TED (21) -2131
(Revision- 2021)

A23-2106220110A

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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
6	…….keyword 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**
	int main() {
	for(int i = 0;i< 10; i++)
	printf("%d", i);
	return 0;
	}
		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.

(6x7=42marks)

<table>
<tr><th></th><th></th><th>Module Outcome</th><th>Cognitive level</th></tr>
<tr><td>III</td><td>Describe Program development cycle. (7 marks)</td><td>M 1.01</td><td>R</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>IV</td><td>(a) Describe type casting in C programming. (4 marks)</td><td>M1.03</td><td>R</td></tr>
<tr><td></td><td>(b) Write a program to convert temperature in degree Celsius into its equivalent temperature in Fahrenheit. [Hint : Fahrenheit = (Celsius * 9)/5) + 32] . (3 marks)</td><td>M1.04</td><td>U</td></tr>
<tr><td>V</td><td>(a) Write the usage of printf() and scanf() with example. (4 marks)</td><td>M1.03</td><td>U</td></tr>
<tr><td></td><td>(b) List arithmetic, relational and logical operators in C. (3 marks)</td><td>M1.03</td><td>R</td></tr>
<tr><td>VI</td><td>OR</td><td>M2.04</td><td>U</td></tr>
<tr><td></td><td>(a) Explain the working of for loop statement with example. (4 marks)</td><td>M2.05</td><td>U</td></tr>
<tr><td></td><td>(b) Write a program to find the factors of a given number. (3 marks)</td><td></td><td></td></tr>
<tr><td>VII</td><td>(a) Write a program to find the grade as per the following table. Points are taken as input. (4 marks)
<table>
<tr><th>Points</th><th>Grade</th></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></td><td>M2.03</td><td>U</td></tr>
<tr><td>VIII</td><td>(b)Write the syntax of switch statement.Give example.(3marks)</td><td>M2.01</td><td>R</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td></td><td>(a) Write a program to find the roots of a quadratic equation $\mathbf{ax^2 + bx + c = 0}$. (4 marks)</td><td>M2.03</td><td>A</td></tr>
<tr><td></td><td>(b) Write the syntax of (i) if-else-if ladder (ii) Nested if. (3 marks)</td><td>M2.01</td><td>R</td></tr>
<tr><td>IX</td><td>Explain user defined and built-in functions with examples. (7 marks)</td><td>M3.01</td><td>R</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>X</td><td>Develop a function to find the factorial of a number. Using this function to find nCr [Hint: nCr = n!/r!(n – r)!] (7 marks)</td><td>M3.03</td><td>A</td></tr>
<tr><td>XI</td><td>Write a program to sort the elements in an array of size N in ascending order. (7 marks)</td><td>M4.02</td><td>A</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>XII</td><td>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)</td><td>M4.02</td><td>A</td></tr>
<tr><td>XIII</td><td>Write a program to find the transpose of a matrix. Display the input matrix and its transpose. (7 marks)</td><td>M4.04</td><td>A</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>XIV</td><td>Write a program to Read a M x N matrix and display the sum of elements in each row. (7marks)</td><td>M4.04</td><td>A</td></tr>
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