

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 ≤ 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]