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Academic Year: 2022-23

Programme: MCA

Year: I Semester: I

Subject: Java Programming

Date: 09 December 2022

Marks: 100
Time: 10.30 am - 01.30 pm
Durations: 3 (Hrs)
No. of Pages: 3

Final Examination

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

1) Question No. 1 is compulsory.
2) Out of remaining questions, attempt any 4 questions.
3) **In all 5 questions to be attempted.**
4) All questions carry equal marks.
5) **Answer to each new question to be started on a fresh page.**
6) **Figures in brackets on the right hand side indicate full marks.**
7) **Assume Suitable data if necessary.**

Q1		Answer briefly:	
CO- 1 BL- 2	a.	Discuss advantages of below terms of Java. 1. Java Virtual Machine 2. Byte Code	[5]
CO- 1 BL- 3	b.	Implement a Java program to define a class ***Triangle*** with data members as below: Height : double base : double Define below methods within class. 1. Area() – To calculate area of the rectangle. A=1/2 * base * height 2. Display() – To display height, width and area of the rectangle. Write a main() method to create an object of ***Triangle*** class and to call the methods.	[5]
CO- 1 BL- 4	c.	Differentiate method overloading and method overriding with an example.	[5]

<table>
<tr><td>CO- 2
BL- 2</td><td>d.</td><td>Discuss importance of Generics in Java. Write an example program to illustrate the use of Generic class.</td><td>[5]</td></tr>
<tr><td>Q2
CO- 1
BL- 2</td><td>a.</td><td>Explain different types of constructor in Java using an example.</td><td>[10]</td></tr>
<tr><td>CO- 1
BL- 3</td><td>b.</td><td>Implement a package pack1 with class employee having data members, employee id, name and designation. Derive a class staff (in pack1) from employee with method display to display all the details of staff. Write a package pack 2 with class faculty derived from employee class of pack1. Faculty class will have no of students mentored as a data member. Write a main function to create objects and to display appropriate details of staff and full time faculty
<table>
<tr><td>Pack1</td><td>Pack2</td></tr>
<tr><td>Employee class
Staff class – derived from employee class</td><td>Faculty class – derived from employee class</td></tr>
</table></td><td>[10]</td></tr>
<tr><td>Q3
CO- 2
BL- 2</td><td>a.</td><td>Discuss difference between array and array list in Java with an example.</td><td>[10]</td></tr>
<tr><td>CO- 1
BL- 3</td><td>b.</td><td>Implement a Java program that has class Person with data members as a person name, person id and age. Write a parameterized constructor to initialize values. The display method, displays the details of the person. The program must handle an InputMismatch exception. Write a main method to create an object and call appropriate methods.</td><td>[10]</td></tr>
<tr><td>Q4
CO- 1
BL- 2</td><td>a.</td><td>Discuss below methods of StringBuffer class.
1. length()
2. capacity()
3. charAt()
4. reverse()
5. delete()</td><td>[10]</td></tr>
<tr><td>CO- 1
BL- 3</td><td>b.</td><td>Implement a Java program to create class Employee with data members emp_no (Employee no), name and PAN card No. Write methods to take details of employees from the user and count number of employees whose name starts with ‘A’. Write a main function to create array of objects that allows to store details of 10 employees.</td><td>[10]</td></tr>
</table>

Q5 CO-1 BL- 2	a.	What is importance of handling exceptions? Also explain with suitable example what happens when we do not handle them.	[10]
CO- 1 BL- 3	b.	Write a Java program to perform below operations of string input given by the user. 1. Finding a sub string from a given string 2. Converting string into upper case 3. Check whether two strings are equal	[10]
Q6 CO-3 BL- 2	a.	Explain the steps for querying the database using JDBC.	[10]
CO- 2 BL- 3	b.	Write a Java program to create a linked list using in-built Linked List class. The program must perform operations like adding an element at the beginning, adding an element at the end, displaying entire list, deleting an element at the beginning and displaying element at particular index.	[10]
Q7 CO-3 BL- 2	a.	Explain JavaFX architecture and different types of events.	[10]
CO- 2 BL- 3	b.	Demonstrate use of bounded types with an example.	[10]