Code: 20AC13T

R-20

I B.Tech. I Semester Supplementary Examinations November 2021
Chemistry
(Common to CSE 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)

			CO	Blooms Level
1.	**Answer ALL the following short answer questions**	(5 X 2 = 10M)		
	a) What is a galvanic cell? Give one example.		CO1	L1
	b) Mention the components of a Lithium MnO2 battery.		CO2	L1
	c) Explain the functionality of monomer.		CO3	L1
	d) State the beer lambert law and define all terms in it		CO4	L1
	e) Define molecular Switches. Give examples.		CO5	L1

PART-B
Answer any *five full* questions by choosing one question from each unit (5 x 12 = 60 Marks)

		Marks	CO	Blooms Level

UNIT–I

2.	a)	Differentiate Galvanic cell and Electrolytic cell.	6M	CO1	L4
	b)	Describe the construction and working of Calomel electrode.	6M	CO1	L2

OR

3.	a)	Define single electrode potential. Derive Nernst equation for the determination of single electrode potential.	6M	CO1	L4
	b)	What are ion-selective electrodes? Explain the construction and working of glass electrode.	6M	CO1	L2

UNIT–II

4.	a)	Describe the construction, working and applications of Leclanche battery.	6M	CO2	L3
	b)	Illustrate the construction working and applications of propane-oxygen fuel cell.	6M	CO2	L3

OR

5.	a)	Discuss the construction, working and applications of Zn-air battery.	6M	CO2	L3
	b)	Explain the classification, characteristics and applications of batteries.	6M	CO2	L2

UNIT–III

6.	a)	Describe the condensation polymerization with one example.	6M	CO3	L3
	b)	Differentiate thermoplastics and thermosettings.	6M	CO3	L4

OR

7.	a)	Explain the preparation and uses of Bekalite and Buna-S rubber.	8M	CO3	L2
	b)	Explain the mechanism of conduction in polyacetylene.	4M	CO3	L3

UNIT–IV

8.		Describe the working principle of Thin layer chromatography (TLC)? Write its applications	12M	CO4	L3

OR

9.		Discuss the principle and applications of i) pH metry ii) IR Spectroscopy	12M	CO4	L3

UNIT–V

10.	a)	Explain Catenanes as artificial molecular machines	6M	CO5	L3
	b)	Describe the linear motion in Rotaxanes	6M	CO5	L2

OR

11.		Explain the following i) In and out molecular switching ii) Back and forth switching	12M	CO5	L2

*** End ***

Code: 20AC15T

I B.Tech. I Semester Supplementary Examinations November 2021

Communicative English

(Common to CE, ME, CSE 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)

		CO	Blooms Level
1.	**Answer ALL the following short answer questions** (5 X 2 = 10M)		
a)	Why does the author ask his son to be courteous and polite to his classmates?	CO1	L2
b)	'For men may come and men may go/but I go on forever'. What does it say about Nature?	CO2	L2
c)	How does the doctor stop the conspirators from killing the prince, Dimitri? What is the irony behind the trick?	CO3	L2
d)	How does Muhammad Yunus help the poor women in Bangladesh?	CO4	L2
e)	Write a few words about Darpana Academy of Performing Arts started by Mrinalini Sarabhai.	CO5	L2

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

		Marks	CO	Blooms Level

UNIT–I

		Marks	CO	Blooms Level
2.	The author, Hazlitt, feels that in being school/hostel will teach his son about how to get along with others and prepare him for the ups and downs of the life. Do you agree with his belief? Have you found this to be true on your own situation in college? Explain with examples from the text and your own personal experience?	12M	CO1	L4

OR

3. a) Change the following statements into questions.
    i. They have been working hard for their exams.
    ii. My father presented me a watch.
    iii. Barbara gave me chocolates.
    iv. They were waiting for an hour.
    v. She comes from the United States.
    vi. I can have a branded watch for my birthday.   6M CO3 L4

  b). Identify the parts of speech of the underlined words in the following sentences.
    i. The sun <u>shone</u> through a gap in the <u>dull</u> grey clouds.
    ii. The <u>service</u> in the restaurant was really <u>quick.</u>
    iii. She was very <u>impressed</u> with her <u>results</u>.   6M CO3 L4

UNIT–II

		Marks	CO	Blooms Level
4.	Who is the speaker of the poem, "The Brook"? What is the technique of investigating humanqualities into non-living things called? Why do you think the poet has chosen to use this technique here? How does it contribute to the effect of the poem?	12M	CO1	L2

OR

5.   Develop the following hints into a meaningful paragraph:
- Self-confidence - key to success - when you don't have self-confidence - feel inferior, isolated, depressed- Success comes to people who have a belief on them - self-confidence helps a person to focus on the required things - If we have self-confidence, we have more chances of success in our life - we should believe on ourselves.   12M   CO4   L3

UNIT–III

6.   Discuss the significance of the title 'The Death Trap'?   12M   CO1   L3

OR

7.   a)   Rearrange each group of jumbled sentences below so as to have   well-written paragraphs.
    i. It must be viewed, as some new epidemic would be viewed, as common peril to be met by concerted action.
    ii. If we are to think wisely about the new problems raised by nuclear weapons, we must learn to view the whole matter in a quite different way.
    iii. These conflicts are so virulent and so passionate that they produce a wide spread inability to understand even very obvious matters.
    iv. It is a profound misfortune that the whole question of nuclear warfare has become entangled in the age-old conflicts of power politics.   7M   CO4   L4

  b)   Fill in blanks in the sentences below using appropriate form of the verb in brackets.
    i. Listen! Somebody_____ (knock) at the door.
    ii. The workers _____ (work) in the field since early morning.
    iii. The thief_____ (escape) before the police arrived.
    iv. I usually _____ (visit) Varanasi every year.
    v. The servant _____(clean) the table just now.   5M   CO4   L4

UNIT–IV

8.   Discuss the role of Muhammad Yunus in developing microcredit system in Bangladesh.   12M   CO2   L4

OR

9.   Prepare an analytical essay on the topic, " Negative Effects of Modern Technology"   12M   CO4   L4

UNIT–I

10.   Correct the following sentences and rewrite them.   12M   CO3   L3

    i.   I am knowing all the grammar, but it's difficult to remember.
    ii.   At the party, I met the boss of my father who is really very nice.
    iii.   Where you did go last night? I looked everywhere for you.
    iv.   I made a lot of stupids mistakes in the exam because I was in such a panic.
    v.   My friend who works for Sony he is an engineer.
    vi.   He likes read books and play the guitar during his leisure time.
    vii.   Can you please sponsor the event to be organize on our campus in the next month?
    viii.   People in France must to carry their identity cards at all times.
    ix.   One of the clerk in the bank promised me to release personal loan as early as possible.
    x.   I advised my children to prepared well for the online entrance test.
    xi.   Seasonal fruits are said to being very good for our health.
    xii.   It's very nice to have a little sleep after have lunch.

OR

11.   In the words of Mrinalini Sarabhai "Dance is the breath of my life and the stage is my mother". Do you think that the dancer devoted her entire life for the development of Indian classical dance?

*** End ***

Code: 20A511T

R-20

I B.Tech. I Semester Supplementary Examinations November 2021

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)

			CO	Blooms Level
1.	**Answer ALL the following short answer questions**	(5 X 2 = 10M)		
	a) Evaluate the expressions given below if a=10, b=20: (i) a/b + (a / (2 * b)) (ii) a % 6 / b%3		CO1	L5
	b) Differentiate between break and continue.		CO2	L2
	c) Discuss about some string functions		CO3	L2
	d) Define structures.		CO4	L4
	e) Write any five functions used in file i/o operations.		CO5	L2

PART-B

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

		Marks	CO	Blooms Level

UNIT–I

		Marks	CO	Blooms Level
2.	a) Draw a flowchart for displaying the sum of n numbers. Accept 'n' from user.	6M	CO1	L6
	b) What is a conditional expression operator? Use conditional expression operator to determine smallest of two numbers.	6M	CO1	L1

OR

		Marks	CO	Blooms Level
3.	a) Write an algorithm and draw flowchart for finding greatest among three given numbers.	6M	CO1	L3
	b) Explain about type conversions. Why there is a need to have them? Explain with suitable example.	6M	CO1	L2

UNIT–II

		Marks	CO	Blooms Level
4.	a) What is the need of the iterations and selection? Explain each of the statements with examples.	6M	CO2	L1
	b) Write a program that asks user an arithmetic operator ('+', '-', '*' or '/') and two operands and perform the corresponding calculation on the operands. Use a switch statement	6M	CO2	L3

OR

		Marks	CO	Blooms Level
5.	a) Differentiate between entry- control and exit-control loops with an example	6M	CO2	L2
	b) Write a program to find smallest and largest numbers in a given array using Bubble Sort.	6M	CO2	L3

UNIT–III

6. a) How to declare string? Differentiate between character array and strings?   6M   CO3   L1

    b) Demonstrate about different string functions which can be performed on strings   6M   CO3   L3

OR

7. a) Write a C program to find the average of n numbers using functions   6M   CO3   L3

    b) How many types of storage classes does C supports? What is the necessity of each?   6M   CO3   L1

UNIT–IV

8. a) Write a program to swap two numbers using pointers.   6M   CO4   L1

    b) Elaborate the importance of dynamic memory allocation with example.   6M   CO4   L2

OR

9. a) How can a pointer be used to access individual elements of an array? Explain with an example.   6M   CO4   L1

    b) Explain Advantages and Drawbacks of Pointers.   6M   CO4   L2

UNIT–V

10. a) Differentiate union and structures? Explain both with examples.   6M   CO5   L1

    b) Define and declare a structure to store date, which including day, month and year and explain.   6M   CO5   L2

OR

11. a) Differentiate between text files and binary files? Discuss about the concept of a file   6M   CO5   L2

    b) Write a program to open a file and read the file and print the file contents.   6M   CO5   L1

*** End ***

R-20

Code: 20AC11T

I B.Tech. I Semester Supplementary Examinations November 2021

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 mark.**
      3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A
(Compulsory question)

				CO	Blooms Level
1.	**Answer ALL the following short answer questions**		(5 X 2 = 10M)		
	a)	Find the Rank of the matrix A=$\begin{bmatrix} 1 & 2 & 3 \\ 3 & 4 & 5 \\ 4 & 5 & 6 \end{bmatrix}$		1	1,2
	b)	State Cayley-Hamilton theorem		2	1
	c)	Obtain Meclaurin's series for f(x) = sin x		3	1,2
	d)	Find $\int\limits_{0}^{1}\int\limits_{0}^{1}(x+y)\,dx\,dy$		4	1,2
	e)	Define Beta function		5	1

PART-B
Answer any *five full* questions by choosing one question from each unit (5 x 12 = 60 Marks)

			Marks	CO	Blooms Level
		UNIT–I			
2.	a)	Find the rank of the matrix $\begin{bmatrix} 1 & -2 & 0 & 1 \\ 2 & -1 & 1 & 0 \\ 3 & -3 & 1 & 1 \\ -1 & -1 & -1 & 1 \end{bmatrix}$ by echelon form	6M	1	1,2
	b)	Find whether the following equations are consistent, if so solve them. x+y+2z=4; 2x-y+3z=9; 3x-y-z=2	6M	1	1,2
		OR			
3.		Find the eigen values and the corresponding eigen vectors of A=$\begin{bmatrix} 6 & -2 & 2 \\ -2 & 3 & -1 \\ 2 & -1 & 3 \end{bmatrix}$	12M	1	1,2
		UNIT–II			
4.		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} and A^{4}	12M	2	1,2
		OR			

5. Reduce the quadratic form $3x^2+5y^2+3z^2-2xy-2yz+2zx$ to the normal form by orthogonal transformation | 12M | 2 | 1,2

UNIT–III

6. a) If $u = x^2 - 2y, v = x + y + z, w = x - 2y + 3z$ $then$ $\dfrac{\partial(u,v,w)}{\partial(x,y,z)}$ | 6M | 3 | 1,2

   b) Find the maximum and minimum values of $f(x,y) = x^3 + y^3 - 3axy$ | 6M | 3 | 1,2

OR

7. A rectangular box open at the top is to have volume of 32 cubic ft. Find the dimensions of the box requiring least material for its construction. | 12M | 3 | 1,2

UNIT–IV

8. a) Evaluate $\displaystyle\int_0^a \int_0^{\sqrt{a^2-y^2}} \sqrt{a^2-x^2-y^2}\ dx.dy$ | 6M | 4 | 1,2

   b) Evaluate $\displaystyle\int_0^{f\!/4} \int_0^{a\,\sin\,„}\ \dfrac{r}{\sqrt{a^2-r^2}} dr\ d\,„$ | 6M | 4 | 1,2

OR

9. Change the order of integration and evaluate $\displaystyle\int_0^1 \int_{x^2}^{2-x}\ x\ y\ dx.dy$ | 12M | 4 | 1,2

UNIT–V

10. a) Evaluate $\displaystyle\int_0^\infty e^{-2x}.\ x^{5/2}dx$ ii) Show that $\displaystyle\int_0^\infty x^4 e^{-x^2}dx = \dfrac{3\sqrt{f}}{8}$ | 6M | 5 | 1,2

    b) State and prove Relation between Beta and Gamma functions | 6M | 5 | 1,2

OR

11. a) Evaluate $\displaystyle\int_0^\infty \dfrac{x^2}{\sqrt{1-x^5}} dx$ in terms of S function | 6M | 5 | 1,2

    b) Show that $\displaystyle\int_0^{\frac{f}{2}} \sin^2 „\ \cos^4 „\ d„ = \dfrac{f}{32}$ | 6M | 5 | 1,2

*** End ***