

B.Tech. (IT/CHEMICAL/CIVIL ENGINEERING)

ODD SEMESTER

MINOR TEST-1 2025-26

Year-1st, Semester-Ist

Programming in C

Time: 2 Hrs.

Max. Marks: 20

Note: Answer all questions.

Q.1	Attempt any Three parts of the following. Q. 1(a) is compulsory.	Marks	COs	BL	PO	PI
(a).	Why do we include header file using #include in c program? Discuss the significance of ".c", ".obj" and ".exe" files in context to C program compilation and execution.	4	1	1	2	1.3.1
(b).	What is Bus in context to microprocessor? State the purpose of Address, Data and Control buses.	2	1	1	2	1.3.1
(c).	Draw a flow chart to find the greatest among n input numbers.	2	1	6	1	1.3.1
(d).	State the use of following: (i) Bitwise operator (ii) sizeof () (iii) type casting (iv) ternary operator	2	1	1	1	1.3.1
Q.2	Attempt any Two parts of the following. Q. 2(a) is compulsory.					
(a).	State the purpose of following: (i) continue (ii) exit (0) and exit (1) (iii) typedef (iv) switch ()	4	1	4	2	1.3.1
(b).	What is nested loop? Write a C program to compute and print the sum of following series using nested for loop. $1 + (1 + 2) + (1 + 2 + 3) + (1 + 2 + 3 + 4) + \dots$ up to n terms	2	2	1,2	1	1.3.1
(c).	Write a C program to print all Perfect numbers between 1 to n. A perfect number is a number, whose sum is equal to its positive divisor but excludes the number itself. For instance, the number 6 is divisible by 1, 2, and 3 completely.	2	2	2	1	1.3.1
Q.3	Attempt any Two parts of the following. Q. 3(a) is compulsory.					
(a)	Write a program in C to check whether input number n is Neon number or not. A neon number is a number where the sum of digits of square of the number is equal to the number. e.g. 9 is Neon number as $9^2=81$ and $8+1=9$.	4	2	2	1	1.3.1
(b)	Explain the differences between for, while, and do while loops with suitable examples.	2	2	4	1	1.3.1
(c)	Write a short note on the advantages of using a switch statement over nested if-else.	2	2	3	1	1.3.1

BL- Bloom's Taxonomy Levels (1 - Remembering 2 - Understanding 3 - Applying 4 - Analysing 5 - Evaluating 6 - Creating)
 CO- Course Outcomes, PO- Program Outcomes, PI Code- Performance Indicator Code

B.Tech.
YEAR: 1st SEMESTER: I
MAJOR EXAMINATION: 2025-2026

PROGRAMMING IN C

Time: 3 Hours

Max Marks: 50

Note: Attempt ALL questions. ALL questions carry equal marks.

Q1.	Attempt any Five parts of the following.	Marks	CO	BL	PO	PI Code		
a)	Write a program that takes an integer keyed in from the terminal and extracts and displays each digit of the integer in English.	2	2,3	2,3	1,2,6	1.4.1		
b)	Write a C program to find the greatest common divisors of two numbers.	2	2,3	2,3	1,2,6	1.4.1		
c)	Differentiate between while () and do-while () looping statements with suitable examples.	2	2,3	2,3	1,2,6	1.4		
d)	Write down the difference between the associativity and precedence of operators. State the precedence and associativity between relational (<, <=, >, >=) & bitwise (&, ^,) operators.	2	1	2,3	1,2,6	1.4.1		
e)	Write an algorithm to check whether input number is Niven number or not. A Niven number, also known as a Harshad number, is an integer that is divisible by the sum of its digits.	2	1	2,3	1,2,6	1.4.1		
f)	Differentiate between (state clear purpose): i. Cache & RAM ii. Compiler & linker	2	1	2,4	1,2,6	1.4.1		
g)	Discuss the use of following bit-wise operators with c code: i. ~ ii. >>2	2	1	1,2,3	1,2,6	1.4.1		
Q2.	Attempt any Two parts of the following.							
a)	How do the following two code segments differ in creation of an array <table border="1" style="margin-left: 20px;"> <tr> <td>#define n 5 int arr[n]</td> <td>scanf("%d",&n); int arr[n];</td> </tr> </table> Write a C program to multiply two matrices entered by the user.	#define n 5 int arr[n]	scanf("%d",&n); int arr[n];	5	1,2,3,4	2,3,5	1,2,6	1.4.1
#define n 5 int arr[n]	scanf("%d",&n); int arr[n];							
b)	Given an array of integers arr[] , write c code to move all the zeros to the end of the array while maintaining the relative order of all non-zero elements. <i>Input: arr[] = [1, 2, 0, 4, 3, 0, 5, 0]</i> <i>Output: arr[] = [1, 2, 4, 3, 5, 0, 0, 0]</i> <i>Explanation: There are three 0s that are moved to the end.</i>	5	2,3	2,3,4	1,2,6	1.4.1		
c)	Explain any four string manipulation library functions with their syntaxes. Write a C program to check whether a string is palindrome or not.	5	2,3	2,4,5	1,2,6	1.4.1		