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B.TECH
(SEM V) THEORY EXAMINATION 2021-22
OBJECT ORIENTED TECHNIQUES

Time: 3 Hours**Total Marks: 70****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

SECTION-A

1. Attempt all questions in brief.**2X7=14**

- a. What is the use of scope resolution operator?
- b. Define Encapsulation.
- c. What do you understand by data abstraction?
- d. What is the use of inline function in C++?
- e. What is the purpose of constructors in C++?
- f. What do understand by dynamic modeling.
- g. Differentiate between aggregation and generalization.

SECTION –B

2. Attempt any three parts of the following:**7X3=21**

- a. What are the relation between functional, object and dynamic model?
- b. What is Data Flow Diagram? What is the purpose of different levels in DFD?
- c. What are Nested State diagrams? Why they are useful? Explain with suitable examples.
- d. Explain the following for functional modeling:
 - (i) Data store
 - (ii) Context diagram
- e. What is inheritance? Write a program in C++ to implement multiple inheritance.

SECTION-C

3. Attempt any one part of the following:**7X1=7**

- (a) Write a program in C++ to add, subtract, multiply and division of two complex number using operator overloading
- (b) What is the difference between link and association? Draw an object diagram to explain.

4. Attempt any one part of the following:**7X1=7**

- (a) A farmer wants to cross the river in a boat along with a bag of grass, a goat and a lion.
Only one things can be carried in the boat at a time. If the goat is left alone with the grass the grass will be eaten. If the goat is left along with the lion, the goat will be eaten.
 - (i) Prepare a scenario in which everything is safely transported across the river.
 - (ii) Prepare the event trace diagram for the above problem.
- (b) Discuss the various features of object oriented programming language.



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5. Attempt any one part of the following:**7X1=7**

- (a) Define UML. Draw a UML diagram for the automation of training and placement office of any college. Make suitable assumptions if required and explain them clearly.
- (b) What is polymorphism? Discuss compile time polymorphism and runtime polymorphism with the help of an example.

6. Attempt any one part of the following:**7X1=7**

- (a) What is an inline function? Compare between Macro and Inline functions.
- (b) Write a program in C++ to differentiate between function overloading and function overriding.

7. Attempt any one part of the following:**7X1=7**

- (a) Write a program in C++ using class and objects. Take array of objects and explain how it can be used.
- (b) Write short notes on the following:
 - (i) Jackson Structured Development (JSD)
 - (ii) Destructors in C++