

EVENING

27 DEC 2022

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09]

[Total No. of Pages: 02]

Uni. Roll No. ....

Program: B.Tech. (Batch 2018 onward)

Semester: 5

Name of Subject: Programming in JAVA

Subject Code: PCIT-109

Paper ID: 16440

Scientific calculator is Not Allowed

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

**Part – A**

**[Marks: 02 each]**

Q1.

- a) Explain the following methods of String class: (i) indexOf( ) (ii) substring( ).
- b) With the help of program discuss the concept of **static** variables.
- c) Implement an interface using the keyword "Interface" with code snippet.
- d) When can you use the **super** keyword?
- e) Write a program to demonstrate the concept of command line arguments.
- f) Write a program to display current date and time.

**Part – B**

**[Marks: 04 each]**

- Q2. Explain the difference between constructor and method in Java with example.
- Q3. Discuss the different types of operators used in Java programming.
- Q4. Write the difference between input and output stream class with example.
- Q5. Compare method overloading and method overriding with suitable programming example.
- Q6. Design a program to elaborate the visibility of class and their members for different access specifier.
- Q7. Write a Java program to implement the concept of threads.

## Part – C

[Marks: 12 each]

- Q8. a) Explain Static nested Classes? What is the difference between an Inner Class and a Sub-Class?  
b) What is a singleton class? Give a practical example of its usage.

OR

What are different types of Inheritance supported by Java? Explain with examples.  
Why multiple Inheritance is not supported by Java? Justify in detail.

- Q9. Write a program to convert a String to a List of Characters in Java programming.  
Also implement the *try, catch and throw* method to handle the exception in the program.

**Input:** String = "JavaProgramming"

**Output:** [J,a,v,a,P,r,o,g,r,a,m,m,i,n,g]

OR

Design a program to join threads which allows one thread to wait until another thread completes its execution. For example "If *t* is a Thread object whose thread is currently executing, then *t.join()* will make sure that *t* is terminated before the next instruction is executed by the program". Also implement the concept of exception handling while performing the joining operations.

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