

**BACHELOR IN COMPUTER  
APPLICATIONS****Term-End Examination****June, 2007****CS-72 (S) : C++ AND OBJECT ORIENTED  
PROGRAMMING***Time : 2 hours**Maximum Marks : 60*

**Note :** Question number 1 is **compulsory**. Attempt any **three** questions from the rest.

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1. (a) Is C++ an object oriented language ? Give reasons to justify your answer. 5
- (b) What are looping statements provided in C++ ? Explain their syntax. 6
- (c) Write a C++ function called sort( ) to sort a given list of integers. If the need be, it may call a function called swap (int & x, int & y) to exchange the contents of two variables called x and y of type integers. 9

- (d) What are the applications of use case diagram and interaction diagram ? Give example of each. 5
- (e) What is a constructor ? How is it defined and when is it called ? 5
2. (a) Write a C++ program to calculate first 15 terms of fibonacci series. 5  
 [ fibonacci series is defined as  
 $f(n) = f(n - 1) + f(n - 2)$ ,  
 $f(0) = 0$   
 $f(1) = 1$  ]
- (b) How are dynamic objects created and destroyed ? 5
3. (a) What is an inline function ? What are its limitations ? 5
- (b) How are arrays declared in C++ ? How can pointers be used to manipulate array elements ? Give an example. 5
4. (a) Mention the difference between ad-hoc and universal polymorphism. 5
- (b) Define operator overloading. Why are inherited operators often not very useful in derived classes ? 5
5. (a) Explain the concept of inheritance with the help of suitable example. 5

(b) Write a class called Time consisting of the following three methods.

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- `read_later()` — It reads time in the following format  
    hh : hours  
    mm : minutes  
    ss : seconds
- `Display_time()` — It displays time in the following format  
    hh : mm : ss
- `Add_time()` — It takes two time objects  $T_1$  and  $T_2$ , adds them to give third time object  $T_3$ .

