

PROBLEM SOLVING & COMPUTER PROGRAMMING
(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- What is a stream?
 - Define the two general problem-solving strategies.
 - Write the output for the following program

```
Main ( ) {
In a = 24, b = 13, c, d;
C = ++ a + b; d = a + --b;
Print ("a = %d", a); print ("b = %d", b);
Print ("c = %d", c); print ("d = %d", d);
}
```
 - Differentiate between while loop and do while loop.
 - list out any four predefined functions in C.
 - Define Array. Write the declaration of Multi Dimensional Array.
 - What is a Mask?
 - Make comparison of structures and unions.
 - What is rvalue? Give one example.
 - List and mention the purpose of the file status functions in C.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

- List out the computer languages and explain.
 - Describe the different problem-solving aspects.

(OR)
- Mention the steps involved in creating and running the program. Explain each step in detail.
 - List the characteristics of C-Language.

UNIT - II

- Give examples for postfix, prefix, unary and binary expressions.
 - Write a C program to check whether a given number is Armstrong number or not.

(OR)
- Describe the Multiway selection statements in C with examples.
 - Write the algorithm for converting a character into a number.

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UNIT - III

- 6 (a) Describe the basic function designs with examples, (hint: return type and parameter list).
(b) Write a C program to find GCD of two numbers using recursion.

(OR)

- 7 (a) Write a function to find an element in an array using linear search.
(b) Write a C program for matrix multiplication.

UNIT - IV

- 8 Discuss the following functions:

- (i) Strstr ().
- (ii) Strest ().
- (iii) strrev ().
- (iv) strcmpi ().
- (v) strncmpi ().

(OR)

- 9 (a) How do you define a union? How a union variable is declared and initialized? How are union members accessed? Explain with examples.
(b) Describe any 4 bitwise operators in C.

UNIT - V

- 10 (a) Explain with an example, passing pointer to a function.
(b) List and describe dynamic memory allocation functions.

(OR)

- 11 (a) What are the differences between the text and binary file?
(b) Give brief note on the following file positioning functions:
(i) ftell ().
(ii) rewind ().
(iii) fseek ().
