) A double type to integer

d. Which of the following is not a logical operator in C#.Net

- (A) && (B) ||
(C) % (D) !

e. Which of the following is an 8-byte integer?

- (A) Char (B) Long
(C) Byte (D) Short

f. Which one of the following statements is correct?

- (A) Array elements can be of integer type only.
(B) The rank of an array is the total number of elements it can contain.
(C) The default value of numeric array elements is zero.
(D) The array elements are guaranteed to be sorted.

- g. Which of the followings is the correct way to overload + operator?
- (A) public sample operator + (sample a, sample b)
 - (B) public abstract operator + (sample a, sample b)
 - (C) public abstract sample operator + (sample a, sample b)
 - (D) public static sample operator + (sample a, sample b)
- h. In which of the following areas are delegates commonly used?
- (A) Remoting
 - (B) Serialization
 - (C) File input/output
 - (D) Callback & Event Handling
- i. Code that targets the Common Language Runtime is known as
- (A) Unmanaged
 - (B) Distributed
 - (C) Managed
 - (D) Legacy
- j. Exceptions can be thrown even from a constructor, whereas error codes cannot be returned from a constructor.
- (A) TRUE
 - (B) FALSE

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

- Q.2** a. What is a CLR? What are the responsibilities of CLR? (8)
- b. How does C# differ from Java? (8)
- Q.3** a. Write a C# program that will print prime numbers upto 100. (8)
- b. Explain arithmetic operators with an example in C#. Describe the operator precedence and associativity. (8)
- Q.4** a. Difference between Arraylist and List. How we can insert and remove elements with the insert and remove methods in Arraylist. (8)
- b. What is the method parameter? What are its types? Give examples of passing the parameter by value and by reference. (8)
- Q.5** a. Write a program in C# that stores a list of countries in a string array, sorts the array into reverse alphabetical order and then print the list. (8)
- b. What do you mean by structures? Explain nested structure using suitable example. Also explain significant differences between classes and structures. (8)

- Q.6** a. What do you understand by inheritance and its types? Explain difference between abstract class and abstract method. (8)
- b. What is sealed class? Why we need it? And explain sealed method also. (8)
- Q.7** a. Why do we need interfaces in C#? How can we implement interface in C#? (8)
- b. What is operator overloading? How to overload binary operator in C#? Give C# program to illustrate. (8)
- Q.8** a. How to declare a delegates? Explain multicast delegates and events. (8)
- b. Write a program to display the following output:
- ```
 *
 * * *
 * * * * *
 * * * * * *
```
- (8)
- Q.9** a. What is Multi-threading? What is suspend and resume in threading? How a thread is created? (8)
- b. Explain any **TWO** of the following:
- (i) Threadpool class
  - (ii) Thread synchronization
  - (iii) Mutex class
- (8)