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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.