Hall Ticket No										Questio	on Paper Code: AITC02
INSTITUTE OF AERONAUTICAL ENGINEERING											
EUCHTON FOR LIBERT	(Autonomous) Dundigal-500043, Hyderabad										
B.Tech III SEMESTER END EXAMINATIONS (REGULAR/ SUPPLEMENTARY) - FEBRUARY 2024 Regulation: UG20											
PROGRAMMING WITH OBJECTS											
Гime: 3 Hours		(C0	OMM	ION	ТС	$\mathbf{CS}$	$SE \mid$	CS	E	$(DS) \mid CSIT \mid IT)$	Max Marks: 70
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# $\mathbf{MODULE}-\mathbf{I}$

- 1. (a) List various concepts of object-oriented programming paradigm. Elucidate Java garbage collection mechanism. [BL: Understand] CO: 4|Marks: 7]
  - (b) Write a Java program that uses arrays to store and manipulate student grades. Include functions to calculate average, find the highest/lowest grades and display the result.

[BL: Apply| CO: 1|Marks: 7]

### $\mathbf{MODULE}-\mathbf{II}$

2. (a) What is inheritance? Explain different forms of inheritance with suitable program skeletons. [BL: Understand] CO: 2|Marks: 7]

(b) In a shape hierarchy program, create a base class shape with a method calculateArea(). Extend this class with two subclasses, circle and rectangle, overriding the calculateArea() method in each to compute the area specific to each shape. Utilize method overriding and demonstrate its usage in a concise code snippet. [BL: Apply] CO: 2|Marks: 7]

### $\mathbf{MODULE}-\mathbf{III}$

- 3. (a) How to achieve synchronization among threads? Differentiate between multiprocessing and multithreading. [BL: Understand | CO: 3|Marks: 7]
  - (b) Create a multithreaded application that simulates the classic producer-consumer problem.

[BL: Apply| CO: 3|Marks: 7]

- 4. (a) List out the checked exceptions. Illustrate user-defined exception handling with a suitable Java program. [BL: Understand| CO: 4|Marks: 7]
  - (b) Write a Java program that reads a list of integers from the user and throws an exception if any numbers are duplicates. [BL: Apply] CO: 4|Marks: 7]

# $\mathbf{MODULE}-\mathbf{IV}$

5. (a) Explain the syntaxes and semantics of connecting to and querying from a database. Discuss the advantages of using character streams for text-based data. [BL: Understand] CO: 5|Marks: 7]

(b) Write a JDBC program to search for an attribute in a table and display the entire tuple to the user. For example, display all the details of the student given his/her roll number.

[BL: Apply] CO: 5|Marks: 7].

- 6. (a) Differentiate between byte streams and character streams. Provide examples of FileReader and FileWriter operations for reading and writing text files. [BL: Understand] CO: 5|Marks: 7]
  - (b) Develop a Java program to copy the contents of file1 to file 2. Read the names of files as command line arguments. [BL: Apply] CO: 5|Marks: 7]

#### $\mathbf{MODULE}-\mathbf{V}$

- 7. (a) Compare and contrast Applets with application programs. List various AWT containers with examples. [BL: Understand] CO: 6|Marks: 7]
  - (b) Write an Applet to draw a smiley picture. Accept user name as a parameter and display welcome message. [BL: Apply] CO: 6|Marks: 7]
- 8. (a) What is the significance of layout managers? Discuss briefly various layout managers.

[BL: Understand| CO: 6|Marks: 7]

(b) Employ swing components to develop a user interface that collects data from the student for admission application. [BL: Apply] CO: 6|Marks: 7]

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