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**B.TECH.**  
**(SEM VI) THEORY EXAMINATION 2022-23**  
**OBJECT ORIENTED PROGRAMMING**

**Time: 3 Hours****Total Marks: 100****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

**1. Attempt all questions in brief. 2 x 10 = 20**

- a. Differentiate between Object and Class.
- b. Describe the difference between Abstract Classes and Interfaces.
- c. List down the different types of Relationships in Class diagrams.
- d. Explain the terms Association, Aggregation, and Composition relationships.
- e. List down the different phases of Object-Oriented Analysis.
- f. Differentiate between Procedural and Object-Oriented language features.
- g. What is the namespace in C++? Explain its significance.
- h. Describe the concept of typecasting in C++.
- i. Discuss operator overloading in C++.
- j. Differentiate between private and public members of a class in C++.

**SECTION B**

**2. Attempt any three of the following: 10x3=30**

- a. Explain different types of diagrams in UML along with example of each.
- b. Explain the different modelling techniques used in Class/Object diagrams.
- c. Define Abstraction and Encapsulation and explain their significance in Object-Oriented Programming.
- d. Explain the difference between call by value and call by reference in C++, with the help of suitable example.
- e. Explain the concept of constructors in C++. Discuss different types of constructors. Give example of each.

**SECTION C**

**3. Attempt any one part of the following: 10x1=10**

- a. Explain Object-Oriented Modelling, and Differentiate it with modelling techniques. Explain your answer with proper reasoning.
- b. Define Polymorphism and give an example of its implementation in object-oriented Programming.

**4. Attempt any *one* part of the following: 10x1=10**

- a. Explain the reason of Polymorphism being depicted in collaboration diagrams.
- b. Discuss the callback mechanism, and its representation in sequence diagrams?

**5. Attempt any *one* part of the following: 10x1=10**

- a. Explain the advantages and disadvantages of SA/SD and JSD in comparison to Object-Oriented Analysis and Design?
- b. Explain the process of combining three Models (Class, Use Case, and Interaction) in to object-oriented analysis and design.

**6. Attempt any *one* part of the following: 10x1=10**

- a. Discuss an inline function in C++. Explain its significance along with example.
- b. Explain the difference between static and virtual functions in C++ with the help of example.

**7. Attempt any *one* part of the following: 10x1=10**

- a. Illustrate the types of inheritance in C++. Give an example of each.
- b. Explain pure virtual function in C++. Explain its usefulness with an example.