

Hall Ticket Number :									
----------------------	--	--	--	--	--	--	--	--	--

<b>R-19</b>
-------------

**Code: 19AC14T**

I B.Tech. I Semester Supplementary Examinations February 2022

**Engineering Chemistry**

( Computer Science and Engineering )

Max. Marks: 70

Time: 3 Hours

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

\*\*\*\*\*

**UNIT-I**

- |   | Marks | CO  | Blooms Level |
|---|-------|-----|--------------|
| 1. a) What is an electrochemical cell? Distinguish a galvanic cell and electrolytic cell. | 7M    | CO1 | L2           |
| b) Describe electrochemical conventions of an electrochemical cell                        | 7M    | CO1 | L2           |

**OR**

- |  |    |     |    |
|--|----|-----|----|
| 2. a) Explain construction and working of standard hydrogen electrode. | 7M | CO1 | L2 |
| b) Discuss the origin of electrode potential.                          | 7M | CO1 | L2 |

**UNIT-II**

- |   |    |     |    |
|---|----|-----|----|
| 3. a) Mention few characteristics of a battery.                           | 7M | CO2 | L1 |
| b) Categorize different types of batteries? Give an example in each case. | 7M | CO2 | L4 |

**OR**

- |  |     |     |    |
|--|-----|-----|----|
| 4. a) What is fuel cell? Discuss construction and working of H <sub>2</sub> -O <sub>2</sub> fuel cell. | 10M | CO2 | L3 |
| b) Summarize the advantages and disadvantages of laclanche cell?                                       | 4M  | CO2 | L2 |

**UNIT-III**

- |  |    |     |    |
|--|----|-----|----|
| 5. a) Write a note on conventional energy sources        | 7M | CO3 | L1 |
| b) Describe the doping concept of silicon semiconductor. | 7M | CO3 | L2 |

**OR**

- |  |    |     |    |
|--|----|-----|----|
| 6. a) How do you get the p-type silicon semiconductor for pv cells | 7M | CO3 | L1 |
| b) List out few applications of solar energy.                      | 7M | CO3 | L1 |

**UNIT-IV**

- |   |    |     |    |
|---|----|-----|----|
| 7. a) Define addition polymerization. Describe the free radical mechanism of addition polymerization. | 7M | CO4 | L2 |
| b) What are the elastomers? Illustrate the synthesis and applications of poly butadiene co styrene.   | 7M | CO4 | L3 |

**OR**

- |   |    |     |    |
|---|----|-----|----|
| 8. a) Describe the preparation properties and applications of Buna-S. | 7M | CO4 | L2 |
| b) Illustrate mechanism of anionic addition polymerization.           | 7M | CO4 | L2 |

**UNIT-V**

- |  |    |     |    |
|--|----|-----|----|
| 9. a) Write a note on carbon nano tubes (CNTS)         | 7M | CO5 | L1 |
| b) Describe an acid base controlled molecular shuttle. | 7M | CO5 | L2 |

**OR**

- |   |    |     |    |
|---|----|-----|----|
| 10. a) Explain system based catenanes with examples.          | 7M | CO5 | L2 |
| b) Discuss principle behind Transmission electron microscope. | 7M | CO5 | L3 |

\*\*\*

Hall Ticket Number :									
----------------------	--	--	--	--	--	--	--	--	--

<b>R-19</b>
-------------

**Code: 19AC15T**

I B.Tech. I Semester Supplementary Examinations February 2022

**Functional English and Life Skills**

( Common to CE, ME & CSE )

Max. Marks: 70

Time: 3 Hours

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

\*\*\*\*\*

Marks	CO	Blooms Level
-------	----	-----------------

<b>UNIT-I</b>
---------------

- |   |    |     |    |
|---|----|-----|----|
| 1. a) Why does Hazlitt prefer to advise his son never to “despise anyone at all” in “On the Conduct of life,”?  | 7M | CO2 | L3 |
| b) What is the meaning of the lines "If you can bear to hear the truth you've spoken ... And stoop and build 'em up with worn-out tools" in poem "If—"? | 7M | CO2 | L2 |

**OR**

- |  |     |     |    |
|--|-----|-----|----|
| 2. a) <b>Fill in the blanks with appropriate form of the verbs</b>                             |     |     |    |
| i. These books _____ (belong/ belongs) to me.  |     |     |    |
| ii. She _____ (want/ wants) to go out there and play with friends.                             |     |     |    |
| iii. We _____ (visited/ have visited) him yesterday.   |     |     |    |
| iv. He _____ (recovered/ has recovered) completely.  |     |     |    |
| v. We _____ (will like/ would like) to visit the museum.                                       |     |     |    |
| vi. My brother _____ (enjoy/ enjoys) playing cricket.  |     |     |    |
| vii. Now he _____ (asks/ asking) questions to see if students have understood the lesson       | 14M | CO3 | L2 |
| b) <b>Change the following sentences as directed.</b>  |     |     |    |
| i. I saw him yesterday ( change it into Negative statement)                                    |     |     |    |
| ii. She is singing a song. (change it into Interrogative)                                      |     |     |    |
| iii. He comes to college by bus. ( change it into Negative statement)                          |     |     |    |
| iv. They have not done an excellent job in repairing the machine. ( change it into Assertive ) |     |     |    |
| v. She felt very happy about her results. (change it into Negative statement)                  |     |     |    |
| vi. Does man live by water alone? ( change it into Assertive)                                  |     |     |    |
| vii. The quality of the apples are not good.( change it into Interrogative)                    | 7M  | CO3 | L2 |

UNIT-II
---------

3. How did George Bernard Shaw confront his fear of public speaking and became a great speaker? 14M CO2 L3

**OR**

4. a) **Fill in the blanks with A/An/The/No article**

- i. Could you get me \_\_\_\_\_ kilogram of tea, please.
- ii. They are staying at \_\_\_\_\_ hotel.
- iii. Have you had \_\_\_\_\_ breakfast?
- iv. I read \_\_\_\_\_ amazing story yesterday.
- v. I saw \_\_\_\_\_ eagle fly by.
- vi. The table is made of \_\_\_\_\_ wood.

**vii.** I saw \_\_\_\_\_ movie yesterday. 14M CO3 L2

- b) Fill in the blanks with the most suitable transitions from the list. Use each transition only once unless instructed otherwise.

( Thus, This, Then, First, Second, For example, A further, They, The final, Indeed, Finally, Rather)

A child may leave home for a number of reasons, but three seem to be more common than any others. 1- \_\_\_\_\_, a child may leave home because of lack of parental affection, which can leave the child with emotional scars. When parents are cold and uncaring, a child senses 2- \_\_\_\_\_ and feels that s/he does not belong in the home. The child will 3- \_\_\_\_\_ leave, seeking a home where s/he at least feel s wanted and a part of a family. 4- \_\_\_\_\_, when a child feels that s/he is not given just recognition as a person and as an individual, s/he may feel frustrated enough to leave home- especially if he parents do not stop what they are doing long enough to really listen to him/her or at least to respect some of the child's opinions. 5- \_\_\_\_\_, severe punishment by a child's parents, which does not suit the child's misconduct, may cause him/her to leave home. 6- \_\_\_\_\_, severe punishment is child abuse, and a child will normally feel that s/he is not safe in such a home. 7- \_\_\_\_\_ for his/her own protection and for affection s/he may leave home.

7M CO3 L2

UNIT-III
----------

5. Describe the conversation between Stronetz and the Prince in the play" The Death Trap". What do you understand from it? 14M CO1 L2

**OR**

6. a) **Fill in the blanks in the sentences below using the appropriate form of the verb in the brackets.**

- i. She told me that something \_\_\_\_\_ to him. (happen)
- ii. James is a student. But he \_\_\_\_\_ this week (work)
- iii. When I arrived at the party, everybody \_\_\_\_\_ home. (go)
- iv. All the guests \_\_\_\_\_. let us go to bed now. (leave)
- v. Computers \_\_\_\_\_ large amounts of data. (store)
- vi. Jhon \_\_\_\_\_ a lot of friends. (have)
- vii. He \_\_\_\_\_ all his childhood in a quaint village in China. (spend)

7M CO3 L2

b) **Choose the correct form of the verb that agrees with the subject.**

- i. Sally \_\_\_\_\_ (run) to the park every day.
- ii. One of the team \_\_\_\_\_ (be) missing.
- iii. Both the rice and the curd \_\_\_\_\_ (be) fresh and tasty.
- iv. Eighty five dollars \_\_\_\_\_ (be) what it would cost to buy the new pixel phone?
- v. He \_\_\_\_\_ (live) in that big house.
- vi. \_\_\_\_\_ (do) she know what she is doing?
- vii. I \_\_\_\_\_ (visit) my grandparents every Sunday.

7M CO3 L2

#### UNIT-IV

7. **Choose the correct form of the verb that agrees with the subject.**

- a) Each of these producers \_\_\_\_\_ his own advantage, ( have)
- b) Ten miles \_\_\_\_\_ long distance, (be)
- c) Many a student \_\_\_\_\_ hard to pass his entrance exam, (try)
- d) The furniture in his house \_\_\_\_\_ impressive, (look)
- e) Few students \_\_\_\_\_ present in the class today, (be)
- f) Ritesh, my best friend \_\_\_\_\_ leaving for Japan next week, (be)
- g) Most of my friends \_\_\_\_\_ government employees, (be)
- h) The level of intoxication \_\_\_\_\_ from subject to subject, (vary)
- i) Either boys or girls \_\_\_\_\_ telling lies, (be)
- j) A number of people \_\_\_\_\_ reported to be missing in the train accident at Jhansi. (be)
- k) The coat or the hats \_\_\_\_\_ (be) in that closet.
- l) Many Japanese \_\_\_\_\_ fascinated by American popular culture.
- m) The young \_\_\_\_\_ their whole lives ahead of them. ( have)
- n) The local news (begins, begin) at eleven.

14M CO3 L2

**OR**

8. How does the doctor stop the conspirators from killing the prince in "The Death Trap"? What is the irony behind this trick? 14M CO1 L2

**UNIT-V**

9. Explain the character of Chindu Yellamma and her efforts to make "Chindu Bhagavatam" as a popular Folk-art form? 14M CO1 L2

**OR**

10. Write an essay on "Problems and Issues faced by women in India" in not less than 400 words. 14M CO4 L4

\*\*\*

Hall Ticket Number :									
----------------------	--	--	--	--	--	--	--	--	--

<b>R-19</b>
-------------

**Code: 19A511T**

I B.Tech. I Semester Supplementary Examinations February 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 )

\*\*\*\*\*

	Marks	CO	Blooms Level
<b>UNIT-I</b>			
1. a) What is an algorithm? Describe the characteristics of an Algorithm	6M		
b) What is flowchart? Describe various symbols used in flowcharts.	8M		
<b>OR</b>			
2. a) What is data type? Explain basic data types and their sizes used in a C Language	7M		
b) What are the relational operators? Explain with example.	7M		
<b>UNIT-II</b>			
3. a) Describe Conditional Statements used in C Language	7M		
b) Compare While and do.. While statements with suitable example code.	7M		
<b>OR</b>			
4. a) Define an array. Explain how to declare and initialize arrays.	7M		
b) Write a c program to sort the list of numbers using bubble sort. Explain with an example.	7M		
<b>UNIT-III</b>			
5. a) What is a string with respect to C? How is it declared, initialized and manipulated?	7M		
b) Describe parameter passing techniques for functions.	7M		
<b>OR</b>			
6. a) Illustrate the storage classes extern, static and auto with an example to each.	7M		
b) Write a C program to perform multiplication of two matrices	7M		
<b>UNIT-IV</b>			
7. a) What is a pointer? What are the features of pointers? Write a C program to print address of a variable	7M		
b) Write a c program to swap two numbers using call by reference.	7M		
<b>OR</b>			
8. Differentiate static and dynamic memory allocation. How to allocate and freeing dynamic memory allocation. Explain with an example.	14M		
<b>UNIT-V</b>			
9. a) Define Structures. Explain with an example how structure members are initialized and accessed	7M		
b) Explain different modes to open a file	7M		
<b>OR</b>			
10. a) Write a program to copy content of existing file to another file.	7M		
b) Differentiate between a structure and union with respective allocation of memory by the compiler. Given an example of each.	7M		

\*\*\*

Code: 19AC11T

I B.Tech. I Semester Supplementary Examinations February 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 )

\*\*\*\*\*

**UNIT-I**

1. a) Find the rank of  $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 4 & 4 \\ 7 & 10 & 12 \end{bmatrix}$

Marks CO Blooms Level

7M CO1 L3

b) Solve  $x + y + z = 4, 2x + 5y - 2z = 3, x + 7y - 7z = 5$

7M CO1 L3

**OR**

2. Show that the system of equations

$$2x_1 - 2x_2 + x_3 = \lambda x_1, 2x_1 - 3x_2 + 2x_3 = \lambda x_2, -x_1 + 2x_2 = \lambda x_3$$
 can possess a non-trivial solution only if  $\lambda = 1, \lambda = -3$ . Obtain the general solution in each case.

14M CO1 L2

**UNIT-II**

3. Verify Cayley-Hamilton theorem for the matrix  $A = \begin{bmatrix} 1 & -1 & 0 \\ 0 & 1 & 1 \\ 2 & 1 & 2 \end{bmatrix}$  and hence find

 $A^{-1}$  using Cayley-Hamilton theorem.

14M CO2 L2

**OR**4. Reduce the quadratic form  $3x^2 + 2y^2 + 3z^2 - 2xy - 2yz$  to canonical form by using orthogonal transformation.

14M CO2 L3

**UNIT-III**

5. If  $u = x + 3y^2 - z^3, v = 4x^2yz, w = 2z^2 - xy$ , then evaluate  $\frac{\partial(u,v,w)}{\partial(x,y,z)}$  at (1,-1,0)

14M CO3 L3

**OR**6. Find the minimum value of  $x^2 + y^2 + z^2$  given  $x + y + z = 3a$ 

14M CO3 L3

**UNIT-IV**7. a) Using Taylor's theorem, express the polynomial  $2x^3 + 7x^2 + x - 6$  in powers of  $(x-1)$ .

7M CO4 L3

b) Using Maclaurin's series, expand  $e^x$  in powers of  $x$ .

7M CO4 L3

**OR**8. Trace the curve  $y^2(2a-x) = x^3$ 

14M CO4 L4

**UNIT-V**

9. Evaluate  $\int_0^1 \int_0^1 \int_0^1 xyz \, dx \, dy \, dz$

7M CO5 L3

**OR**10. Define Gamma Function, Beta Function and Evaluate  $\int_0^1 x^4 \left( \log \frac{1}{x} \right)^3 dx$  using  $\Gamma$  function.

14M CO5 L1

\*\*\*