

**B.TECH.**  
**(SEM V) THEORY EXAMINATION 2022-23**  
**OBJECT ORIENTED SYSTEM DESIGN**

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

**SECTION A**

- 1. Attempt *all* questions in brief. **2x10 = 20****
- (a) Define data encapsulation. Give example.
  - (b) Define generosity.
  - (c) List the features of Component Diagram.
  - (d) Explain the existence of swimlanes in activity diagram.
  - (e) List the features of object oriented language.
  - (f) Describe the term enum.
  - (g) Define friend function with example.
  - (h) Explain the use of typecasting?
  - (i) Explain this pointer.
  - (j) Give a brief description about function overriding.

**SECTION B**

- 2. Attempt any *three* of the following: **10x3 = 30****
- (a) Explain the architecture of UML.
  - (b) Discuss the purpose of UseCase Diagram and explain its different notations.
  - (c) Discuss the following:
    - (i) Robustness,
    - (ii) Extensibility,
    - (iii) Reusability.Discuss with respect to object-oriented system design.
  - (d) Explain the difference between Macro and Inline function.
  - (e) Give a brief description about constructor with the reference of a C++ program. Also explain its different types.

**SECTION C**

- 3. Attempt any *one* part of the following: **10x1 = 10****
- (a) Explain the principles and importance of modelling.
  - (b) Discuss the conceptual model of UML in detail.
- 4. Attempt any *one* part of the following: **10 x1 = 10****
- (a) Demonstrate the different relationships used in class diagram with their notations with the help of a neat class diagram.
  - (b) Illustrate the significance of collaboration diagram and also draw a neat collaboration diagram for reserving a room in a hotel from its website.

- 5. Attempt any *one* part of the following: 10x1 = 10**
- (a) Discuss in detail about JSD and SA/SD.
  - (b) Compare Object Oriented Programming and Procedural programming.
- 6. Attempt any *one* part of the following: 10x1 = 10**
- (a) Discuss virtual function. How it is different from pure virtual function? Write a program in C++ for it.
  - (b) Explain the following briefly:
    - (i) Virtual function
    - (ii) Friend function
    - (iii) Inline function
- 7. Attempt any *one* part of the following: 10x1 = 10**
- (a) Explain polymorphism. Devise its implementation in C++.
  - (b) Construct a C++ program depicting the concept of multiple inheritance.