NATIONAL SCHOOL OF BUSINESS MANAGEMENT
BSc (Hons) Software Engineering (PU) – 20.3
BSc (Hons) Computer Networks (PU) – 20.3
BSc (Hons) Computer Security (PU) – 20.3
BSc (Hons) Computer Science (PU) – 20.3

Year 01 Semester 02 Examination
13 September 2021
CS107.3 Object Oriented Programming with C#

Instructions to Candidates

1) **Answer all questions.**

2) Total Number of Pages Four (4)

3) **Time allocated for the examination is five (05) hours (Including downloading and uploading time).** Please type your answer unless a diagram is required. Diagrams can be handwritten and attached as a figure.

4) Weightage of Examination: 60% out of final grade

5) Download the paper, provide answers to the selected questions in a word document.

6) Please upload the document with answers (Answer Script) to the submission link before the submission link expires

7) Answer script should be uploaded in PDF Format

8) Under any circumstances E-mail submissions would not be taken into consideration for marking. Incomplete attempt would be counted as a MISSED ATTEMPT.

9) The Naming convention of the answer script – Module Code_Subject name_Index No

10) You must adhere to the online examination guidelines when submitting the answer script to N-Learn.

11) Your answers will be subjected to Turnitin similarity check, hence, direct copying and pasting from internet sources, friend's answers etc. will be penalized.

Question 01 **(20 Marks)**

1. Explain what is meant by access modifiers in C# programming. (5 Marks)

2. Assume that there are two variables declared as follow,

```
private int Number;
protected string Name;
```

Explain the difference between above declared variables and their scope. (4 Marks)

3. Assume that following variable is declared in a class and that variable need to be access from another class. What will be your approach and write down the necessary codes/methods/variables to complete the task.

```
private int MyMarks;
```
(5 Marks)

4. Complete the **encapsulated class** related to the following code. (6 Marks)

```csharp
namespace Constructors
{
    class Program
    {
        static void Main(string[] args)
        {
            Person objPerson = new Person();

            objPerson.SetValues(23, "Alex", 176.23);

            Console.WriteLine("Your Age is : " + objPerson.getAge());
            Console.WriteLine("Your Name is : " + objPerson.getName());
            Console.WriteLine("Your Height is : " + objPerson.getHeight());

            Console.ReadKey();
        }
    }
}
```

Question 02 **(20 Marks)**

1. Compare and contrast an exception and logical error in C# programming. (4 Marks)

2. Explain the importance of having exception handling in object-oriented programming. (4 Marks)

3. What is the use of *try*, *catch* and *finally* blocks. Explain your answer. (5 Marks)

4. At the point of execution, following code throws an exception. Identify the exception and correct the code accordingly by using the exception handling. (7 Marks)

```
class Program
    {
        static void Main(string[] args)
        {
            int[] MyArray = new int[5];

            for(int x=0;x<=5;x++)
            {
                MyArray[x] = x;
            }
            for(int x=0;x<5;x++)
            {
                Console.WriteLine(MyArray[x]);
            }

            Console.ReadKey();
        }
    }
```

Question 03   **(20 Marks)**

1. Explain what is meant by Inheritance in object-oriented programming.   (5 Marks)

2. Explain how protected access specifier use in Inheritance.   (3 Marks)

3. Write C# code or to implement below scenario,   (12 Marks)

Student(Child)
-    course
+   setCourse()/getCourse()

Lecturer(Child)
-    programme
+   setProg()/getProg()

Person(Parent)
-    name
-    id
+   setName()/getName()
+   setID()/getID()

Question 04   **(20 Marks)**

Write a C# program to retrieve data from a database table using *DataSet* class and display those in a *DataGridView*. Assume that database, user interface is already created and construct your code inside a button click event.

Database : School

Table : Student_Details

Columns : StudentID, Name, Age and DegreeProgram

Connection String : DataProvider=.\SQLEXPRESS;Data Source=E:\NSBM\School.mdf

Question 05 (20 Marks)

1. Compare and contrast class constructor and method. (5 Marks)

2. Declared a class called Employee and define a parameterized constructor inside the class (use any parameter as you wish) (4 Marks)

3. Explain when the class constructor is being execute. (2 Marks)

4. There is a class called **Student** and there are 3 public variables called **name, age, gender** in the **Student** class. You need to pass following values to the above class from another class called School. (Create two Student objects and pass the values)

Hint: *Use a parameterized constructor to pass the values.*

    Values:
    Student1 - > name="John",age=18,gender="M"
    Student2 - > name="Rose",age=22,gender="F" (5 Marks)

5. Assume there are two form applications called Home and Registration as follows. Write a C# code to navigate from Home window to Registration window once user clicks on the button Signup and validate the signup form. You may mention the textbox names accordingly. Construct the code for the button click event and above scenario. (4 Marks)

****************End of the paper****************