

R18

Code No: 154BE

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech II Year II Semester Examinations, February -2024

JAVA PROGRAMMING

(Common to CSE, IT)

Time: 3 Hours

Max. Marks: 75

Note: i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

- 1.a) How is the final keyword used in inheritance in Java? [2]
- b) What are the key responsibilities in an object-oriented design, and why are they important? [3]
- c) How is CLASSPATH used to locate classes? [2]
- d) Discuss the role of variables in interfaces. [3]
- e) Differentiate between checked and unchecked exceptions. [2]
- f) What are the consequences of uncaught exceptions in Java? [3]
- g) What is the role of the Comparator interface? [2]
- h) List two legacy classes/interfaces in the Collections Framework. [3]
- i) Differentiate between JList and JComboBox in Swing. [2]
- j) How can parameters be passed to Swing applets? [3]

PART – B

(50 Marks)

- 2.a) Write a Java program to find the LCM of two numbers.
- b) List the differences between method overloading and method overriding in Java with an example. [5+5]

OR

- 3.a) Explain different types of inheritance in Java.
- b) Write a Java program to calculate the compound interest. [5+5]

- 4.a) Create a simple Java program with multiple classes organized in a package. Explain how the package structure is defined.
- b) Define a nested interface within a class. Implement both the outer and nested interfaces in separate classes. [5+5]

OR

- 5.a) Define a class that implements the “Serializable” interface. Serialize and deserialize an object using “ObjectInputStream” and “ObjectOutputStream”.
- b) Discuss the concept of random access files. Write a program that performs random access operations on a file. [5+5]

- 6.a) Write a Java program that demonstrates the use of try and catch blocks.
- b) List and explain some commonly used built-in exceptions in Java. Provide examples of scenarios where each exception might occur. [5+5]

OR

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7.a) Explain the concept of inter-thread communication. Provide examples of using methods like wait(), notify(), and notifyAll().

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b) Explain the concept of thread priorities in Java. Discuss the default priority and the valid priority range for threads. [5+5]

8.a) Explain the differences between Hash Set, Tree Set, and Priority Queue. Provide examples illustrating the use cases for each.

b) Briefly describe the main Map interfaces in the Collections Framework. Explain the key distinctions between Map, HashMap, and TreeMap. [5+5]

QA QA QA QA QA QA QA G

OR

9.a) Explain the purpose and usage of the StringTokenizer, BitSet, Date, Calendar, and Random classes.

b) Develop a program that demonstrates the use of various algorithms provided by the Collections class, such as sorting and shuffling. [5+5]

10.a) Write a Swing program with multiple components and demonstrate the use of different layout managers, such as FlowLayout, BorderLayout, and GridLayout.

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b) Write a Swing program that uses inner classes for event handling. Discuss the advantages of using inner classes in this context. [5+5]

OR

11.a) Write a Swing program that includes a scroll pane for handling large amounts of content.

b) Write a Swing program with various buttons (JButton, JToggleButton, JCheckBox, JRadioButton) and demonstrate their usage. [5+5]

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