Hall Ticket Number :										

R-20

Code: 20A511T

I B.Tech. I Semester Regular & Supplementary Examinations February 2023

Problem Solving through C Programming

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. In Part-A, each question carries **Two mark.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

1. Answer the following (5 X 2 = 10M)	**CO**	**BL**
a) Differentiate an algorithm and a flowchart.	CO1	L2
b) Differentiate do-while and while statements.	CO2	L2
c) Describe the scope of variables in C program.	CO3	L2
d) Define predefined functions realloc() and free()	CO4	L2
e) Illustrate the use of enumerated data type in C programming.	CO5	L3

PART-B

Answer five questions by choosing one question from each unit (5 x 12 = 60 Marks)

			Marks	CO	BL
		UNIT–I			
2.	a)	Illustrate the use of ternary or conditional operator to find the maximum of three given integers	6M	1	L4
	b)	Describe the concept of Associativity and Precedence of operators.	6M	1	L2
		OR			
3.		Explain the structure of a C program	12M	1	L2
		UNIT–II			
4.	a)	Develop a C program for Binary search.	6M	2	L4
	b)	Apply bubble sort on the following list of elements 30, 60, 80, 10, 50, 90, 70, 20	6M	2	L3
		OR			
5.	a)	Model a C program for matrix multiplication	8M	2	L3
	b)	Discuss the loop control statements in C programming.	4M	2	L2

UNIT–III

6.	a)	Differentiate call by value and call by reference with example.	8M	3	L3
	b)	Illustrate the concept of recursion.	4M	3	L3

OR

7.	a)	Discuss the preprocessor directives.	8M	3	L2
	b)	Develop a C program to find the LCM of two integers.	4M	3	L5

UNIT–IV

8.	a)	Define a pointer and list the advantages and disadvantages of pointers.	6M	4	L3
	b)	Differentiate malloc() and calloc() with examples	6M	4	L2

OR

9.	a)	Develop a c program to swap two integer variables using swap function.	6M	4	L6
	b)	Illustrate the concept of pointer arithmetic.	6M	4	L4

UNIT–V

10.	a)	Differentiate structure and union with examples.	4M	5	L3
	b)	Develop a c program to display the content of unformatted text file.	8M	5	L5

OR

11.	a)	Outline the concept of self-referential structures.	6M	5	L3
	b)	Demonstrate the passing of structures to functions as parameters.	6M	5	L3

*****END*****

Hall Ticket Number :										

R-20

Code: 20AC13T

I B.Tech. I Semester Regular & Supplementary Examinations February 2023

Chemistry

(Common to CSE, CSE(AI), CSE(DS) and AI&DS)

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. In Part-A, each question carries **Two marks.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

		CO	BL
1.	Answer ALL the following short answer questions (5 X 2 = 10M)		
a)	Define standard electrode potential. Write its units.	CO1	L1
b)	What is the principle involved in secondary battery? Give any two examples.	CO2	L1
c)	Name the monomers of i) PVC and ii) Bakelite.	CO3	L1
d)	What is electromagnetic spectrum?	CO4	L1
e)	Define molecular elevator.	CO5	L1

PART-B

Answer *five* questions by choosing one question from each unit (5 x 12 = 60 Marks)

			Marks	CO	BL
		UNIT–I			
2.	a)	Explain the measurement of single electrode potential.	6M	CO1	L2
	b)	Discuss the any four applications of Nernst equation.	6M	CO1	L3
		OR			
3.	a)	What is reference electrode? Describe the construction and working of saturated calomel electrode.	6M	CO1	L2
	b)	Discuss the classification of ion selective electrodes.	6M	CO1	L3
		UNIT–II			
4.	a)	What is the basic concept of battery? Explain characteristics and applications of batteries.	6M	CO2	L3
	b)	Discuss the construction and merits of hydrogen-oxygen fuel cell.	6M	CO2	L2
		OR			
5.	a)	Explain the working and applications of propane and oxygen fuel cell.	6M	CO2	L3
	b)	Discuss the construction and advantages of Zinc air battery.	6M	CO2	L2

UNIT–III

6.	a)	What do you mean by conducting polymer? Illustrate mechanism of conduction and applications of polyaniline.	6M	CO3	L4
	b)	Differentiate between thermoplastics and thermosetting plastics.	6M	CO3	L2
		OR		CO3	
7.	a)	Illustrate mechanism of conduction and applications of polyacetylene.	6M	CO3	L4
	b)	Describe the preparation and properties of Nylon-6,6.	6M	CO3	L2

UNIT–IV

8.	a)	Explain the principle and applications of conductometry.	6M	CO4	L2
	b)	Discuss the principle and applications of IR spectroscopy.	6M	CO4	L2
		OR			
9.	a)	What is potentiometry? Describe its principle and applications.	6M	CO4	L2
	b)	Explain the principle and applications of Thin layer chromatography(TLC)	6M	CO4	L2

UNIT–V

10.	a)	Describe the concept of cyclodextrin- based switches.	6M	CO5	L2
	b)	Explain the mechanism involved in linear motion of Rotaxanes.	6M	CO5	L2
		OR			
11.	a)	Write brief note on i) system based on catenanes and ii) molecular elevator.	6M	CO5	L2
	b)	Discuss the concept of Rotaxanes as molecular machine.	6M	CO5	L2

*** End ***

Hall Ticket Number :										

R-20

Code: 20AC11T

I B.Tech. I Semester Regular & Supplementary Examinations February 2023

Algebra and Calculus

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. In Part-A, each question carries **Two marks.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

		CO	BL
1.	Answer ALL the following short answer questions (5 X 2 = 10M)		
a)	Define the rank of the matrix.	1	2
b)	State Caley Hamilton Theorem.	2	2
c)	Expand $\cos x$ using by Maclaurin's series.	3	2
d)	Evaluate $\int_0^2 \int_1^3 \int_1^2 xy^2 z \, dzdydx$	4	3
e)	Find the value of β(1,1/2)	5	3

PART-B

Answer *five* questions by choosing one question from each unit (5 x 12 = 60 Marks)

		Marks	CO	BL
	UNIT–I			
2. a)	Reduce the following matrix into the matrix $\begin{bmatrix} 1 & 2 & 3 & 0 \\ 2 & 4 & 3 & 2 \\ 3 & 2 & 1 & 3 \\ 6 & 8 & 7 & 5 \end{bmatrix}$ Echelon form and hence find its rank	6M	1	3
b)	Test for consistency and solve 5x+3y+7z=4 3x+26y+2z=9 7x+2y+10z=5	6M	1	3
	OR			
3.	Find the eigenvalues and eigenvectors of matrix $\begin{bmatrix} 1 & -1 & 4 \\ 3 & 2 & -1 \\ 2 & 1 & -1 \end{bmatrix}$	12M	1	3

UNIT–II

4. Verify Cayley–Hamilton theorem for the matrix A and find its inverse. $A = \begin{bmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$ — 12M — 2 — 3

OR

5. Reduce the quadratic form $2e_{x^1x^2} + 2e_{x^1x^3} - 2t_{x^2x^3}$ to a canonical form by an orthogonal reduction and discuss its nature. Also, find the modal matrix. — 12M — 2 — 3

UNIT–III

6. If $x = u(1 - v),\ y = uv$ then prove that $JJ' = 1$ where $J = \frac{\partial(x,y)}{\partial(u,v)}$ & $J' = \frac{\partial(u,v)}{\partial(x,y)}$ — 12M — 3 — 3

OR

7. Examine the following function for extreme values: $f(x,y) = x^4 + y^4 - 2x^2 + 4xy - 2y^2$ — 12M — 3 — 3

UNIT–IV

8. Change the order of integration in $I = \int_0^{4a} \int_{x^2/4a}^{2\sqrt{ax}} dydx$ and hence evaluate — 12M — 4 — 3

OR

9. Evaluate $\int_0^1 \int_0^{\sqrt{1-x^2}} \int_0^{\sqrt{1-x^2-y^2}} xyz\, dxdydz$ — 12M — 4 — 3

UNIT–V

10. Show that $\beta(p,q) = \int_0^\infty \frac{y^{q-1}}{(1+y)^{p+q}}\, dy = \int_0^1 \left[\frac{x^{p-1} + x^{q-1}}{(1+x)^{p+q}}\right] dx$ — 12M — 5 — 3

OR

11. Prove that (i) $\beta(m, 1/2) = 2^{2m-1}\beta(m,m)$ (ii) $\Gamma(m)\Gamma(m+1/2) = \frac{\sqrt{\pi}}{2^{2m-1}}\Gamma(2m)$ — 12M — 5 — 3

*** End ***

Hall Ticket Number :										

R-20

Code: 20AC15T

I B.Tech. I Semester Regular & Supplementary Examinations February 2023

Communicative English

(Common to CE, ME, CSE, CSE(AI), CSE(DS) and AI&DS)

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. In Part-A, each question carries **Two mark.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

1. Answer ALL the following short answer questions (5 X 2 = 10M) BL

a) What emotions did Hazlitt's son express when he was going to school? L2

b) What is the poem " The Brook" about? L2

c) Justify the title " The death trap. L2

d) How did Mrinalini fight for change? L2

e) Discuss the concept of Micro credit and Micro finance. L2

PART-B

Answer *five* questions by choosing one question from each unit (5 x 12 = 60 Marks)

			Marks	CO	BL
		UNIT–I			
2.		"Never conceive a prejudice against others". Substantiate it with reference to William Hazlitt's essay" on the conduct of life".	12M		L3
		OR			
3.	a)	**Change the following statements in to questions.**			L4
	i)	I do not Know English.	1M		
	ii)	I will meet you tomorrow.	1M		
	iii)	I had never been to Bombay.	1M		
	iv)	I ate salad for my Breakfast.	1M		
	v)	She came here yesterday	1M		
	vi)	They are not Indians.	1M		
	b)	**Identify the parts of speech of the underlined words.**			L2
	vii)	It being a <u>hot</u> day, We <u>stayed</u> Indoors.	2M		
	viii)	It is <u>too</u> hot today. <u>I</u> can't go out.	2M		
	ix)	It is an <u>irrevocable</u> change <u>and</u> cannot be revoked.	2M		
		UNIT–II			
4.		Write a critical appreciation of 'The Brook' by Tennyson.	12M		L4
		OR			
5.		Write a paragraph on the importance of communication skills.	12M		L3
		UNIT–III			
6.		How does Dimitri defend himself from the death trap?	12M		L4

OR

7.	a)	**Rearrange the jumbled sentences to form a meaningful paragraph.**		L3
	i)	Although he had learned German at college, he soon realized that he did not remember much.	1M	
	ii)	His German has improved a lot.	1M	
	iii)	When Pradeep retuned to India after a one Month's stay in Germany, he started learning German again	1M	
	iv)	Now he is preparing to appear for an Exam.	1M	
	v)	He intends to work on a new project.	1M	
	vi)	Next year, he plans to enroll himself in an advance course.	1M	
	vii)	It is essential for him to make frequent visits.	1M	
	b)	**Fill in the blanks using appropriate form of the given verb.**		L4
	viii)	Sindhu _____(Win) the silver medal in Olympics.	1M	
	ix)	Suraj _____(wake) up early this morning.	1M	
	x)	She has just _____(arrive)	1M	
	xi)	They always _____(drink) coffee at breakfast.	1M	
	xii)	I _____ (be) happy to hear this news.	1M	

UNIT–IV

8.		Explain how Muhammed Yunus makes a difference in the banking sector?	12M	L3

OR

9.		Write an Essay on the Topic," importance of world peace."	12M	L4

UNIT–V

10.		How does Ranjana Deve convey the notion that being a performer was not an acceptable career choice for "Respectable Women?"	12M	L3

OR

11.		**Correct the following sentences:**		L4
	i)	He is elder than me.	1M	
	ii)	Let us discuss about the issue.	1M	
	iii)	He gave me a good advice.	1M	
	iv)	You went home yesterday. Isn't it?	1M	
	v)	If I went to Bombay next week, I will meet your Uncle.	1M	
	vi)	They have lived here from March 2020	1M	
	vii)	Bread and Butter are what we usually have for Breakfast.	1M	
	viii)	Walking along the Road, my hat was lost.	1M	
	ix)	My Father went to buy floor carpets and returned back.	1M	
	x)	You have to agree that I am cent percent right.	1M	
	xi)	I came on foot.	1M	
	xii)	Taj mahal is an unique Monument.	1M	

*** End ***