IUBAT—INTERNATIONAL UNIVERSITY OF BUSINESS AGRICULTURE AND TECHNOLOGY

Founded 1991 by Md. Alimullah Miyan

College of Engineering and Technology (CEAT)
Department of Computer Science & Engineering

Final Term Examination of Spring Semester 2020
Program: Bachelor of Science in of Computer Science & Engineering (BCSE)
Course Instructor: Professor Dr. Md. Shamim Akhter

Course No.: CSC 439	**Time: 3 hours**
Course Title: Visual Programming	**Full Marks: 100**
Section: C, D, and E	**Date: 20.05.2020**

Instructions: (1) Answer all questions. (2) Marks are indicated in the right margin. (3) Take a photo and download the question paper as soon as you open it. (4) After completing the examination, convert it to PDF and send to the given e-mail address(shamimakhter@iubat.edu). (5) Write your name, id, section and phone number on every page of your answer script. Also, please sign on every page. (6) If necessary, you may contact your course instructor by phone: (01795716777).

1. IIS server has permission enable for both anonymous authentication and windows authentication and you do not have access to the server to change the permission settings.   **10**
   a. Identify the problem that an ASP.NET program will face due to the permission settings.
   b. Explain the procedure to solve the problem.

2. FormsAuthentication has built-in APIs and they used to implement during Forms authentication.   **10**
   a. Explain the works that FormsAuthentication.Authenticate() API do to validate a user.
   b. Explain the activities of FormsAuthentication.RedirectFromLoginPage(TextBox1.Text, CheckBox1.Checked);

3.   **10**
   a. Write specific code (Web.Conf) for windows authentication to authenticate "Rahim" and "Administrator" users and deny other users to access into the system.
   b. Explain the purpose of the following code:
      string Pass = FormsAuthentication.HashPasswordForStoringInConfigFile(passw,"SHA1");

4. Create an application for your university where you need to implement two entities (Student and Course) with the below information. There is a many to many relationships between two entities. Now your task is to make appropriate model classes with relationships, context class with "SchoolDB" database, Students and Courses table names.   **10**

Fig.1: Block diagram of Student and Course Entities

5. Entity Framework components are demonstrated in Fig.2. Explain the activities of each component to execute the following LIN-Q queries.   10

    var context=new SchoolContext();

    var courses= (from c in context.Courses
                where c.CourseName=="OS"
                 select c
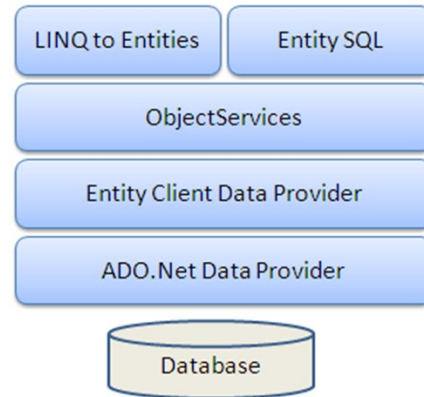   ).ToList();

Fig.2: Entity Framework Components

6. Write a C# program which has the following properties.   10
    - An abstract Employee class and it contains a private data field EName. A constructor that creates an Employee with a specified name. A public property class member is named as PropertyEName. Define the set and get accessors of property to retrive and assign the values respectively. Outside class can call the property to access the private field EName. In addition, an abstract method named salary that returns the salary of the Employee as long type.
    - Faculty is a subclass of the Employee class and contains a private data field salary. A constructor that creates a Faculty object with specified name and a salary amount. Print the assined name of the Faculty object using the property. Faculty sub class overrides and defines the body of the Psalary method to return the salary of the Faculty.
    - Staff is another subclass of the Employee class and contains a private data field salary. A constructor that creates a Staff object with specified name and salary amount. Print the assined name of the Staff object using the property. Staff class overrides and defines the body of the Psalary method to return the salary of the Staff.
    - A driver class is called as Demo has the Main method and inside Main it creates a Faculty object (F) with a name "Dr. Karim" and a salary amount. It also creates a Staff object with a name "Mr. Wahdud" and a salary amount. Use appropriate property variable and Psalary method to print the Faculty and Staff object's name and salary.

7. a. Some programmers prefer not to use protected access, because they believe it breaks the   10
        encapsulation of the super (base) class. Write the relative merits of using protected access vs. using private access in super (base) class.

    b. The following C# program takes an input string into s and calls ReplaceSpaces () method to replace the space to hyphen of the given string. Your task is to modify the following program to apply a delegate based Lambda Expression (anonymous method) in the place of ReplaceSpaces () method.

```
public class Program
{
    public static string ReplaceSpaces(string s){
        Console.WriteLine("Replacing spaces with hyphens.");
        return s.Replace(' ', '-');
    }
}
public class Test{
    public static void Main(String[] args) {
        string s= "Hello";
        Console.WriteLine(Program.ReplaceSpaces (s));
    }
}
```

8. IUBAT recently ports all employee information into an ASP.NET supported webserver. People can request http:/www.iubat.edu/employee/details URL to watch employee details into the web browser. As a web designer you are asked to write the following MVC components to complete the above application.   10
   a. Define the route configuration for routing middleware.
   b. A model class defines the employee with employeeID, employeeName, and employeeAddress properties.
   c. A controller class with proper action creates a list of four (4) employee information using model class and calls the corresponding view.
   d. A Razor view will show all the employee information using @model approach.

9. a. Write the code for defining one indexer and one property variables inside a class. Thereafter differentiate both of them according to their structural point of view.   10
   b. Write the operator method for the operation, rect3=rect1+ rect2;
      where rect3, rect1 and rect2 are Rectangle class type reference variables.
      Rectangle class has two instance variables Height and Width. Their values are assign by the constructor during the instantiation.

10. a. C# runtime environment supports Garbage collector to de-allocate unused objects. Explain one reason why then C# supports to define destructor inside a class declaration.   10
    b. Justify your thoughts regarding the following sentence:
       "ASP.NET supports cross-language interoperability and cross-platform framework".