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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.