

Q. Code:407886

B.E./ B. TECH.DEGREE EXAMINATIONS, MAY

Reg. No.

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2024

Second Semester

AD22202 – OBJECT ORIENTED PARADIGM AND PROGRAMMING

(Artificial Intelligence and Data Science)

(Regulation 2022)

TIME:3 HOURS

MAX. MARKS: 100

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Apply the concepts of object-oriented programming for practical problem.	2
CO 2	Apply generic data type for the data type independent programming which relates to reusability.	3
CO 3	Design the exception-handling techniques for resolving run-time errors and handle large data set using file I/O.	3
CO 4	Develop Java programs using object-oriented concepts.	3
CO 5	Design and develop real-world problems in Java.	3

PART- A(20x2=40Marks)

(Answer all Questions)

	CO	RBT LEVEL
1. What is the use of classes and objects?	1	2
2. Difference between static and const keyword in C++.	1	2
3. Can you make a class as a friend in C++? Justify your answer.	1	2
4. Predict the output?// Assume that integers take 4 bytes. <pre>#include<iostream> using namespace std; class Test { static int i; int j; }; int Test::i; int main() { cout << sizeof(Test); return 0; }</pre>	1	2
5. How can the diamond problem be solved in inheritance?	2	2
6. List the operators that cannot be overloaded.	2	2

7.	Define pure virtual function.	2	2
8.	When do we make a virtual base class?	2	3
9.	Define the Standard template library with an example.	3	2
10.	List out the advantages of using templates in C++.	3	2
11.	Define the I/O file stream with an example.	3	2
12.	Comparison between list and vector containers.	3	2
13.	How do we create a user-defined package and also import it into another file?	4	3
14.	Predict the output? <pre>class Main { public static void main(String args[]) { System.out.println(fun());} int fun() { return 20;}}</pre>	4	3
15.	Does the Java compiler allow us to implement multiple inheritance?	4	3
16.	Difference between overloading and overriding in Java.	4	2
17.	What is multithreading? With example.	5	2
18.	What is generic programming?	5	2
19.	Difference between String buffer and String builder class.	5	2
20.	State the use of try-catch block in Java.	5	2

PART- B (5x 10=50Marks)

Marks CO RBT LEVEL

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21.(a) Write a C++ program to create an employee class consisting of name, designation, ID, and salary as class data variables. Using this class, print 5 employee details by reading the employee's information. Write the main program to create objects and call a member function from a class. **(10) 1 2**

(OR)

(b) Illustrate the use of different types of constructors in C++ with an example. **(10) 1 2**

22.(a) Write a program in C++ with class vehicle with basic details about the vehicle like color, make, model, year, and mileage. Inherit vehicle class to bike, truck, and car. Print the details of the bike, truck, and car using the virtual function (display details). **(10) 2 3**

(OR)

(b) Create a class called Circle with radius as a data member and getCircle() and calcArea() as member functions to read the radius and calculate the area of the circle. **(10) 2 3**

- Create a class called Cone which is derived from the Circle class. Utilize the data members and the member functions of the base class by the derived class to find the volume $((1/3) * 3.14 * r * r * h)$ of a cone.

- Create another class called Cylinder which is derived from the Circle class. Utilize the data members and the member functions of the base class by the derived class to find the volume $(3.14 * r * r * h)$ of a cylinder.

23.(a) What is a template? Write a C++ program to find an average of n numbers using a function template. **(10) 3 3**

(OR)

(b) Explain in detail about Exception handling in C++. Write a program in C++ to calculate the student mark average for 'n' subjects using exception handling. Exceptions should be raised if the student's roll number, marks, and number of subjects are not valid. **(10) 3 3**

24.(a) Write a Java program to prepare a student record using class and object. **(10) 4 3**

(OR)

(b) Develop a Java program to get and display the details of staff name and designation in a class, department, salary in another class, and awards in the third class using interfaces and Inheritance. **(10) 4 3**

25.(a) Discuss in detail how exceptions are handled in Java with an appropriate example. **(10) 5 2**

(OR)

(b) Explain in detail the concept of multithreaded programming and thread cycles. **(10) 5 2**

PART- C (1x 10=10Marks)

(Q.No.26 is compulsory)

		Marks	CO	RBT LEVEL
26.	Write a C++ program to create an abstract Reservation class that has Reserve() abstract method. Implement the sub-classes like Reserve Train and Reserve Bus classes and implement the same.	(10)	2	5
