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TERM END EXAMINATIONS (TEE) – December 2022

Programme	: MCA	Semester	: Fall 2022-23
Course Name	: Object Oriented Programming using Java	Course Code	: MCA1003
Faculty Name	: Dr. Kanchan Lata Kashyap	Slot / Class No	: D11+D12+D13/ 0791
Time	: 3 Hrs.	Max. Marks	: 100

Answer ALL the Questions

Q. No.

Question Description

Marks

PART A – (60 Marks)

- 1 (a) Define a class student with following specifications
Data members of class student

8

Registration number integer
Sname Char(20)
JAVA, DBMS, OS Float
Total Float
Ctotal() Function which calculates total marks

Member methods

Takedata() to accept values of data elements
Ctotal() function to calculate total marks
Showdata() to display all the values of data members on
the screen

- (b) Discuss any four string handling functions in JAVA.

4

OR

- (c) Tax rates in a specific country can be calculated from an individual's income (in Rs) obtained during the past tax year according to the following table. 12

Income (Rs.)	Tax Rate (%)
1-100,000	0
100,001-500,000	10
500,001-1,000,000	20
1,000,001-4,000,000	30
above 4,000,000	40

Write a method called *tax()* which returns the amount of tax associated with the income supplied as the only input to the method. Assume that there are no decimal points in any incomes.

- 2 (a) Develop an Interest interface which contains **simpleInterest** and **compoundInterest** methods and static final field of **Rate 25%**. Write a class to implement those methods. 8
- (b) List the uses of any four built-in packages from Java API. 4
- OR
- (c) Write a single JAVA program to implement the concept of inheritance and polymorphism. 12
- 3 (a) Create two threads by using Thread class. First thread displays the square of first 10 numbers and second thread displays the cube of first 10 numbers. 12
- OR
- (b) Why exception handling is required. Differentiate run-time and compile time exception. 5
- (c) Write a program in JAVA to handle divided by zero, array index out of bound, and negative array size exception by using multiple catch statement. 7
- 4 (a) Write JDBC program to execute SQL select query command. 8
- (b) Write use of following methods:
mark(), available(), skip(), and reset () 4
- OR
- (c) Write a program in JAVA to read the content from a file and display all content on console. 12
- 5 (a) Write a JAVA program to create a frame for temperature conversion from Centigrade to Fahrenheit and vice versa using swing component. Apply Layout manager also to set the layout of frame. 12
- OR
- (b) Differentiate between iterator and List Iterator. 4
- (c) Write a JAVA program to implement **List** interface as **Queue with five elements** and remove the head element from queue. 8

PART B – (40 Marks)

- 6 Polymorphism is an important property of object oriented programming. How polymorphism property can be implemented in JAVA? 8
- 7 A person has deposited his money \$1000, \$1500 and \$2000 in three banks which IB, ICICI, and SBI, respectively. We have to print the money deposited by him in a particular bank. 8

Create a class 'Bank' with a method **getBalance()** which returns 0. Make its three subclasses named 'IB', 'ICICI' and 'SBI' with a method with the same name **getBalance()** which returns the amount deposited in that particular bank. Call the method **getBalance()** by the object of each of the three banks.

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|----|---|---|
| 8 | Why thread synchronization is required? Write a suitable JAVA program for synchronization of multiple threads. | 8 |
| 9 | Write Java program to read and write contents into Byte Array. | 8 |
| 10 | How frame container can be created in JAVA. Demonstrate the use of any five methods related to frame with suitable example. | 8 |

