Unit IV

8. Explain different types of inheritance with diagrams. **12**

9. (a) Explain the concept of function overriding with example. **6**

(b) What are Templates ? Explain function template and class template. **6**

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B. Tech. (Artificial Intelligence and Machine Learning)

EXAMINATION, 2026

(Third Semester)

OBJECT ORIENTED PROGRAMMING

24-BTPC-301

Time : 3 *Hours*] [*Maximum Marks :* 60

Before answering the question-paper, candidates must ensure that they have been supplied with correct and complete question-paper. No complaint, in this regard will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

1. (a) Compare Procedure Oriented Programming and Object-Oriented Programming.

(b) Differentiate between aggregation and composition.

(c) What is this pointer ? Explain briefly.

(d) Write a short note on STL containers.

4×3=12

Unit I

2. (a) What is memory allocation for objects ? Explain with suitable example. **6**

(b) Explain different programming paradigms. **6**

3. (a) Discuss the concept of friend function in C++ and how it differs from member function ? **6**

(b) Define array of objects and explain how it is initialized and accessed. **6**

Unit II

4. (a) Explain constructor and destructor invocation in inheritance. **6**

(b) Explain abstract class with suitable example. **6**

5. (a) Explain the concept of base class and derived class in OOP with example. **6**

(b) Explain unit testing in object-oriented programming. **6**

Unit III

6. Explain the access specifiers in C++ in detail. Discuss their types, scope of accessibility and their role with suitable examples. **12**

7. (a) Explain function overloading with example. **6**

(b) What are static data members and static member functions ? **6**