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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: IV - THEORY EXAMINATION (2023- 2024)

Subject: Object Oriented Techniques Using Java

Time: 3 Hours

Max. Marks: 100

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of **three Sections -A, B, & C**. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.
2. Maximum marks for each question are indicated on right -hand side of each question.
3. Illustrate your answers with neat sketches wherever necessary.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.
6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A

20

1. Attempt all parts:-

- 1-a. Which is the keyword used to specify the DEFAULT access modifier in java? (CO1) 1
- (a) default
 - (b) bydefault
 - (c) normal
 - (d) There is no keyword
- 1-b. Constant that can not be changed are declared using the keyword_____ in JAVA (CO1) 1
- (a) static
 - (b) final
 - (c) abstract
 - (d) immutable
- 1-c. Which of the following statement is not true for polymorphism? (CO2) 1
- (a) It is feature of OOP
 - (b) Ease in readability of program
 - (c) Helps in redefining the same functionality
 - (d) Increases overhead of function definition always
- 1-d. The mechanism of deriving a new class from an old one is called _____ (CO2). 1

- (a) Method overriding
 - (b) Method overloading
 - (c) Operator overloading
 - (d) Inheritance
- 1-e. Which of these keywords is used to manually throw an exception? (CO3) 1
- (a) try
 - (b) finally
 - (c) throw
 - (d) catch
- 1-f. How to compile and run JAVA package programs? (CO3) 1
- (a) javac -d . <classname>.java

java <packagename>.<classname>
 - (b) javac -d <classname>.java

java <classname>
 - (c) javac <classname>.java

java <classname>
 - (d) javac -d <classname>.java

java <packagename>.<classname>
- 1-g. A thread can be interrupted in which of the following state? (CO4) 1
- (a) in sleep state
 - (b) in wait state
 - (c) in both states
 - (d) none of the states
- 1-h. method of FileReader class is used to read characters from a file (CO4) 1
- (a) read()
 - (b) scanf()
 - (c) get()
 - (d) getInteger()
- 1-i. Which of the below does not implement Map interface? (CO5) 1
- (a) HashMap
 - (b) Vector
 - (c) Hashtable
 - (d) EnumMap
- 1-j. Package of drawstring() method is (CO5) 1
- (a) java.applet

- (b) java.io
- (c) javax.swing
- (d) java.awt

2. Attempt all parts:-

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|------|-----------------------------------------------------------------------|---|
| 2.a. | Define static keyword. (CO1) | 2 |
| 2.b. | Describe copy constructor. Write an example of your choice. (CO2) | 2 |
| 2.c. | Differentiate between StringBuffer and StringBuilder. (CO3) | 2 |
| 2.d. | Explain the drawbacks of creating Thread by using Thread class. (CO4) | 2 |
| 2.e. | Elaborate difference between Array and ArrayList. (CO5) | 2 |

SECTION-B

30

3. Answer any five of the following:-

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|------|-----------------------------------------------------------------------------------------------------------------------|---|
| 3-a. | Illustrate the Iteration Statements and return statement with java examples. (CO1) | 6 |
| 3-b. | Define command line arguments. Why are they important? Justify your answer with suitable example. (CO1) | 6 |
| 3-c. | Compare overloading and overriding of methods in java using proper examples. (CO2) | 6 |
| 3-d. | Define Abstraction in Java. Explain with example. How to achieve or implement Abstraction in Java? (CO2) | 6 |
| 3.e. | Define String. Explain different String declarations with an example. Why string objects are immutable in Java? (CO3) | 6 |
| 3.f. | Write a JAVA program for creating, applying and accessing annotation. (CO4) | 6 |
| 3.g. | Differentiate between HashMap and TreeMap. (CO5) | 6 |

SECTION-C

50

4. Answer any one of the following:-

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|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 4-a. | Differentiate between overloading and overriding. (CO1) | 10 |
| 4-b. | Write a JAVA program that takes values of name, age, department and marks of 4 subjects from the user. Display the name, total and average of marks computed. (CO1) | 10 |

5. Answer any one of the following:-

- | | | |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 5-a. | What is ArrayIndexOutOfBoundsException in java? When it occurs in java program. Illustrate with example. (CO2) | 10 |
| 5-b. | What is an abstract class? Create an abstract class 'Animals' with two abstract methods 'meow' and 'dogs'. Now create a class 'Cats' with a method 'cats' which prints "Cats meow" and a class 'Dogs' with a method 'dogs' which prints "Dogs bark", both inheriting the class 'Animals'. Now create an object for each of the subclasses and call their respective methods. (CO2) | 10 |

6. Answer any one of the following:-

- | | | |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 6-a. | Elaborate String in java. Also show different ways to create String Object? Write a java program to display the entered string in uppercase? (CO3) | 10 |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------|----|

- 6-b. Differentiate between error and an exception. Is it necessary that each try block must be followed by a catch block? Explain the different ways to handle exceptions. (CO3) 10
7. Answer any one of the following:-
- 7-a. Differentiate between thread and process. Describe the lifecycle of a thread. (CO4) 10
- 7-b. Define stream with its types. Write a Java program to read a file content line by line and display it on monitor. (CO4) 10
8. Answer any one of the following:-
- 8-a. Compare HashMap and Hashtable. Explain with the help of an examples. (CO5) 10
- 8-b. Describe layout manager and elaborate different types of layout managers available in Java Swing. (CO5) 10

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