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Total No of Questions: [12]

SEAT NO. :

[Total No. of Pages : 3 ]

**S.E. 2008 (Computer Engineering)**  
**Programming and Problem Solving**  
**(210242) (Semester - I)**

**Time: 3 Hours**

**Max. Marks : 100**

**Instructions to the candidates:**

- 1) Answers to the two sections should be written in separate answer books.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right side indicate full marks.
- 4) Assume Suitable data if necessary

**SECTION I**

- Q1) a) Explain the problem solving concepts for computer. [12]  
b) Define the data types of the following data items. Justify your answers: [04]  
i) Sum of money  
ii) Telephone No

OR

- Q2) a) Construct a logical expression for the following policy on using a departmental Store charge card for a customer to charge an item is that : [06]  
i) Customer must have a valid charge card &  
ii) Balance of less than Rs 500 or charge of less than Rs. 50  
b) Explain problem analysis chart & Structure chart of interactivity chart. [08]  
c) Write rules for drawing flow charts. [02]
- Q3) a) What are the different types of modules are needed for the solutions to the problems [06]  
b) Using negative logic write the algorithm & draw the flowchart for the following Set of conditions. [06]  
R= 110 for  $S \leq 1000$   
R= 160 for  $S = 100/-$   
R= 300 for  $S = 500/-$   
R= 20 for  $S > 10000$

- c) Explain Decision table in detail with example. [06]

OR

- Q4) a) Using positive logic, write the algorithm & draw the flow charts for following set of condition. [06]

Gross salary	Tax Rate
$Gross \leq 5000$	3%
5001 – 8000	5%
8001 – 10000	8%
Gross = 10000	10%

- b) What are the different ways of send data in the modules? Explain with suitable [06]



example.

- c) What do you mean by internal & external documentation? Explain with suitable example. [06]

- Q5) a) Write Pseudo algorithm to compute the sum of squares of n numbers. [08]  
b) Given a number n devise Pseudo algorithm to compute its square root. [08]

OR

- Q6) a) Given some integer x, compute to value  $x^n$  where n is positive integer which is greater than 1 [08]  
b) Design Pseudo algorithm that convert binary no to octal. [08]

## SECTION II

- Q7) a) Write short notes on the following. [08]  
i) Tablelookup Technique  
ii) Pointer Technique  
b) Write Pseudo algorithm to find minimum, maximum elements & how many times they both occur in an array of n elements. [08]

OR

- Q8) a) Write a Pseudo algorithm to remove all duplicate from an ordered array & contract the array accordingly. [08]  
b) Write a Pseudo algorithm for partition a randomly ordered array of n elements Into two subsets such that elements less than equal to X are in one subset & element are greater than X are in other subset. [08]

- Q9) a) Explain algorithm for left –right justification of given text. [08]  
b) Write a pseudo algorithm to count number of characters in each line. [04]  
c) Explain search keyword from given text algorithm. [04]

OR

- Q10) a) Write Pseudo algorithm for liner pattern search. [08]  
b) Explain algorithm for line editing. [08]

- Q11) a) Distinguish between the following terms : [09]  
i) Objects & Classes  
ii) Constructor & Destructors  
iii) Procedure – oriented & Object oriented programming  
b) Explain essential characteristics of an object oriented programming language. [04]  
c) What do you mean by polymorphism? Explain with suitable example [05]

OR

- Q12) a) Define a class bank account having data members. [06]  
1 Name of the depositor Account  
2 No.  
3 Type of account  
4 Balance amount in the account.



### Member function

- 1 to assign initial values
- 2 to deposit an amount
- 3 to with draw an amount after checking the balance
- 4 to display name & balance

Write a main program to test the program for 'n' depositors.

- b) Explain the following terms. [06]
- 1 Static member function
  - 2 Friend function
- c) Explain advantages & disadvantages of object oriented programming language. [04]
- d) What is the application of the scope resolution operators in C++? [02]