NATIONAL SCHOOL OF BUSINESS MANAGEMENT

BSc in Management Information Systems (Special) (NSBM)–20.3
BSc (Honours) in Software Engineering (NSBM)– 20.3
BSc (Honours) in Computer Science (NSBM)– 20.3
BSc (Honours) in Computer Network (NSBM)– 20.3

Year 01 Semester 02 Examination
06th October 2021
SE101.3- Object Oriented Programming with Java

Instructions to Candidates

1) Answer all questions.
2) **Time allocated for the examination is five (05) hours (Including downloading and uploading time)** . (Note: **No email submissions are accepted under any condition.)**
3) Weightage of Examination: 60% out of final grade
4) Provide answers to the selected questions in the given format under the question.
5) Please upload the document with answers (Answer Script) to the submission link before the submission link expires
6) Answer script should be uploaded in PDF Format
7) Under any circumstances E-mail submissions would not be taken into consideration for marking. Incomplete attempt would be counted as a MISSED ATTEMPT.
8) The Naming convention of the answer script – Module Code_Subject name_Index No

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

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

Write your Index No

Question 1

a. Define the term 'Object Oriented Programming' (You may use your own words). **(5 marks)**

<Type the answer here>

b. Briefly explain how 'Object' and 'Class' related to each other. You may use examples to explain the answer. **(5 marks)**

<Type the answer here>

c. By using practical examples explain the following OOP concepts.

Abstraction **(4 marks)**

<Type the answer here>

Encapsulation **(4 marks)**

<Type the answer here>

Inheritance **(4 marks)**

<Type the answer here>

Polymorphism **(4 marks)**

<Type the answer here>

d. Explain the difference between ‘private’ vs. ‘protected’ access modifier. **(4 marks)**

<Type the answer here>

e. An abstract class A contains an abstract method abc() and non-abstract method xyz() inside the class. Interface B contains method a pqr() . class c use both abstract class A and interface B and implement its methods. class D contains the main method. Inside the main method create an object from the class D and call the methods abc(), xyz(), and pqr(). **(10 marks)**

<Type the source code in the editor and paste the source code here. Use comments much as possible to explain the code>

Question 2

Create a class called Invoice that a hardware store might use to represent an invoice for an item sold at the store. An Invoice should include four pieces of information as instance variables-a part number(type String),a part description(type String),a quantity of the item being purchased (type int) and a price per item (double). Your class should have a constructor that initializes the four instance variables. Provide a set and a get method for each instance variable. In addition, provide a method named getInvoice Amount that calculates the invoice amount (i.e., multiplies the quantity by the price per item), then returns the amount as a double value. If the quantity is not positive, it should be set to 0. If the price per item is not positive, it should be set to 0.0. Write a test application named InvoiceTest that demonstrates class Invoice's capabilities. **(20 marks)**

<Type the source code in the editor and paste the source code here. Use comments much as possible to explain the code>

Question 3

Write a program to illustrate creation of threads using runnable class.(start method start each of the newly created thread. Inside the run method there is sleep() for suspend the thread for 500 milliseconds. Write the method to display your Index No 5 times using a loop as follows). **(10 marks)**

1. <Index Number>

2. <Index Number>

3. <Index Number>

4. <Index Number>

5. <Index Number>

Create a separate class with main method and create two threads to show the behavior of multithreading.

<Type the source code in the editor and paste the source code here. Use comments much as possible to explain the code>

Question 4

Write a program, to show the behavior of 'try / catch block and finally'. In this, check the following two types of exceptions.

A number is divided by zero.

The value assigned inside the array is out of the boundary of the array.

(You need not to input values. Just assign values when writing the program). **(10 marks)**

<Type the source code in the editor and paste the source code here. Use comments much as possible to explain the code>

Question 5

Write a Java program to create a text file named 'Sample.txt.' Write your Index Number and first name with the last name in two separate lines in the above file. Read the file and display the content of the text file. **(10 marks)**

<Type the source code in the editor and paste the source code here. Use comments much as possible to explain the code>

Question 6

Create a database ‘MyDB’ and inside the database create a table ‘Employee’ with the following fields.

EmployeeID(int), FirstName(varchar),LastName(varchar),BasicSalary(float), DepartmentID(int)

Design a suitable GUI and develop a program to show the a). Database operation ‘INSERT’ (one record at a time) and b). Retrieving the table records into a ‘JTable’.

Create the appropriate User Interface and past the screens here. **(2 marks)**

< One for insert and another to show records. Each of the UI’s title should display your Index No >

Include the insert operation source code. **(4 marks)**

<Type the source code in the editor and paste the source code here. Use comments much as possible to explain the code>

Include the display records source code. **(4 marks)**

<Type the source code in the editor and paste the source code here. Use comments much as possible to explain the code>