End Semester Examination
December 2022

Maxi Marks : 100
Class : FY MCA
Course code: MC506
Name of the course : Java Programming

Duration : 3 hours
Semester :   02
Branch : MCA

Q No		Max Marks	CO	BL
1a	Explain the concept of Dynamic method dispatch, illustrate the concept of early binding and late binding with suitable examples.	10	1	2
1b	Differentiate between Errors and Exceptions in java. Answer and justify the following:	5	2	3
	A. Can we keep other statements in between try, catch and finally blocks?	1		
	B. Consider the following block of code, assume if an exception Assume that exception has occurred at line 6. Does line 7 get executed or not?	2		

```
1.  class TryWithMultipleCatch {
2.    public static void main(String args[]) {
3.      try{
4.        int a[]=new int[5];
5.        a[3]=10/0;
6.        System.out.println("First print statement in try block");
7.      } catch(ArithmeticException e) {
8.        System.out.println("Warning: ArithmeticException");
9.      } catch(ArrayIndexOutOfBoundsException e) {
10.       System.out.println(" ArrayIndexOutOfBoundsException");
11.     } catch(Exception e) {
12.       System.out.println("Warning: Some Other exception");
13.     }
14.     System.out.println("Out of try-catch block");
15.   }
16. }
```

Q No		Max Marks	CO	BL
	C. What is an unreachable catch block error? Explain with suitable example.	2		

2a	Illustrate the concept of concurrent execution of a program. Describe various ways of creating a thread in java, discuss the various methods of thread.	10	2	2
2b	Assume a food delivery company is running an offer for its customer, the site is offering a 10% discount on RuPay and 15% discount on any credit cards. the amount will be deducted from the wallet account of a customer. Though the discount is fixed on all the credit cards, different payment gateways charge different amounts as service tax. Create an interface Transaction which is implemented by different RuPay and Credit_Cards to process the payments, Assume there are three payment gateways A, B, C which incurs different amounts on each transaction and implements SerCharge interface.	10	1	3
3a	A. Explain ServletConfig and ServletContext B. Discuss different methods to create servlets. Assume if you are asked to create a web application using servlet explain each method with an example.	4 6	2	3
3b	Assume that a webpage is designed to get the enrollment details of the students such as E_id, Name, Email, Contact, Branch, EnrollYear. Illustrate how to retrieve client input data from HTML form and pass it in servlet.	10	3	2
4a	Illustrate the Life cycle of JSP. Describe session tracking techniques in JSP **OR** The JSP Expression Language EL and its significance in web application development.	10	3	2
4b	Assume you are designing a web application to manage the information of aadhar update center. There are three classes which are essential parts of the design: Candidate, Employee, Aadhar_info, Aadhar_info contains aadhar no., name, DOB, Place. This information belongs to both Candidate and Employee. Every day hundreds of update requests are issued, Candidate and Employee both need Aadhar_info to perform any operation. Describe the various methods of dependency injection for the mentioned scenario. Explain the role of configuration files during the implementation of the above application.	10	4	4
5	Design the dynamic web application on a topic of your choice using servlet, JSP designing concept.	20	3	3

CO Number	CO statement	Marks allotted
1	Build programming concept using OO constructs	20
2	Analyze real world problem for database connection and file handling using Exception handling	30
3	Develop Web Applications using JSP and servlets	40
4	Explain concept of Spring and Hibernate in advanced JAVA programming	30

PI chart for percentage CO marks

■ CO1 ■ CO2 ■ CO3 ■ CO4