



**PRACTICE SET**

**End Semester (II Sem.) Examination, Dec 2025**

**Course: Programming for Problem Solving Using C**

**Semester: First**

**Program: BCA (Section-A or B)**

**Course Code: 3CCC102**

<b>Course Outcomes</b>	<b>Description</b>
CO1	Understand the history of C, write basic C programs, and apply structured problem solving approaches using algorithms and flowcharts.
CO2	Demonstrate the use of data types, variables, operators, control structures, arrays, and strings in solving computational problems.
CO3	Develop modular programs using functions and recursion, understanding parameter passing mechanisms.
CO4	Apply pointers for accessing and manipulating data in memory and understand their role in C programming.

**Section A (Each carries 5 marks) – (5\*23=115)**

1. Define an algorithm. What are the characteristics of a good algorithm? [CO1] [UNIT 1] [REMEMBER, LOT]
2. What is flowchart? Explain the elements of flowchart with the help of suitable diagram. [CO1] [UNIT 1] [UNDERSTAND, LOT]
3. Explain the terms algorithm, pseudocode and program. [CO1] [UNIT 1] [UNDERSTAND, LOT]
4. Describe the steps of problem solving. [CO1] [UNIT 1] [UNDERSTAND, LOT]

5. Explain the basic structure of a C program with an example. [CO1] [UNIT 1] [UNDERSTAND, LOT]
6. Define variable and constant with examples. [CO2] [UNIT 2] [REMEMBER, LOT]
7. Explain arithmetic, relational and logical operators in C. [CO2] [UNIT 2] [UNDERSTAND, LOT]
8. Write the syntax of if-else and switch-case statements. [CO2] [UNIT 2] [REMEMBER, LOT]
9. Explain break, continue and goto statements with examples. [CO2] [UNIT 2] [UNDERSTAND, LOT]
10. What is an array? Explain its declaration and initialization. [CO2] [UNIT 2] [UNDERSTAND, LOT]
11. With the help of a table explain the operator precedence with their associativity. [CO2] [UNIT 2] [UNDERSTAND, LOT]
12. Explain call by value and call by reference. [CO3] [UNIT 3] [UNDERSTAND, LOT]
13. List the advantages and disadvantages of using functions in C. [CO3] [UNIT 3] [UNDERSTAND, LOT]
14. What is recursion in C? Explain the syntax structure of a recursive function. [CO3] [UNIT 3] [UNDERSTAND, LOT]
15. What are the advantages and disadvantages of recursion in C? [CO3] [UNIT 3] [REMEMBER, LOT]
16. Explain the concept of pointer in C. How is a pointer variable declared? [CO3] [UNIT 3] [UNDERSTAND, LOT]
17. List the uses of pointer in C. [CO3] [UNIT 3] [REMEMBER, LOT]
18. What is a structure? Write its syntax and give a simple example. [CO4] [UNIT 4] [REMEMBER] [LOT]
19. Define a union. Explain how memory is allocated to a union. [CO4] [UNIT 4] [REMEMBER, LOT]
20. Explain the types of files in C. [CO4] [UNIT 4] [UNDERSTAND, LOT]
21. Explain fopen() and fclose() with examples. [CO4] [UNIT 4] [REMEMBER, LOT]
22. Write a short note on reading and writing files using fprintf() and fscanf(). [CO4] [UNIT 4] [REMEMBER, LOT]
23. What is self-referential structure? [CO4] [UNIT 4] [REMEMBER, LOT]

### **Section B (Each carries 10 marks) – (10\*17=170)**

24. Write the algorithm to check a given number is palindrome number or not. Also draw the flowchart diagram. [CO1] [UNIT 1] [APPLY, LOT]

25. Describe algorithms in detail. Write an algorithm to find the sum of first N natural numbers. **[CO1] [UNIT 1] [APPLY, LOT]**
26. Draw and explain a flowchart for finding the largest of three numbers. **[CO1] [UNIT 1] [APPLY, LOT]**
27. What are the datatypes in C? Explain any 5 datatypes with its size, range and format specifiers. Write a program in C to multiply 2 float numbers and display the result. **[CO2] [UNIT 2] [ANALYSE, HOT]**
28. Define Control statements in C. Explain conditional branching and unconditional branching statements. **[CO2] [UNIT 2] [UNDERSTAND, LOT]**
29. Explain array of Strings in C using memory block diagram. Illustrate it with the help of a program. **[CO2] [UNIT 2] [APPLY, LOT]**
30. (i) Write a program in C to show the uses of logical operators. **[CO2] [UNIT 2] [APPLY, LOT]**  
(ii) Write a program in C to take age as input from user and display the output whether he/she is eligible to vote or not. **[CO2] [UNIT 2] [APPLY, LOT]**
31. Create a program in C to display the grade of a student according to the marks/percentage provided by the user. (91-100 Grade O, 81-90 Grade A+, 71-80 Grade A, 61-70 Grade B+, 51-60 Grade B, 41-50 Grade C, 31-40 Grade D, below 30- Grade F) **[CO2] [UNIT 3] [CREATE, HOT]**
32. Differentiate between For, while and do...while loop in C. **[CO2] [UNIT 3] [ANALYZE, HOT]**
33. Explain functions in detail. Write a program to find factorial using a function. **[CO3] [UNIT ] [APPLY, LOT]**
34. Describe recursion. Write a recursive program to compute Fibonacci series. **[CO3] [UNIT-III] [ANALYSE] [HOT]**
35. Write a program in C to find the sum of 3 given integer using the concept of function. **[CO3] [UNIT 6] [APPLY, LOT]**
36. What are the types of function? Explain built-in function and user defined function with the help of an example. **[CO3] [UNIT 6] [UNDERSTAND, LOT]**
37. Explain structure with examples. Write a program to display student information using structures. **[CO4] [UNIT-IV] [APPLY] [LOT]**
38. Explain file-handling functions in C. Write a program to copy contents from one file to another. **[CO4] [UNIT-IV] [ANALYSE] [HOT]**
39. Compare text files and binary files in C, analyzing the key differences in their structure and mode of data handling? **[CO4] [UNIT 8] [ANALYZE, HOT]**
40. List the file operations used in C. Explain the functions used to perform the file operations. **[CO4] [UNIT 8] [ANALYZE, HOT]**

## **Section C (Each carries 20 marks) – (20\*7=140)**

41. If the electricity unit consumption is less than or equal to 200, the charge is Rs. 3.25 per unit. If it is between 201 and 400, the charge is Rs. 4.00 per unit. If it is above 400, the charge is Rs. 6.00 per unit.

Write following:

(a) Write an algorithm for given problem. And also draw flow chart diagram.

(b) Write a program to input total units consumed by a customer and calculate the total electricity bill. **[CO1] [UNIT 1] [CREATE, HOT]**

42. Explain with the help of flowchart and write a well-documented program for the below listed decision making statements: **[CO1] [UNIT 1] [CREATE, HOT]**

- a. If statement
- b. If....else statement
- c. Nested if statement
- d. If.....else if statement
- e. Switch statement

43. Explain the concept of for loop used in C. Also explain the loop variables used in for loop. Draw the flowchart of for loop. Write a program in C to print the sum of all even numbers between 0 to 50. **[CO2] [UNIT 3] [CREATE, HOT]**

44. Reframe the concept of Array and its types. Write a C program to insert and print the elements in 1-D and 2 -D array. **[CO2] [UNIT 2] [EVALUATE, HOT]**

45. Classify the types of pointers used in C? Explain each with the help of an example. **[CO3] [UNIT 3] [ANALYZE, HOT]**

46. Explain structures, nested structures, structure arrays, and file handling with well-documented C programs. **[CO4] [UNIT-IV] [ANALYSE] [HOT]**

47. With the help of a program explain: **[CO4] [UNIT 4] [CREATE, HOT]**

- a. Opening a file in C
- b. Create a file in C
- c. Read a file in C
- d. Write to a file in C
- e. Close a file in C

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### Summary Sheet:

#### CO Wise

CO	Q. No	Marks
CO1	1-5,24-26,41,42	95
CO2	6-11, 27-32,43,44	130
CO3	12-17,33-36,45	90
CO4	18-23,37-40,46,47	110
<b>Total</b>		<b>425</b>

#### Unit Wise

Unit	Q. No	Marks
Unit 1	1-5,24-26,41,42	95
Unit 2	6-11, 27-32,43,44	130
Unit 3	12-17,33-36,45	90
Unit 4	18-23,37-40,46,47	110
<b>Total</b>		<b>425</b>

#### Blooms Taxonomy Level (BTL) Wise

BTL	Q. No	Marks
LOT	1-26,28-30,33,35-37	215
HOT	27,31,32,34,38-47	210
<b>Total</b>		<b>425</b>

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Reviewed By:

**Disclaimer:** - This is a Model Paper. The Question in End term examination will differ from the Model Paper. This Model paper is meant for practice only.