

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2025**

PROBLEM SOLVING AND PROGRAMMING

[Maximum Marks: 75]

[Time: 3 Hours]

PART-A

I. Answer ‘all’ the following questions in one word or one sentence. Each question carries ‘one’ mark.

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1.	Draw the symbol used in flowchart for decision making.	M1.01	R
2.	Give any two examples of preprocessor directives.	M1.03	R
3.	List any two unary operators used in C.	M1.03	R
4.	Write the syntax of <i>for</i> loop statement.	M2.05	R
5.	What is the value of ‘a’ after execution of the following code if a = 10, b = 5, and c = 10? if((a > b) && (a <= c)) a = a + 1; else a = a-1;	M2.02	U
6.	What is a function?	M3.01	R
7.	The value obtained in the function is given back to main () by using.....keyword.	M3.01	R
8.	Write the statement to initialize a 3x2 matrix with elements 3, 4,1,2,0, 6.	M4.03	U
9.	The last index of an array is 9, then how many elements are stored in that array.	M4.01	R

PART-B

II. Answer any ‘eight’ questions from the following. Each question carries ‘three’ marks.

(8 x 3 = 24 Marks)

		Module Outcome	Cognitive level
1.	List program development cycle.	M1.01	R
2.	Write the output of the given code. int main() { int ans_1=0,int ans_2=0; ans_1=2*3+5%2; ans_2=2-(3+4)/2; printf("%d %d",ans_1, ans_2); return 0; }	M1.03	U
3.	Compare break and continue statement.	M2.07	U

4.	Write a C program to check whether a given number is positive negative or zero.	M2.04	A
5.	Write the output of the following code. <pre>int i=0; while(i<=10) { printf("%d",i); i=i+1; }</pre>	M2.05	U
6.	Write a C program using function to calculate the area of a square. (Hint: area of square=side* side)	M3.01	A
7.	Compare formal parameter and actual parameter in C functions.	M3.02	U
8.	Write a program to convert a decimal number to its octal equivalent and store it into an array and display the array.	M4.01	A
9.	Differentiate between one dimensional array and two dimensional array.	M4.01 M4.03	U
10.	Write the output of the following code <pre>#include <stdio.h> void main() { int x[5]={3,5,1,2,-1 }; for(int i=0;i<5;++i) printf("x[%d]= %d ",i+ 1,x[i]); }</pre>	M4.02	U

PART-C

Answer 'all' questions from the following. Each question carries 'seven' marks.

(6 x 7 = 42 Marks)

		Module Outcome	Cognitive level
III.	a) Draw the flow chart to find the area of a triangle. (Hint: Area of a triangle= $l/2bh$). (3 Marks)	M1.01	U
	b) Explain with examples formatted input/ output statements in C. (4Marks)	M1.03	R
	OR		
IV.	Describe the precedence and associativity of arithmetic, relational and logical operators. (7 Marks)	M1.03	R
V.	Explain various forms of if statements with examples. (7 Marks)	M2.01	U
	OR		
VI.	Explain switch statement with syntax and example. (7 Marks)	M2.03	U
VII.	Explain looping statements with example. (7 Marks)	M2.04	U
	OR		
VIII.	Write a program to check whether the given number is palindrome or not. (Hint: A number is palindrome if the reverse of the number is equal to the number itself). (7 Marks)	M2.05	A

IX.	Write a user defined function to print the Fibonacci series. Using that function print the Fibonacci series up to N. (7 Marks) OR	M3.03	A
X.	a) Write a short note on modular programming. (3 Marks) b) Read the given code and answer the following questions. i) Name the user defined functions in the code. ii) Write the formal and actual parameters. iii) Which statement declares the user defined function? iv) How many arguments are passed in the user defined function? <pre>//code starts #include<stdio.h> int sum(int a,int b); int main() { int ans; ans=sum(5,4); printf("answer=%d",ans); return O; } int sum(int a,int b) { return(a+b); } //code ends</pre> (4 Marks)	M3.01	R
XI.	Write a program to find the largest element in an array. (7 Marks) OR	M3.02	U
XII.	Write a C program to count the number of occurrences of the given number in the array. (7 Marks)	M4.02	A
XIII.	Write a C Program to print the diagonal elements in the given matrix. (7 Marks) OR	M4.04	A
XIV.	Write a C Program to add two matrices. (7 Marks)	M4.04	A
