JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2016

B.Tech 4th Semester

COURSE CODE: 10B11CI311   MAX. MARKS: 15

COURSE NAME: Object Oriented Programming

COURSE CREDITS: 4   MAX. TIME 1 HR

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1 i) Assume that an integer takes 4 bytes and there is no alignment in following classes, predict the output.   **[1 Mark]**

```
#include<iostream>
using namespace std;

class base {
    int arr[10];
};

class b1: public base { };

class b2: public base { };

class derived: public b1, public b2 {};

int main(void)
{
    cout << sizeof(derived);
    return 0;
}
```

ii) What are inline functions? In which case do you make a function as inline?   **[2 Marks]**

iii) Explain the need of constructor overloading?Explain by giving an example.   **[2 Marks]**

iv) Why is the following statement included in the program? Is it necessary to write this statement? Justify   **[2 Marks]**

      # include<iostream.h>

Q2 Design a class that represents an amount of time in minutes and seconds. The class should provide a constructor that sets the time to a specified number of minutes and seconds. The default constructor should create an object for a time of zero minutes and zero seconds. The class should provide observers that return the minutes and seconds separately and an observer that returns the total time in seconds (minutes X 60 seconds). Boolean comparison observers should be provided that test whether two times are equal, one time is greater than the other, or one time is less than the other. A function should be provided that adds one time to another. The class

should not allow negative times (subtraction of more time than is currently stored should result in a time of 0:00). **[3 Marks]**

Q3 A hospital wants to create a database regarding its indoor patients. The information to store include **[5 Marks]**

a) Name of the patient   c) Disease

b) Date of admission   d) Date of discharge

Create a structure to store the date (year, month and date as its members). Create a base class to store the above information. The member function should include functions to enter information and display a list of all the patients in the database. Create a derived class to store the age of the patients. List the information about all the pediatric patients (less than twelve years in age).