

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2023

B.Tech-IV Semester (BI)

COURSE CODE(CREDITS): 18B11CI415 (4)

MAX. MARKS: 35

COURSE NAME: Object Oriented Programming

COURSE INSTRUCTORS: Dr. Nafis U. Khan

MAX. TIME: 2 Hours

*Note: (a) All questions are compulsory.*

*(b) Marks are indicated against each question in square brackets.*

*(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems*

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- Q1. (a) Explain in detail about Class, Objects, Abstraction and Encapsulation in object oriented programming.  
(b) What is friend function? Explain its importance in C++. CO1 [2+3]
- Q2. Explain public, private and protected access specifiers in C++ and show the ambiguity in multiple and multipath inheritance. CO1 [5]
- Q3. Create a class called *Time* that has separate *int* member data for hours, minutes and seconds. One constructor should initialize this data to 0 and another should initialize it to fixed values. A member function should display it, in 11:59:59 format. Write a program to add time of two objects by overloading '+' operator. CO2 [5]
- Q4. (a) How is polymorphism achieved at compile time and runtime?  
(b) What are pure virtual functions? Where are they used? CO3 [2+3]
- Q5 (a) What is the difference between early binding and late binding in C++?  
(b) Explain the mechanism of calling a virtual function in base class? CO3 [2+3]
- Q6. Show and explain how to open, close, read and write a file in C++. CO4 [5]
- Q7. Write a java program using class concepts to illustrate addition and subtraction operators. CO4 [5]