



TED (21) -2131
(Revision- 2021)

A23-2106220110A

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Reg.No.....
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**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE – APRIL - 2023
PROBLEM SOLVING AND PROGRAMMING**

(Maximum Marks : 75)

[Time : 3 hours]

PART-A

I. Answer all the following questions in one word or sentence. Each question carries 1 mark.

(9x1=9 marks)

		Module Outcome	Cognitive level
1	The equivalent statement of $x+= 2$ is.....	M 1.03	U
2	List basic data types in C.	M 1.03	R
3	Write the syntax of simple if statement.	M2.01	R
4	if block always need to be associated with else block. State True/False	M2.01	R
5	The operator, && is a operator.	M2.02	R
6keyword transfers the control from a function to its calling function.	M3.01	R
7	List any two built-in functions.	M3.01	R
8	Write the first index of a two dimensional array.	M4.03	U
9	Define array.	M4.01	R

PART B

II. Answer any Eight questions from the following. Each question carries 3 marks.

(8x3=24)

		Module Outcome	Cognitive level
1	Prepare an algorithm to calculate the simple interest of a bank deposit [$I = (PNR)/100$, where P is the principal amount, N is the number of years and R is rate of interest]	M 1.01	U
2	With the help of example differentiate = and == operators.	M 1.03	U
3	Rewrite the following code using while loop <pre>int main() { for(int i = 0; i < 10; i++) printf("%d", i); return 0; }</pre>	M2.04	U
4	Write the syntax of switch statement. Give an example.	M2.02	R
5	Write a program to find the factorial of a given number.	M2.04	U
6	What is function prototype? Give an example.	M3.01	R
7	Write a function to find the average of 3 numbers.	M3.03	U
8	Write the syntax for declaring a two dimensional array with initial values. Give an example.	M4.03	U
9	Write a program segment to store the odd numbers in an array.	M4.02	A
10	Write code segment to input the elements of a matrix of size 3x2	M4.03	U



PART C

Answer **all** questions from the following. Each question carries 7 marks.

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(6x7=42marks)

		Module Outcome	Cognitive level																
III	Describe Program development cycle. (7 marks)	M 1.01	R																
OR																			
IV	(a) Describe type casting in C programming. (4 marks)	M1.03	R																
	(b) Write a program to convert temperature in degree Celsius into its equivalent temperature in Fahrenheit. (3 marks)	M1.04	U																
[Hint : Fahrenheit = (Celsius * 9)/5 + 32] .																			
V	(a) Write the usage of printf() and scanf() with example. (4 marks)	M1.03	U																
	(b) List arithmetic, relational and logical operators in C. (3 marks)	M1.03	R																
OR																			
VI	(a) Explain the working of for loop statement with example. (4 marks)	M2.04	U																
	(b) Write a program to find the factors of a given number. (3 marks)	M2.05	U																
VII	(a) Write a program to find the grade as per the following table. Points are taken as input. (4 marks)	M2.03	U																
<table><tr><td>Points</td><td>Grade</td></tr><tr><td>10</td><td>S</td></tr><tr><td>9</td><td>A</td></tr><tr><td>8</td><td>B</td></tr><tr><td>7</td><td>C</td></tr><tr><td>6</td><td>D</td></tr><tr><td>5</td><td>E</td></tr><tr><td>Otherwise</td><td>F</td></tr></table>		Points	Grade	10	S	9	A	8	B	7	C	6	D	5	E	Otherwise	F		
Points	Grade																		
10	S																		
9	A																		
8	B																		
7	C																		
6	D																		
5	E																		
Otherwise	F																		
VIII	(b)Write the syntax of switch statement.Give example.(3marks)	M2.01	R																
OR																			
	(a) Write a program to find the roots of a quadratic equation $ax^2 + bx + c = 0$. (4 marks)	M2.03	A																
	(b) Write the syntax of (i) if-else-if ladder (ii) Nested if. (3 marks)	M2.01	R																
IX	Explain user defined and built-in functions with examples. (7 marks)	M3.01	R																
OR																			
X	Develop a function to find the factorial of a number. Using this function to find nCr [Hint: $nCr = n!/r!(n - r)!$] (7 marks)	M3.03	A																
XI	Write a program to sort the elements in an array of size N in ascending order. (7 marks)	M4.02	A																
OR																			
XII	Write a program to check whether the given element is in the array or not; if it is in the array print its position also. (7 marks)	M4.02	A																
XIII	Write a program to find the transpose of a matrix. Display the input matrix and its transpose. (7 marks)	M4.04	A																
OR																			
XIV	Write a program to Read a M x N matrix and display the sum of elements in each row. (7marks)	M4.04	A																
