

M4.1-R4: APPLICATION OF .NET TECHNOLOGY

NOTE:

IMPORTANT INSTRUCTIONS:

1. Question Paper in English and Hindi and Candidate can choose any one language.
2. **In case of discrepancies in language, English version will be treated as final.**
3. There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.
4. **PART ONE** is to be answered in the **OMR ANSWER SHEET** only, supplied with the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book.
5. Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the answer sheet for **PART ONE** is returned. However, candidates, who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the answer sheet for **PART ONE**.

TOTAL TIME: 3 HOURS

TOTAL MARKS: 100
(PART ONE – 40; PART TWO – 60)

PART ONE **(Answer all the questions)**

1. **Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the “OMR” answer sheet supplied with the question paper, following instructions therein. (1x10)**
 - 1.1 The purpose of the Common Type System (CTS) of Common Language Runtime (CLR) is to provide a language-neutral platform for the following:
 - A) Support multiple languages because it contains a type system that is common across all the languages of only .NET Framework Application development environment.
 - B) CTS provides a base set of data types, where the size of integer and long variables is same across all .NET-compliant programming languages.
 - C) CTS provides the data type system where int32 to represent a 4 byte integer value.
 - D) All of the above
 - 1.2 Which of the following is not a .NET compatible language?
 - A) C#
 - B) VB.NET
 - C) COBOL.NET
 - D) Java
 - 1.3 Which of the following jobs are performed by Garbage Collector?
 - A) Managing memory leaks and Releasing memory taken by unreferenced objects
 - B) Closing unclosed files
 - C) Managing database collections
 - D) Releasing memory on the stack
 - 1.4 In VB.NET, Single line comments statement:
 - A) Begin with a double quote (“) followed by a space
 - B) Begin with a single quote (/*) followed by a space
 - C) Begin with a single quote (//) followed by a space
 - D) Begin with a single quote (') followed by a space

- 1.5 XML Web Services:
- i) Allow applications to communicate and share data over the internet, regardless of operating system or programming language.
 - ii) Links allows you to search for and publish XML Web Services
- A) Only i) is possible
B) Only ii) is possible
C) Both i) & ii) are possible
C) Both i) & ii) are not possible
- 1.6 ADO .NET characteristic
- i) Data access technology with .NET Framework
 - ii) Designed for disconnected operation
 - iii) Optimized for data viewing capability
 - iv) XML based data shearing ability
- A) Both i) and iv) are true
B) Both ii) and iv) are true
C) Only i) and ii) are true
D) All i), ii), iii) and iv) are true
- 1.7 Which of the following statement is true about data types in C#?
- i) Size of short and ushort is same.
 - ii) Size of int and uint is same.
 - iii) Size of long and ulong is same.
 - iv) Size of double and Decimal is same.
 - v) Size of byte and sbyte is same.
- A) Both i) and iv) are true
B) Both ii) and iv) are true
C) Only iii), iv) and v) are true
D) Only i), ii), iii), v) are true
- 1.8 The code-behind feature of ASP.NET offers a number of advantages:
- i) Makes code easy to understand and debug by separating application logic from HTML tags
 - ii) Provides the isolation of effort between graphic designers and software engineers
 - iii) Removes the problems of browser incompatibility by providing code files to exist on the Web server and supporting Web pages to be compiled on demand.
- A) Only i) is correct
B) Both i) and iii) are correct
C) Both ii) and iii) are correct
D) All i), ii) and iii) are correct
- 1.9 What is the objective of Server Object in ASP.Net?
- i) It controls the ASP.Net execution environment.
 - ii) It can set the amount of time scripts can run before an error occurs.
 - iii) Converts a virtual path to a physical path on the server to take care of user supplied string and encode it into proper format for a URL string.
- A) Both i) and iii) are correct
B) Both ii) and iii) are correct
C) All i), ii) and iii) are correct
D) Only i) is correct

1.10 In C# code which is not considered as **Jump Statement**

- A) "break"
- B) "continue"
- C) "case"
- D) "throw"

2. **Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)**

- 2.1 In C#, &a; will give a pointer to a variable.
- 2.2 .NET Framework contains "Windows Services" as one of the component.
- 2.3 System.Web.UI" is a base class in ASP.NET
- 2.4 Everything in interface is automatically public.
- 2.5 The cross-page posting in ASP.NET, the Server.Transfer() method is used to post data from one page to another with respect to same URL when the PostBackUrl property of the control has been set to specifies the target page.
- 2.6 Static method don't require instance.
- 2.7 Within the scope of a variable or constant it is an error to declare another variable or constant with the same name. for example the C# code is given below:


```

      {
          int x;
          {
              int x; // Error: can't hide variable x
          }
      }
      
```
- 2.8 Client side scripting means that the script will be executed immediately in the browser such as form field validation, clock, email validation, etc.
- 2.9 In .NET 4.0, Lazy initialization is a process by which an object is not initialized until it is first called in your code.
- 2.10 We can have unlimited number of cookies per website

3. **Match words and phrases in column X with the closest related meaning/ word(s)/phrase(s) in column Y. Enter your selection in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)**

| X | | Y | |
|------|---|----|----------------------------|
| 3.1 | System.WinForms.MessageBox.Show(); | A. | ADO.NET |
| 3.2 | In OOP, you can create one class from another class | B. | '\n' |
| 3.3 | Presentation Layer or UI Tier | C. | Inheritance |
| 3.4 | Operator " " | D. | MS SQL Server |
| 3.5 | Escape sequence character | E. | User interaction |
| 3.6 | "xsd.exe" executable code | F. | Data mapping Tool for XML |
| 3.7 | Prevent a class from being inherited | G. | Windows applications |
| 3.8 | XML Tags | H. | Sealed class in C# |
| 3.9 | Data access technology of .Net Framework | I. | Case Sensitive |
| 3.10 | SqlDataAdapter | J. | Logical Operator |
| | | K. | Write-only dataset |
| | | L. | '\n' |
| | | M. | XML Schema definition Tool |

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Enter your choice in the “OMR” answer sheet supplied with the question paper, following instructions therein. (1x10)

| | | | | | |
|-----------|-------------------------|-----------|------------------|-----------|----------------|
| A. | Client Machine | B. | Interfaces | C. | &a |
| D. | Display data | E. | XML | F. | Dataset Object |
| G. | Response.Output.Write() | H. | case-insensitive | I. | CLR |
| J. | MS SQL Server | K. | && | L. | 4 bytes |
| M. | website | | | | |

- 4.1 In ADO.NET, use the DataSet object in code to _____ from the database.
- 4.2 In ASP.NET, the _____ method allows you to write the formatted output.
- 4.3 References the address of the pointer in C# is _____.
- 4.4 In C# , sizeof(int) will return the size of a data type “int” is _____.
- 4.5 VB.Net is a _____ language; hence Console and conSole are the same words or identifiers in VB.Net.
- 4.6 The application execution engine in .NET Framework is _____.
- 4.7 ADO.NET enables truly disconnected data access and data manipulation through its _____, which is completely independent from the data source.
- 4.8 Use SqlConnection object to connect to a _____ Database.
- 4.9 ADO.NET uses _____ for passing the data.
- 4.10 Session cookie resides on the _____ for a single session until the user does not log out.

PART TWO
(Answer **ANY FOUR** Questions)

5.

- a) Explain the types of generations in a garbage collector?
- b) Describe the roles of Common Language Runtime (CLR) in .NET Framework.
- c) What is a Cookie?

(5+6+4)

6.

- a) In ASP.NET, what is the difference between Custom Control and User Control?
- b) What is Authentication and Authorization?
- c) Explain Windows Authentication, Forms Authentication and Passport Authentication.

(5+4+6)

7.

- a) What is difference between “is” and “as” operators in C# ?
- b) What is the difference between an object and a class?
- c) Find output of the Program written in C# programming language.

```
using System;
class Program
{
    public static int ComputeNumber(int n)
    {
        int a = 0;
        int b = 1;
        // For-Loop steps for computing iteratively.
        for (int i = 0; i < n; i++)
        {
            int temp = a;
            a = b;
            b = temp + b;
        }
        return a;
    }

    static void Main()
    {
        for (int i = 0; i < 15; i++)
        {
            Console.WriteLine(ComputeNumber(i));
        }
    }
}
```

(5+4+6)

8.

- a) Give an example of User Defined Data Types (UDT's) coding in VB.NET.
- b) What could be the output for the following segment of code in VB.NET.

```
Dim MyArray(4) As String
  MyArray(0) = "A"
  MyArray(1) = "D"
  MyArray(2) = "E"
  MyArray(3) = "B"
  MyArray(4) = "C"
  Array.Sort(MyArray)
  Array.Reverse(MyArray)
```

- c) Explain "What are objectives of VS.NET (Visual Studio.NET)?"
- d) Write VB.NET program code with "Case" statement to display a popup message to the user during application execution asking a question.

(3+3+3+6)

9.

- a) Answer **any two** of the following of .NET Framework.
 - i) Explain the objectives of .NET Framework and Code Access Security (CAS).
 - ii) Explain Base Class Library (BCL) and Common Language Infrastructure (CLI).
 - iii) Write a program in C# to generate the output given below:

```
      1
    ii)  1
         1 2 1
        1 3 3 1
       1 4 6 4 1
      1 5 10 10 5 1
```

- b) Answer any one of the following:
 - i) Write a program using switch "Case" statement of C# programming environment, in which accept a number from the user between 1 to 7 and display corresponding days of the week starting with Monday.
 - ii) Explain Windows Communication Foundation (WCF).

(10+5)