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## **DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/** MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2022

2106220109

# **PROBLEM SOLVING AND PROGRAMMING**

[Maximum Marks: **75**]

**TED (21) 2131** 

[Time: **3** Hours]

#### (PART-A)

## I. (Answer all the following questions in one word or one sentence)

#### (9 x 1 = 9 Marks)

		Module Outcome	Cognitive leve
1.	State whether the following statement is <b>True</b> or <b>False</b>	M1.03	U
	reg no is a valid identifier in C.		
2.	Write the C statement to read a value to an integer variable <b>num.</b>	M1.03	U
3.	State whether the following statement is <b>True</b> or <b>False</b> .	M2.04	U
	An exit-controlled loop executes at least once.		
4.	statement is used to terminate the execution of a loop.	M2.07	R
5.	Thestatement is used to transfer control to a specified label.	M2.01	R
6.	Areturn type means nothing is returned to the caller function?	M3.01	R
7.	State whether the following statement is <b>True</b> or <b>False</b> .	M3.01	U
	A C function can return only one value.		
8.	Write the statement to declare an array named <b>num</b> to store 15	M4.01	U
	floating point values		
9.	Define an array.	M4.01	R

## (PART-B) II. (Answer any *eight* questions from the following)

#### $(8 \times 3 = 24 \text{ Marks})$

Module Outcome Cognitive level Write short note on primary data types in C language. M1.03 R 1. Draw the flow chart to find the factorial of a given number. M1.01 U 2. Write the syntax of if..else statement. Give an example for if...else U 3. M2.01 statement. Write short note on continue statement. 4. M2.07 R 5. Write a program to read two integers and find whether the first number M2.03 А is perfectly divisible by the second number. Write a program to display the sum of all even numbers from 1 to 100. M2.05 U 6. 7. Differentiate between formal parameters and actual parameters. M3.02 U





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8.	Write a user-defined function to calculate the area of a rectangle.	M3.03	angau
	Reading input data and displaying the result should be done in main()		
	[hint: Area of the rectangle = length x bredth]		
9.	Write a C program to read <b>n</b> numbers into an array and display it.	M4.02	U
10.	Write a C program segment that declares a two-dimensional array	M4.03	U
	numbers with 3 rows and 5 columns and inputs 15 numbers into this		
	array from the user.		

# (PART-C) III.(Answer all questions. Each question carries seven marks)

(6	x	7	=	42	Μ	ar	ks)
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			Module Outcome	Cognitive level
1.	a) Differentiate between pre-increment and post-increme	ent operators in $(4 \text{ Marks})$	M1.03	U
	C with examples.	(4 Marks)		
	b) Write a program to convert a temperature given in Fal	hrenheit to	M1.04	U
	Degree Celsius. $C = \frac{(F-32)X5}{9}$	(3 Marks)		
	OR			
2.	a) Write a program to find the number of hours, minutes if the user input the time is in seconds.	and seconds,	M1.04	U
	[hint : For example, if the user enters 3800, then the outp	out will be		
	Hours = 1, Minutes = 3 and Seconds = 20]	(4 Marks)		
	b) Write the rules for creating variable names.	(3 Marks)	M1.03	R
3.	Explain the <b>switch</b> statement with example.	(7 Marks)	M2.01	U
	OR			
4.	Write a program to check whether a given number is Armstrong		M2.05	А
	number or not. [hint : Armstrong number is a number that	at is equal to		
	the sum of cubes of its digits.]	(7 M 1)		
		(/ Marks)		
5	Explain different looping statements with examples		M2.04	U
2.	2	(7 Marks)		
	OR			
6.	Write a program to read the unit consumed and calculate	the electricity	M2.03	А
	bill used on the following information.	-		
	Unit consumed Rate			
	0-150 Rs.3 per unit.			
	151-350 Rs.450+ Rs.3.75 per unit a	above 150 unit.		
	351-450 Rs.1200+ Rs.4 per unit ab	ove 350 unit.		
	Above 450Rs.1600+ Rs.5 per unit ab	ove 450 unit.		
		(7 Marks)		



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7.	Write a program to read the values of three sides of a triangle and		g
	display its area. Use a user-defined function to calculate the area.		
	Area = $\sqrt{s(s-a)(s-b)(s-c)}$	M3.03	А
	Where, $s = \frac{(a+b+c)}{2}$ (7 Marks)		
	OR		
8.	Explain the Function declaration, Function call and Function definition	M3.01	U
	with examples. (7 Marks)		
9.	Write a program to sort an integer array in ascending order. (7 Marks)	M4.02	А
	OR		
10.	Write a program to count the number of even numbers and odd	M4.02	А
	(7 Marks)		
11.	Write a program to find the largest number in a given matrix.	M4.04	A
	OR		
12.	Write a program find the sum of main diagonal elements of a square matrix	M4.04	Α
	(7 Marks)		

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