LOVELY PROFESSIONAL UNIVERSITY

Academic Task No. 2

School: School of Computer Applications **Faculty of: LFTS**

Course Title: PROGRAMMING IN JAVA **Course Code:CAP615**

Max. Marks: 30 [10 Marks each]

Date of Allotment: 17th April. 2022 **Last Date of Submission: 23rd April. 2022**

Important Guidelines:

1. All questions in this Academic Task are compulsory.

2. It is mandatory to attempt all questions of the assignment in your own handwriting on A4 size sheets/pages with a blue color ink pen. Any other mode of attempt (typed or printed codes or table) except hand written/drawn will not be accepted/ considered as valid submission(s) under any circumstances.

3. Every attempted sheet/page should carry clear details of student such as Name, Registration number, Roll number, Question number and Page number. The page numbers should be written clearly on the bottom of every attempted sheet in a prescribed format as: for page 1; **Page 1 of 4**, for page 2; **Page 2 of 4**, for page 3; **Page 3 of 4** and for page 4; **Page 4 of 4**, in case your assignment/document is of 4 pages.

4. After attempting the answer(s), student needs to take photograph of each of these answer sheets/pages and needs to convert the **jpeg** format images into a sequential single **pdf** format document (can be done with many free online available converters).

5. This PDF file should be uploaded onto the UMS interface on or before the last date of the submission.

6. Refrain from indulging into plagiarism as copy cases will be marked zero

7. For every program it is mandatory to give proper documentation.

SET-1

Q1: How the sleep () and wait () methods are different? Justify your answer with the help of an example?

Q2: What is the advantage of making a thread synchronized? Support your answer with the help of an example code.

Q3: How java program is made persistent? How would you design a GUI program using swing to select a colour name in the ComboBox and show its effect in a TextBox?

SET-2

Q1: How multithreading is important? Which are the various stages a thread passed through with? Also write a code to show the priority of current thread.

Q2: What way you would create a program to generate the threads:
- To display ArmStrong number upto n numbers.
- To display the table of a given number.

Q3: How Listeners and Events with reference to Java SWING components are important. Discuss minimum two types of application to justify the use of the same.

SET-3

Q1: "At a specific point of time, it becomes necessary to terminate a thread before the task has been completed". Justify your answer with the help of an example code.

Q2: Which are the different ways to implement multithreading and also explain the role of the start, run and stop methods.

Q3: What way you would create a program to generate the threads:
- To display ArmStrong number upto n numbers.
- To display the table of a given number.

SET-4

Q1: Is it possible to achieve true parallelism using multithreading? Put the facts across to justify your answer in this context?

Q2: Why creating a subclass of JFrame is preferred over creating an instance of JFrame when create a window application? Elaborate your answer with appropriate example code.

Q3: How setting the priorities in multithreading is really helpful. Also brief about its limitations. How set and get can be used to find priority values? Explain with example.

SET-5

Q1: How the concept of inter-thread communication is really important to implement? Justify the use of the same with the help of a suitable example code.

Q2: "There are some situations when it becomes necessary to suspend the execution of a thread for a certain period of time". Justify your answer with the help of a suitable example and code.

Q3: How would you define 'Event'? Give examples of events and also define event handler and how it handles events.

SET-6

Q1: Is it possible to achieve true parallelism using multithreading? Put the facts across to justify your answer in this context?

Q2: Which are the different ways to implement multithreading and also explain the role of the start, run and stop methods.

Q3: How java program is made persistent? How would you design a GUI program using swing to select a colour name in the ComboBox and show its effect in a TextBox?

SET-7

Q1: How would you use synchronized keyword? What way you will design the code to display all the running threads in Java?

Q2: What way would you create a program which generate the threads:
- To display the Fibonacci series up to n numbers.
- To display a string in reverse order.

Q3: How AWT and Swing are different? Elaborate your answer to compare the both point to point.

SET-8

Q1: Is it possible to achieve true parallelism using multithreading. What facts or ideas would you like to put across to justify your answer?

Q2: How would you describe Interthread Communication? Give a suitable example to justify its use.

Q3: How would you define Event? Give examples of events along with event handler and how it handles events?

SET-9

Q1: Why creating a subclass of JFrame is preferred over creating an instance of JFrame when creating a window? Justify your answer with the help of an example code.

Q2: "Each thread may perform different tasks. Sometimes, it becomes necessary to suspend the execution of a thread for a period of time". Justify your answer.

Q3: What is the relationship between sleep () and wait () methods? How would you test the same with the help of example?

SET-10

Q1: What is the role of priorities in multithreading. Also explain its limitations? How would you set and get priority values for threads?

Q2: Define and differentiate the following pairs:
(a) suspending and resuming threads
(b) deadlock and stopping threads

Q3: How Listeners and Events with reference to Java SWING components are important. Discuss minimum two types of application to justify the use of the same.

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