R13

PROBLEM SOLVING & COMPUTER PROGRAMMING
(Computer Science & Engineering)

Time: 3 hours   Max. Marks: 70

Part – A
(Compulsory Question)
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1   Answer the following: (10 X 02 = 20 Marks)
  (a)   Write the essential steps for binary search procedure.
  (b)   Write a program that prompts the user to enter three numbers and then prints them vertically (each on one line).
  (c)   Distinguish between while and do – while loops.
  (d)   Given a set of n students' examination marks (in the range of 0 to 100) make a count of the number of students that passed the examination. A pass is awarded for all marks of 50 and above. Write the algorithm for the above problem.
  (e)   Given a number m, devise an algorithm to compute its square root.
  (f)   List the advantages that are associated with the use of functions in C language.
  (g)   What is type definition? Illustration it with its syntax and example.
  (h)   Define anonymous enumeration. Explain with example.
  (i)   With the help of syntax and example, explain the realloc function.
  (j)   Write a program that adds two numbers by using pointers.

Part – B
(Answer all five units, 05 X 10 = 50 Marks)

UNIT - I

2   (a) Explain the structure of a C program in detail.
    (b) What is testing? Explain the different types of testing in detail.
                                                OR
3   (a) Write a program to calculate the bill amount for an item given its quantity sold, value, discount and tax.
    (b) What is a constant? Explain the different types of constants.

UNIT - II

4   (a) Write a program to enter a number and then calculate the sum of its digits.
    (b) With the help of syntax and flowchart, explain any two iterative statements.
                                                OR
5   (a) Design an algorithm that accepts a positive integer and reverses the order of its digits. Explain it with a suitable example.
    (b) Write a program that accepts a number from 1 to 10. Print whether the number is even or odd by using switch case construct.

UNIT-III

6   With the help of a neat sketch describe in detail about the different derived types.
                                                OR
7   (a) Write a recursive program to print the factorial value of any given integer.
    (b) Discuss in detail about the two dimensional arrays.

UNIT-IV

8   (a) What is a structure? Explain how to declare, initialize and access the structure elements.
    (b) Write a program to find the largest of three numbers by using logical AND operator.
                                                OR
9   (a) Write a program to display whether any given string is a palindrome or not.
    (b) Give brief description about the different types of shift operators.

UNIT-V

10   What is a linked list? Explain the insertion of new node into a single linked list at various possible locations.
                                                OR
11 (a) Distinguish between text and binary files.
    (b) Give brief description about the various file status functions.
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