

**P.E.S. College of Engineering, Mandya - 571 401***(An Autonomous Institution affiliated to VTU, Belagavi)***First Semester, Master of Computer Applications (MCA)****Semester End Examination; June - 2022****Object Oriented Programming with Java**

Time: 3 hrs

Max. Marks: 100

**Course Outcomes***The Students will be able to:**CO1: Understand the basic programming constructs of java Apply suitable OOP concepts to develop java programs for a given scenario.**CO2: Illustrate the concepts of generalization and runtime polymorphism application.**CO3: Exemplify the usage of Packages, Interfaces, Exceptions and Multithreading.**CO4: Illustrate exception handling concepts and multithreading using different problem statements.**CO5: Demonstrate Enumerations, wrappers, Auto boxing. Implement the concepts of networking using java network classes.***Note: I) Answer any FIVE full questions, selecting ONE full question from each unit.****II) Any THREE units will have internal choice and remaining TWO unit questions are compulsory.****III) Each unit carries 20 marks.**

Q. No.	Questions	Marks	BLs	COs	POs
<b>UNIT - I</b>					
1 a.	State and discuss the key principles of the object orientated.	6	L1,2	CO1	PO1,2,3
b.	Explain and demonstrate the scope and life time of the variables.	6	L2	CO1	PO1,2,3
c.	Define different ways of declaring arrays in Java with an example. Write a Java program to search an element in an integer array.	8	L2	CO1	PO1,2,3
<b>OR</b>					
1 d.	With a neat diagram, explain the java program execution.	6	L2	CO1	PO1,2,3
e.	What are various kinds of loop statements supported by Java?	6	L2	CO1	PO1,2,3
f.	Illustrate with an example parameterized constructor.	8	L2	CO1	PO1,2,3
<b>UNIT - II</b>					
2 a.	Define constructors. Show that, if the constructors are defined then the default constructors will not be called during object creation.	5	L1	CO2	PO1,4,6
b.	Illustrate with a suitable example method overloading.	5	L2		PO1,4,6
c.	Write a Java program for the following: i) Accept the string [min 6 Characters] ii) Reverse the entire string except first and last character	6	L2	CO2	PO1,4,6
2d.	Justify that string utilizes the memory efficiently for redundant words.	4	L5	CO2	PO1,4,6
<b>UNIT - III</b>					
3 a.	Illustrate with an example method overriding.	10	L2	CO3	PO1,2,5,6

b.	Demonstrate by creating:				
i)	Create an employee class Attributes: name, address, PhoneNo., emailid, DOJ Methods: Register() Modify()				
ii)	Manager class is extending employee Class: Attributes: Designation, Team Methods: Assign_Work(). Write a program that accepts the details of manager with employee and display details	10	L2	CO3	PO1,2,5,6
<b>OR</b>					
3 c.	What are interfaces? How interfaces can be implemented in two different classes. Illustrate with suitable example.	10	L1,2	CO3	PO1,2,5,6
d.	Demonstrate by creating a simple program on Java for the implementation of multiple inheritance using interfaces to calculate the area of a rectangle and triangle.	10	L2,6	CO3	PO1,2,5,6
<b>UNIT - IV</b>					
4 a.	Differentiate between the throw and throws in exception handling	5	L2	CO4	PO1,4,6,8
b.	With a neat diagram, explain the exception hierarchy	5	L1,2	CO4	PO1,4,6,8
c.	Develop a Java program to accept two integer arrays and multiply each element from array index and store in another integer array. Design the program with the checked exception. Assuming array index out of bound and accepting different format of number.	10	L6	CO4	PO1,4,6,8
<b>OR</b>					
4 d.	Differentiate between the checked and unchecked exceptions.	5	L2	CO4	PO1,4,6,8
e.	With a neat diagram, explain the threads life cycle.	5	L1,2	CO4	PO1,4,6,8
f.	Demonstrate with a thread program to do the following:				
i)	Access current thread being running				
ii)	Display the name of the thread				
iii)	Set a new name for the thread	10	L2	CO4	PO1,4,6,8
iv)	Display the state of the thread				
v)	Check whether a thread is alive or not				
<b>UNIT - V</b>					
5 a.	Explain the following:				
i)	Enumeration	9	L2	CO5	PO1,2,5,8
ii)	Autoboxing				
iii)	Annotations				

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|---|---|----|-----|-----------|
| b. Write a Java socket program to accept the string in client and display the same message in the server class. | 6 | L2 | CO5 | PO1,2,5,8 |
| c. Demonstrate with linked list;  |   |    |     |           |
| i) Create a method for accepting the integer elements   | 5 | L2 | CO5 | PO1,2,5,8 |
| ii) Method for adding element at the last   |   |    |     |           |
| iii) Method for adding element at the first   |   |    |     |           |

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