

Total No. of Questions : 8]

SEAT No. :

**P1026**

**[4457]-225**

[Total No. of Pages : 2

**S.E. (I.T.)**

**PROBLEM SOLVING AND OBJECT ORIENTED  
PROGRAMMING CONCEPTS**

**(214445) (2012 Course) (Semester - I)**

*Time : 2 Hours]*

*[Max. Marks : 50*

*Instructions to the candidates:*

- 1) Answer Questions 1 or 2, 3 or 4, 5 or 6 and 7 or 8.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) Assume suitable data if necessary.*

**Q1)** a) Write an algorithm and draw flowchart for a solution to find smallest of two numbers. Also prepare problem analysis chart, Interactivity chart and input-processing-output chart. [6]

b) What is decision logic structure? Explain the three decision logic structure with example. [6]

OR

**Q2)** a) Consider a problem of withdrawal of money from ATM machine. Solve this problem using six problem solving steps. [6]

b) Explain data dictionary with example. [6]

**Q3)** a) Write an algorithm to find the maximum in an array and the position. [6]

i) where it first occurs

ii) where it last occur

b) What do you mean by dynamic initialization of objects? Explain it with example. [6]

OR

**Q4)** a) Explain binary search algorithm. For the given example show all iterations required to search 56. [6]

A = [20, 34, 47, 56, 69, 78, 96]

b) Write a C++ program to calculate the area of circle, rectangle and triangle using function overloading. [6]

**P.T.O.**

- Q5)** a) What is virtual function? When do we make virtual function “pure”? [6]  
b) What are the different types of polymorphism with example. [7]

OR

- Q6)** a) Explain virtual base class with example. [6]  
b) Write a C++ program to add the complex numbers using binary operator overloading. [7]

- Q7)** a) Explain container template class for vector and stack. [7]  
b) What are the rules of namespace. [6]

OR

- Q8)** a) Write a C++ program for a function template that returns the maximum of two values. [7]  
b) Explain sequence container and associative container. [6]

