Hall Ticket Number:

Code No. : 14164 (C) N/O

VASAVI COLLEGE OF ENGINEERING *(AUTONOMOUS)*, HYDERABAD

Accredited by NAAC with A++ Grade

B.E. IV-Semester Main & Backlog Examinations, July-2023

Fundamental of Object Oriented Programming (OE-II)

Time: **3 hours** Max. Marks: **60**

*Note: Answer all questions from **Part-A** and any **FIVE** from **Part-B***

Part-A (10× 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	What are the benefits of object-oriented programming?	2	1	1	1,2

2.	What will be the output of the following Java code?
	class Test {
	public static void main(String args[]) {
	System.out.println(70 + 30 + "Hi");
	System.out.println("foop" + 70 +30);
	}}
		2	2	1	1,2

3.	How do you use the super keyword to call a super class method?	2	2	2	1,2

4.	**Which class is instantiable? Class A or Class B?**
	abstract class A
	{
	}
	class B extends A
	{
	}
		2	2	2	1,2

5.	What distinguishes an exception from an error in Java?	2	2	3	1,2
6.	Explain the life cycle of a thread in Java?	2	1	3	1,2
7.	Why strings are immutable in java?	2	2	4	1,2
8.	Discuss the advantages and disadvantages of using byte streams over character streams.	2	1	4	1,2
9.	How does an applet work in Java?	2	1	5	1,2
10.	Give various AWT controls that are used to create user interfaces?	2	2	5	1,2

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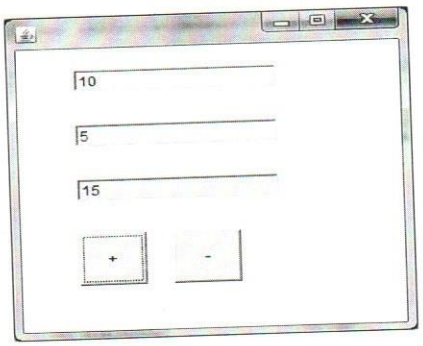
Code No. : 14164 (C) N/O

	Part-B (5×8 = 40 Marks)				
11. a)	What are the key principles of object-oriented programming?	4	1	1	1,2
b)	Write a java program that accepts three numbers from the user and prints "positive integer " if the number is greater than zero, "negative integer" if the number less than zero.	4	3	1	1,2
12. a)	Write a Java program with an interface called MathFun with two methods: one that returns the square of a number and one that returns the cube of a number. Create a class DefMathFun and implement Also, write a main method that tests these methods by passing some values and printing the results.	4	3	2	1,2
b)	Write a Java program to create a class known as "BankAccount" with methods called deposit() and withdraw(). Create a subclass called SavingsAccount that overrides the withdraw() method of BankAccount class and define one more new method checkBalance() method in SavingAccount class to display the balance.	4	3	2	1,2
13. a)	Explain exception handling in Java with an example?	4	2	3	1,2
b)	What is the start() and run() method of Thread class and what will happen if we don't override the thread class run() method? Explain with a sample program.	4	2	3	1,2
14. a)	Which class would you choose between String, StringBuffer, and StringBuilder, and why for developing an application that requires multiple string modifications, such as appending, replacing, and deleting characters?	4	2	4	1,2
b)	Write a Java program to read customer details by using their mobile number from the database and write into a separate file.	4	3	4	1,2
15. a)	What is an Applet? Explain the architecture of an Applet.	4	1	5	1,2
b)	Write a program that uses a GUI with three text fields to get the two numbers and use buttons to find addition and subtraction. The output should appear in a text field. 	4	2	5	1,2

Contd... 3

Code No. : 14164 (C) N/O

16. a)	Write a Java program to check whether the given number is prime or not.	4	2	1	1,2
b)	Write a Java program to create an abstract class Shape with abstract methods calculateArea() and calculatePerimeter(). Create sub classes Square and Triangle that extend the Shape class and implement the respective methods to calculate the area and perimeter of each shape.	4	3	2	1,2
17.	Answer any ***two*** of the following:				
a)	Write a Java program to create a vehicle class hierarchy. The base class should be Vehicle, with subclasses Truck, Car and Motorcycle. Each subclass should have properties such as make, model, year, and fuel type. Implement methods for calculating fuel efficiency, distance traveled, and maximum speed.	4	3	3	1,2
b)	For the banking application, create an Account class, raise Invalid Account Number Exceptions while reading account number from the user. Create Insufficient Funds Exception while withdrawing amount if balance not available and if trying to deposit amount <=0, explicitly raise the Illegal Argument Exception. Wherever suitable make use of multi-catch, throws and finally blocks.	4	3	4	1,2
c)	Write a program that uses a GUI with three text fields to get the three numbers and three different buttons to perform multiplication and division . The output should appear in a text field. The text field label should change to indicate the type of result (multiplication and division).	4	3	5	1,2

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	40%
iii)	Blooms Taxonomy Level – 3 & 4	40%

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