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BTECH
(SEM VI) THEORY EXAMINATION 2024-25
OBJECT ORIENTED PROGRAMMING

TIME: 3 HRS

M.MARKS: 70

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1. Attempt all questions in brief.

02 x 7 = 14

Q no.	Question	CO	Level
a.	Name any two components of the conceptual model of UML.	2	K1
b.	What is the purpose of encapsulation in object-oriented programming?	1	K2
c.	Differentiate between a component and a deployment diagram.	3	K2
d.	Mention any two differences between procedural programming and object-oriented programming (OOP).	1	K2
e.	Differentiate between inline functions and macros.	5	K2
f.	List the types of constructors in C++.	4	K1
g.	Define hierarchical inheritance with an example.	2	K2

SECTION B

2. Attempt any three of the following:

07 x 3 = 21

Q no.	Question	CO	Level
a.	Discuss the concept of sequence diagrams. How are asynchronous messages with or without priority represented?	2	K2
b.	What is a friend function? How does it differ from a regular function in terms of access and use?	5	K2
c.	Describe the process of operator overloading in C++ and provide an example demonstrating how to overload the + operator.	5	K3
d.	Explain the advantages and disadvantages of SA/SD and JSD in comparison to Object-Oriented Analysis and Design.	2	K3
e.	What is typecasting in C++? Describe implicit and explicit typecasting with examples.	4	K2

SECTION C

3. Attempt any one part of the following:

07 x 1 = 07

Q no.	Question	CO	Level
a.	Discuss the difference between polymorphism and generalization, and explain how they are applied in object-oriented design.	2	K2
b.	Explain the working of a state machine diagram. How are states, events, and transitions represented?	3	K2



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(SEM VI) THEORY EXAMINATION 2024-25
OBJECT ORIENTED PROGRAMMING

TIME: 3 HRS**M.MARKS: 70****4. Attempt any one part of the following:****07 x 1 = 07**

Q no.	Question	CO	Level
a.	Explain the concepts of call by reference and return by reference in C++. Give suitable examples.	5	K2
b.	Describe recursion vs. iteration in functions with examples and a comparative analysis.	4	K3

5. Attempt any one part of the following:**07 x 1 = 07**

Q no.	Question	CO	Level
a.	Write a program that uses pure virtual functions and show how abstract classes are used to implement interfaces.	5	K2
b.	What is an activity diagram? How does it help in modelling workflows? Explain with a sample diagram.	3	K3

6. Attempt any one part of the following:**07 x 1 = 07**

Q no.	Question	CO	Level
a.	How does UML support the object-oriented software development process? Illustrate with an example involving class and use-case diagrams.	1	K3
b.	Explain the object-oriented programming principles of reusability, extensibility, and robustness with examples.	3	K2

7. Attempt any one part of the following:**07 x 1 = 07**

Q no.	Question	CO	Level
a.	Explain the phases of object-oriented design (OOD) and how they differ from object-oriented analysis (OOA).	1	K2
b.	Write a program in C++ that demonstrates runtime polymorphism using base class pointers, virtual functions, and derived class overrides.	5	K3