

C - PROGRAMMING

(Common to All Branches)

Time: 3 hours**Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What is algorithm? Explain how algorithm helps for writing a program
 (b) Explain the structure of C program.
 (c) Explain relational and logical operators with example. [3+4+8]
2. (a) Explain the switch statement with example
 (b) A cloth show room has announced the following seasonal discounts on purchase of items:

Purchase amount	Discount	
	Mill cloth	Handloom items
0-100	-	5%
101-200	5%	7.5%
201-300	10.0%	15.0%
Above 300	10.0%	15.0%

Write a program using switch and if statements to compute the net amount to be paid by a customer [7+8]

3. (a) Write a C program to reverse a string without using string functions
 (b) Explain the do-while loop with example [8+7]
4. (a) What is an array? How array elements will be initialized in 1D and 2D arrays.
 (b) Write a program to print transpose of a given matrix [7+8]
5. (a) What is a function? Explain their advantages
 (b) Write a program to pass 1-D array to a function with example [6+9]
6. (a) Explain call by reference and call by value with example
 (b) Write a program using pointers to read in an array of integers and print its elements in reverse order. [8+7]
7. Explain the following:
 - (a) Nested structure
 - (b) Array of structure
 - (c) Union [5+5+5]
8. (a) What is a file? Distinguish between text mode and binary mode operation of a file.
 (b) Write a C program to open-existing file and add information at the end of the file. Display the contents of the file before and after appending. [7+8]

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1. (a) What is a flow chart? Give a flow chart for addition of two numbers.
(b) Explain the primitive data types and sizes defined in C
(c) Write a program to calculate the average of a set of N numbers
[5+5+5]
2. (a) List the decision making statements in C. Explain the nested if – else with example
(b) Write a program to find the count and sum of all integers greater than 100 and less than 200 and which are divisible by 7
[8+7]
3. (a) Explain strcmp () and strcpy () string handling functions with example
(b) What is loop? Explain while loop with suitable example.
[7+8]
4. (a) Define and initialize two dimensional arrays.
(b) Given are two one-dimensional arrays A and B where are sorted in ascending order. Write a program to merge them into a single sorted array C that contains every class from arrays A and B, the ascending order.
[6+9]
5. (a) Explain different storage classes with example
(b) What is recursion? Write a program for towers of Hanoi using recursion.
[8+7]
6. What is Dynamic Memory allocation? Explain all dynamic memory management functions with examples
[15]
7. (a) What is a structure? List differences between structure and unions
(b) Define a structure called cricket that will describe the following information.
Player Name
Team Name
Batting average
Using cricket, declare an array player with 50 elements and write a program to read the information about all the 50 players and print a team wise list containing names of players with their batting order.
[8+7]
8. (a) What are bit field? What are its advantages? What is its syntax?
(b) Distinguish between the following
(i) getch and getchar
(ii) printf and fprintf
(iii) feof and ferror
[6+9]



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- 1. (a) What are constants? List and explain constants in C.
(b) Describe the four basic data types. How could we extend the range of values they represent?
(c) Write a program to read the price of an item in decimal form (like 15.95) and print the output in paise (like 1595 paise) [5+5+5]
2. (a) Explain else-if ladder with example
(b) Write a C program with the else-if ladder for the following data

Table with 2 columns: Average Marks, Grade. Rows include: 80 to 100 (Excellent), 60 to 79 (First division), 50 to 59 (Second division), 40 to 49 (Third division), 0 to 39 (Fail)

- 3. (a) Write a c program to append a string to the end of other string without using string manipulation function. [7+8]
(b) What is a for loop? Write a c program that computes and prints factorial of an integer. [8+7]
4. (a) What is a character array? Define and initialize two dimensional character arrays with example
(b) Write a program to multiply two matrices (Note: Before multiply program should check the validity) [7+8]
5. What is a user defined function? Explain different user defined function with example [15]
6. (a) What is a pointer? Describe the advantages and disadvantages of pointer.
(b) Explain the pointer arithmetic with example [7+8]
7. (a) Explain the meaning and purpose of the following (i) sizeof (ii) struct (iii) typedef
(b) Explain array of structures and structure pointers with examples [7+8]
8. Write a C program to read a text file and to connect (a) Number of character (b) Number of words (c) Number of sentences and write in an output function [5+5+5]



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1. (a) Explain different computer languages in detail
(b) List and explain different arithmetic operators
(c) What is precedence and order of evaluation? Explain
[5+5+5]
2. (a) List and explain usage of logical operators in C with example
(b) Explain the conditional operator with example
(c) The total distance travelled by a vehicle in t seconds is given by
distance = $ut + (at^2)/2$
Where u is the initial velocity (meters per second), a is the acceleration (meters per second²), write a program to evaluate the distance travelled at regular intervals of time, given the values of u and a. The program should provide the flexibility to the user to select his own time intervals and repeat the calculations for different values of u and a
[5+4+6]
3. (a) What is a string? Explain strcat () and strlen () functions with example
(b) Write a program to read a line of text containing a series of words from keyboard and display the count of words and white spaces.
[8+7]
4. (a) Explain the concept of declaring, accessing and storing elements in a 1-dimensional array?
(b) Write a program to add two matrixes. (Note: Before performing additions, program should check the validity condition)
[8+7]
5. (a) Explain the following storage classes (i) extern (ii) auto (iii) register (iv) scope
(b) Explain pre-processor directives in C in detail.
[8+7]
6. (a) What is a pointer? How is a pointer initialized? Given an example.
(b) Write a program using pointers to compute the sum of all elements stored in an array.
[7+8]
7. (a) What is structure? Explain different structure declarations with example.
(b) Write a C program to complete the monthly pay of 100 employees using each employee name and basic pay. The DA is computed as 2.5% of the basic pay. Gross salary (Basic-pay + DA). Present the employees name and gross salary.
[7+8]
8. (a) Explain various file operations in C.
(b) Write a program to read an input file and count the number of character in the input file.
[8+7]

