Hall Ticket Number :										

R-19

Code: 19A511T

I B.Tech. I Semester Supplementary Examinations July 2022

Problem Solving and C Programming

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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Marks

UNIT–I

1. a) What is Programming Language? What is the generation of programming Language? Describe it briefly. 10M
   b) Describe Structure of C Language 4M

OR

2. a) Distinguish between printf() and scanf() in the C language 7M
   b) What is a flow chart? How it is different from an Algorithm 7M

UNIT–II

3. a) Explain with examples, any Four types of operators. 7M
   b) Explain for loop and nested for loop with suitable example. 7M

OR

4. a) Describe Conditional Statements Used in C Language 7M
   b) Write a program on calculating area and perimeter of square 7M

UNIT–III

5. a) What is a function in c? How function is declared. Explain with an example. 7M
   b) Illustrate the storage classes extern, static and auto with an example. 7M

OR

6. a) Explain the following string handling functions with examples:
   (i) strcpy( ) (ii) strcat( ) (iii) strrev( ) (iv) strlen 8M
   b) Explain Preprocessor commands with examples. 6M

UNIT–IV

7. a) What is a pointer? What are the advantages of pointers? 7M
   b) Explain dynamic memory allocation with examples 7M

OR

8. a) Explain about pointer arithmetic and arrays with example. 7M
   b) Write a c program to swap two numbers using call by value and call by reference. 7M

UNIT–V

9. a) Define Structure? How structures are initialized? Explain with example. 7M
   b) Write a C program read and write the content of the file using fprintf( ) and fscanf( ) functions. 7M

OR

10. a) Explain the following functions in files:
   (i) fseek( ) (ii) ftell( ) (iii) foef( ) (iv) fopen( ) 8M
   b) Define and write the syntax of the structure and union and give example for each one 7M

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Hall Ticket Number :										

R-19

Code: 19AC11T

I B.Tech. I Semester Supplementary Examinations July 2022

Algebra and Calculus

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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		Marks	CO	Blooms Level
	UNIT–I			
1.	Solve the system of equations by matrix method $x+y+z=6, 2x+3y-2z=2, 5x+y+2z=13$	14M	CO1	L3
	OR			
2.	Find the Eigen values and Eigen vectors of the matrix A= $\begin{bmatrix} 2 & 2 & 0 \\ 2 & 5 & 0 \\ 0 & 0 & 3 \end{bmatrix}$	14M	CO1	L3
	UNIT–II			
3.	Verify Cayley-Hamilton theorem for the matrix A= $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 5 \\ 3 & 5 & 6 \end{bmatrix}$ and hence find A^{-1} using Cayley-Hamilton theorem.	14M	CO2	L2
	OR			
4.	Reduce the quadratic form $x_1^2+3x_2^2+3x_3^2-2x_2x_3$ to canonical form by using orthogonal transformation.	14M	CO2	L3
	UNIT–III			
5.	If $u=x^2-y^2, v=2xy$ *where* $x=r\cos^{-}, y=r\sin^{-}$,then show that $\frac{\partial(u,v)}{\partial(r,^{-})}=4r^3$	14M	CO3	L2
	OR			
6.	Find three positive numbers whose sum is 100 and whose product is maximum.	14M	CO3	L3
	UNIT–IV			
7. a)	Expand $\sin x$ in powers of $(x-\frac{®}{2})$.	7M	CO4	L3
b)	Using Maclaurin's series , expand $\log(1+x)$ in powers of x.	7M	CO4	L3
	OR			
8.	Trace the curve $x^3+y^3=3axy$	14M	CO4	L4
	UNIT–V			
9. a)	Evaluate $\int_0^2\int_0^3 xydxdy$	7M	CO5	L3
b)	Evaluate $\int_0^2\int_0^x y\,dydx$	7M	CO5	L3
	OR			
10. a)	Evaluate $\int_0^1 x^5(1-x)^3dx$ using Beta function.	7M	CO5	L3
b)	Evaluate $\int_0^\infty x^6e^{-2x}dx$	7M	CO5	L3

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Hall Ticket Number :										

R-19

Code: 19AC13T

I B.Tech. I Semester Supplementary Examinations July 2022

Chemistry of Materials

(Common to CE & ME)

Max. Marks: 70 Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.		Explain the determination of hardness of water by EDTA method	14M	CO1	L3
		OR			
2.	a)	Define brackish water? What type of method is used for its purification?	7M	CO1	L1
	b)	Describe the treatment of saline water by reverse osmosis in detail	7M	CO1	L2
		UNIT–II			
3.	a)	Describe the working principle of Weston-Cadmium cell with neat diagram	7M	CO2	L4
	b)	Define fuel cell and classify it. List advantages of fuel cell	7M	CO2	L1
		OR			
4.	a)	Define standard electrode potential with example	7M	CO2	L1
	b)	Draw and label Calomel electrode and standard hydrogen electrode	7M	CO2	L4
		UNIT–III			
5.	a)	Discuss the role of inhibitors for the anodic and cathodic protection	7M	CO3	L2
	b)	Write short notes on i) Galvanizing ii) Tanning	7M	CO3	L1
		OR			
6.	a)	Differentiate dry and wet corrosion	7M	CO3	L3
	b)	Write down the equation for the hydrogen evolution type of electrochemical corrosion reaction	7M	CO3	L1
		UNIT–IV			
7.	a)	Differentiate thermosetting and thermoplastic polymers	7M	CO4	L3
	b)	Define polymer with example and classify it	7M	CO4	L1
		OR			
8.		Explain various steps involves in the manufacturing of Portland cement with a neat labelled diagram of rotary kiln	14M	CO4	L4
		UNIT–V			
9.	a)	What are the uses of smart materials	7M	CO5	L1
	b)	List out the application of nanomaterials	7M	CO5	L3
		OR			
10.	a)	Discuss characterization method of nanomaterials	7M	CO5	L2
	b)	List out the applications of TEM	7M	CO5	L3

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