

Reg. No.

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**B.E / B.TECH. DEGREE EXAMINATION, MAY 2023**

Second Semester

**AD18203 - OBJECT ORIENTED PARADIGM AND PROGRAMMING***(Artificial Intelligence and Data Science)**(Regulation 2018 & 2018A)*

TIME: 3 HOURS

MAX. MARKS: 100

- CO 1 Familiar with the basic concepts of object-oriented programming.  
 CO 2 Familiar with the basic concepts of C++ programming language.  
 CO 3 Familiar with the generic programming, exception and file handling in C++  
 CO 4 Understand object-oriented concepts and basic characteristics of Java  
 CO 5 Understand the advanced programming concepts in Java.

**PART- A (10 x 2 = 20 Marks)**  
(Answer all Questions)

	CO	RBT LEVEL
1 What is this pointer? Explain the role of this pointer in C++.	1	1
2 Differentiate public, private and protected access specifiers in C++.	1	2
3 Write any four operators that cannot be overloaded using friend function.	2	1
4 What is typecasting? What are explicit and implicit type conversions?	2	2
5 Illustrate with an example, how endl and setw manipulator works.	3	1
6 What is stream? Enlist various stream classes.	3	2
7 Describe the significance of Java's byte code?	4	2
8 What is the difference between abstract class and interface?	4	1
9 Name any four java built in exceptions.	5	1
10 What is meant by thread? Explain the states of thread.	5	2

**PART- B (5 x 14 = 70 Marks)**

	Marks	CO	RBT LEVEL
11(a) (i) Design a C++ class which contains functions display(). Write a program to count no. of times display() function is called. (Use static data member).	(7)	1	3
(ii) Write C++ program to accept item details (Ino, Iname, Iprice) of five items. Display item name with the highest price. (Use array of objects)	(7)	1	3
<b>(OR)</b>			
11(b) What are constructors and destructors? Explain the types of constructors with suitable C++ code for each.	(14)	1	3
12(a) Write a C++ program to create a base class Increment. Write necessary member functions to overload the operator unary pre and post increment '++' for an integer number.	(14)	2	3

(OR)

- 12(b)** (i) Write a C++ program to demonstrate the use of pure virtual function with the use of base and derived classes (7) 2 3
- (ii) What is down casting. Demonstrate the concept of down casting with C++ code. (7) 2 3
- 13(a)** Write a generic function that will sort an array of integer, float value. Create a menu with appropriate options and accept the values from the user. (14) 3 3
- (OR)
- 13(b)** (i) Write a C++ program to update the contents of a file by accessing the contents randomly. (8) 3 3
- (ii) Explain the unformatted I/O operation with syntax. (6) 3 3
- 14(a)** Create a java program to perform matrix addition. (14) 4 4
- (OR)
- 14(b)** Explain hierarchical and multi-level inheritances supported by java and demonstrate the execution order of constructors in these types. (14) 4 4
- 15(a)** With an example illustrate user defined exception handling and also explain how multiple catch blocks are handled in java. (14) 5 4
- (OR)
- 15(b)** Describe how to create a thread and explain thread priorities usage with suitable example. (14) 5 4

**PART- C (1 x 10 = 10 Marks)**

(Q.No.16 is compulsory)

- |   | Marks       | CO       | RBT<br>LEVEL |
|---|-------------|----------|--------------|
| <b>16</b> Design a base class Customer (name, phoneNo). Derive a class Depositor (accNo, bal) from Customer. Again, derive a class Borrower (loanNo, loan-<br>amt) from Depositor. Write necessary member functions to read and display the details of n Customers. | <b>(10)</b> | <b>2</b> | <b>5</b>     |