CODE: A10101	**R23**	**H.T.No:**									

RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN

(AUTONOMOUS)

B.Tech I Year I Semester Supplementary Examinations June 2025

Subject Name: Basic Civil & Mechanical Engineering

Branch: CSE

Time: 3 Hours **Max. Marks: 70**

Note: Part A must be answered from page no 3-18 and Part B must be answered from 19-36 pages

PART-A (Civil Engineering Part) Answer all questions, each question carries one marks					
1	a	List the uses of Bricks?	1M	CO1	L1
	b	List any four uses of the cement concrete	1M	CO1	L1
	c	Define Bearing?	1M	CO2	L1
	d	List the type of Pavements?	1M	CO2	L1
	e	Mention any four standard specifications for the quality of water.	1M	CO3	L1
Answer all three units, 03 X 10 = 30 Marks					
UNIT-I					
2	a	Explain the following basic (a) Cement (b) Steel (c) Bricks (d) Cement concrete (e) prefabricated technology.	10M	CO1	L1
OR					
3	a	Describe different types of Highway Pavements with neat sketches.	5M	CO	BTL
	b	Describe the importance, advantages and disadvantages of tunnels.	5M	CO	BTL
UNIT-II					
4	a	Explain objectives, uses and principles of Surveying in Civil Engineering.	10M	CO2	L2
OR					
5	a	Elaborately explain about horizontal measurements in surveying?	5M	CO2	L6
	b	What are the characteristics of contours?	5M	CO2	L1
UNIT-III					
6	a	Mention at least 15 Standard Specifications for the quality of water.	5M	CO3	L2
	b	Explain with neat sketch various components of the dam structure.	5M	CO3	L2
OR					
7	a	Discuss about water quality specifications and tests?	5M	CO3	L1
	b	What do you know about Rain water harvesting?	5M	CO3	L1

PART-B (Mechanical Engineering Part) Answer all questions, each question carries one marks					
8	a	Define a Boiler?	1M	CO1	BTL1
	b	Principles of Casting.	1M	CO2	BTL1
	c	What is function of boiler?	1M	CO3	BTL1
	d	What are four strokes in petrol engine?	1M	CO2	BTL1
	e	Applications of robots?	1M	CO1	BTL1
Answer all three units, 03 X 10 = 30 Marks					
UNIT-I					
9		Explain the contributions of Mechanical Engineering to the welfare of society?	10M	CO1	BTL2
OR					
10		What are the different types of ferrous metals, explain the basic properties and its applications?	10M	CO1	BTL2
UNIT-II					
11		What is mean by casting? Explain the principles of casting with neat sketch?	10M	CO2	BTL2
OR					
12	a	Distinguish between SI engine and CI engine?	10M	CO2	BTL2
	b	Discuss the importance of 3D printing?	5M	CO4	L3
UNIT-III					
13		Discuss in detail working principle of Nuclear Power plant with neat sketch.	10M	CO3	BTL2
OR					
14	a	Explain about the Robot configurations with neat Sketches?	5M	CO3	BTL2
	b	What are the applications of robots?	5M	CO3	BTL1

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CODE: A10004	**R23**	**H.T.No:**									

RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN

(AUTONOMOUS)

B.Tech I Year I Semester Supplementary Examinations June 2025

Subject: Chemistry

Branch: CSE

Time: 3 Hours **Max. Marks: 70**

Instructions:

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A					
1	a	What are bonding and anti-bonding molecular orbitals?	2M	CO1	L1
	b	Calculate the bond order and magnetic nature of the O_2 molecule.	2M	CO1	L1
	c	What is a superconductor? Name one superconductive material.	2M	CO2	L2
	d	Write about doing and dopant.	2M	CO2	L1
	e	What are potentiometric titrations?	2M	CO3	L1
	f	Differentiate between primary cells and secondary cells.	2M	CO3	L1
	g	Name the monomers of Teflon and Nylon-6,6.	2M	CO4	L1
	h	Why PVC used in chemical industries?	2M	CO4	L1
	i	Write important section rules of IR spectroscopy.	2M	CO5	L1
	j	What is the basic principle behind the chromatography technique?	2M	CO5	L1
PART-B					
UNIT-I					
2		Formulate (or derive) the Schrödinger wave equation for a particle in a box. Describe the significance of the Schrödinger wave equation.	10M	CO1	L6
OR					
3	a	Derive the Schrodinger wave equation.	7M	CO1	L3
	b	Draw the molecular energy level diagram of carbon monoxide.	3M	CO1	L2
UNIT-II					
4	a	Write the classification of materials based on band theory.	10M	CO2	L2
OR					
5	a	Define nanomaterials. Explain the classification of nanomaterials with suitable examples.	5M	CO2	L2
	b	Define semiconductor. Explain the conduction process in n-type semiconductors with a neat diagram.	5M	CO2	L2
UNIT-III					
6		Define a fuel cell. Explain the working principle and cell reactions of polymer electrolyte membrane fuel cells	10M	CO3	L2

		(PEMFC) with a neat diagram with applications.			
OR					
7	a	Explain the working principle of a Lithium ion battery.	5M	CO3	L2
	b	Describe potentiometric titrations – redox titrations.	5M	CO3	L2
UNIT-IV					
8	a	Discuss the mechanisms of free radical addition polymerization and cationic addition polymerization.	6M	CO4	L6
	b	What are the main advantages of carbon fibres?	4M	CO4	L1
OR					
9	a	Differentiate between addition polymerization and condensation polymerization.	5M	CO4	L2
	b	Write short notes on a. Conducting polymers: b. biodegradable polymers	5M	CO4	L1
UNIT-V					
10	a	Explain the principles of UV-visible spectroscopy. What electronic transitions are responsible for absorption in this region?	6M	CO5	L2
	b	Explain the instrumentation used in IR spectroscopy.	4M	CO5	L2
OR					
11	a	Illustrate the instrumentation of HPLC with a neat diagram. Write any four applications of HPLC.	10M	CO5	L2

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CODE: A10001	**R23**	**H.T.No**									

RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)
B.Tech I Year I Semester Supplementary Examinations June 2025
Subject Name: Communicative English
Branch: CSE

Time: 3 Hours **Max. Marks: 70**

Instructions:
1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A					
1	a	Select the correct verb. 1. They_____(is/are)going to the park. 2. Each of the students _____(has/have) their book.	2M	CO2	L1
	b	What is scanning? Give an example.	2M	CO2	L1
	c	What are cohesive devices?	2M	CO3	L1
	d	Find and fill in the blanks with the correct collocation 1. We had to return home because we had _____(run out of, played out of, got out of) money. 2. Are you _____ (fully, hundred percent, mostly) aware of the implications of your action?	2M	CO2	L1
	e	Fill the blank with correct form of verb. i) They took a shower after they _____ (finish) the game. ii) Write the noun for the given verb in brackets (criticize)	2M	CO2	L1
	f	Change to Active Voice 1. Results will be published in the next journal. 2. The business proposition was challenged by the board	2M	CO3	L1
	g	Find and fill in the blank spaces with the correct Prepositions 1. Pile this_____ top of the others. 2. File this _____ with the others	2M	CO2	L1
	h	Change the following statements into questions: 1. She is unhappy 2. She is not serious	2M	CO2	L1
	i	Put the following in Indirect Speech:- 1. He says, “we should meet tomorrow”. 2. The clerk asked his manager, “Shall I email this letter again, Sir?”	2M	CO3	L1
	j	Put the following in Direct Speech:- 1. The reporter exclaimed sadly that many lives had been lost due to the tsunami. 2. She prayed that God might grant her friend success in her examination.	2M	CO3	L1
PART-B					
UNIT-I					
2	a	Analyse the main message of the story “The Gift of Magi”.	5M	CO4	L4

	b	Explain why Della sells her hair in the story "The Gift of Magi"?	5M	CO4	L2
OR					
3	a	Apply suffix:- a)Heavy b)Breathe c)Adjust d)Simple e)Disconnect	5M	CO3	L3
	b	Apply Antonyms:- a)Strange b)Awful c)Delicious d)Happy e) Definite	5M	CO3	L3
UNIT-II					
4	a	What is the moral of the poem The Brook?	5M	CO2	L1
	b	Compose a short paragraph on the topic **"problems of social media"**.	5M	CO5	L6
OR					
5	a	Analyse the moral of the poem "The Brook".	5M	CO4	L4
	b	Compose a short paragraph on the topic **"higher education".**	5M	CO5	L6
UNIT-III					
6	a	Compose a short note on Elon Musk.	5M	CO4	L6
	b	What is compound words write examples?	5M	CO5	L2
OR					
7	A	Complete the sentences given below with suitable verb forms for the words given in brackets. i) When I opened my eyes, I _____(see) a strange sight. ii) We ____(visit) Greece next month. iii) All students _____(submit) their assignments just now. iv) She_____ (teach) English for twelve years. v) The students _____(rehearse) their dialogues at this moment.	5M	CO5	L2
	B	What is summarizing write the do's and don'ts of summarizing?	5M	CO5	L2
UNIT-IV					
8	a	Compose a resume for the position of English teacher in a school.	5M	CO6	L6
	b	Compose a letter to your college administration requesting them to issue an identity card. Provide all the necessary details for securing the identity card.	5M	CO6	L6
OR					
9	a	Compose a resume for the position of Flight Attendant.	5M	CO6	L6
	b	Compose a letter to Newspaper editor complaining about improper garbage disposal in your neighborhood.	5M	CO6	L6
UNIT-V					
10	a	Good things happen to those who put in the effort. Evaluate the statement by either agreeing or disagreeing.	5M	CO5	L5
	B	What is the power of intrapersonal communication?	5M	CO3	L3
OR					
11	a	What is jargon and write 2 examples for jargon?	5M	CO5	L5
	b	Write an essay on 'Engineering education in nation building'.	5M	CO3	L3

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CODE: A10501	**R23**	**H.T.No:**									

RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN

(AUTONOMOUS)

B.Tech I Year I Semester Supplementary Examinations June 2025

Subject Name: **Introduction to Programming**

Branch: CSE and ECE

SET-1

Time: 3 Hours **Max. Marks: 70**

Instructions:

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A					
1	a	What is the difference between compilation and interpretation in programming?	2M	CO1	BTL2
	b	List different format specifiers.	2M	CO1	BTL1
	c	List the various conditional control statements in C.	2M	CO1	BTL1
	d	What is the purpose of the do-while loop. How is it different from the while loop?	2M	CO2	BTL2
	e	In the memory model, how the two-dimensional arrays stored? Provide an example.	2M	CO2	BTL2
	f	If str [ ] = “Welcome to the world of programming”, then SUBSTRING (str, 15, 5) =?	2M	CO3	BTL1
	g	What is the difference between the address-of operator (&) and the dereference operator (*) in C. Provide an example.	2M	CO3	BTL2
	h	Define a Structure. How can you access the members of a structure?	2M	CO4	BTL1
	i	What are formal and actual parameters in a function call? Provide an example.	2M	CO4	BTL2
	j	What is the use of fseek( ) function in files and Write its syntax.	2M	CO4	BTL1
PART-B					
UNIT-I					
2	a	Explain the basic components of a computer’s architecture.	5M	CO1	BTL2
	b	What is an operator? List and explain various types of operators	5M	CO1	BTL2
OR					
3	a	Draw a flowchart to find the sum of first n natural numbers.	5M	CO1	BTL3
	b	Discuss the concept of type conversion in programming. Explain the difference between implicit and explicit type conversion, and give examples.	5M	CO1	BTL2
UNIT-II					
4	a	Write a C program to simulate a calculator using switch case.	5M	CO2	BTL2
	b	Write a C program to find the GCD of two positive numbers.	5M	CO2	BTL3
OR					
5	a	Define looping. Explain for() loop with syntax and an example.	5M	CO2	BTL4

	b	Illustrate the use of break and continue statements with an example.	5M	CO2	BTL4
UNIT-III					
6	a	Write a C program to find the minimum and maximum element of a 1-D integer array.	5M	CO3	BTL3
	b	Write a C program for multiplication two matrices.	5M	CO3	BTL3
OR					
7	a	Write a C program to concatenate two strings without built-in functions.	5M	CO3	BTL4
	b	Explain about any 5 string handling functions.	5M	CO3	BTL2
UNIT-IV					
8	a	Write a C program to implement realloc().	5M	CO4	BTL3
	b	Write a C program that uses pointers to reverse an array of integers.	5M	CO4	BTL3
OR					
9	a	Write a C program to find the total, average of n students using structures.	5M	CO4	BTL3
	b	Write a C program to illustrate the comparison and copying of structure variables	5M	CO4	BTL4
UNIT-V					
10	a	How are arguments passed to a function in C? Explain the difference between passing by value and passing by reference.	5M	CO5	BTL4
	b	Write a C function to transpose of a matrix.	5M	CO4	BTL2
OR					
11	a	Explain the difference between the scope and lifetime of variables in C. How do local, global, and static variables differ in terms of scope and lifetime?	5M	CO5	BTL4
	b	Write a C program to copy the content of one file to another file.	5M	CO4	BTL3

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CODE: A10002	R23	H.T.No:									

RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN

(AUTONOMOUS)

B.Tech I Year I Semester Supplementary Examinations June 2025

Subject Name: **Linear Algebra and Calculus**

Time: 3 Hours Branch: **CSE & ECE** **Max. Marks: 70**

Instructions:

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

		PART-A			
1	a	Find the rank of the matrix $\begin{bmatrix} 2 & 1 & -1 \\ -1 & -3 & 4 \\ 1 & -3 & 8 \end{bmatrix}$	2M	CO1	LI
	b	Write about Gauss Seidel Iteration method.	2M	CO1	L2
	c	Find the symmetric matrix corresponding to the quadratic form $x^2 + 2y^2 + 3z^2 + 4xy + 5yz + 6zx$	2M	CO2	LI
	d	Write the procedure about Diagonalization of a matrix	2M	CO2	LI
	e	Write the Maclaurin's series expansion in powers of x	2M	CO3	LI
	f	Verify Lagrange's mean value theorem for $f(x) = x^{1/3}$ in $[-1,1]$	2M	CO3	LI
	g	Define Total derivative for three variables	2M	CO4	LI
	h	Find the Stationary points of $f(x,y) = sinx + siny + \sin(x+y)$	2M	CO4	LI
	i	Find the value of the integral $\int_0^2 \int_0^y x^3 y dx dy$	2M	CO5	LI
	j	Transform the integral into polar coordinates, $\int_0^a \int_0^{\sqrt{a^2-x^2}} (x^2+y^2)\, dy\, dx$	2M	CO5	LI
		PART-B			
		UNIT-I			
2	a	Reduce the matrix A to normal form and hence find its rank A= $\begin{bmatrix} 2 & 1 & 3 & 4 \\ 0 & 3 & 4 & 1 \\ 2 & 3 & 7 & 5 \\ 2 & 5 & 11 & 6 \end{bmatrix}$	5M	CO1	L1
	b	b) Solve 20x+2y+6z=28, x+20y+9z= -23, 2x-7y-20z= -57 by Gauss-Seidel Iteration Method	5M	CO1	L3
		OR			
3	a	Solve the system of equations 5x+3y+7z=4,3x+26y+2z=9,7x+2y+10z=5	5M	CO1	L5
	b	a) Solve the system of equations x+2y+3z=1,2x+3y+8z=2,x+y+z=3	5M	CO1	L6
		UNIT-II			
4		Define Diagonalization method and Hence Diagonalize A= $\begin{bmatrix} 8 & 6 & -2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}$	10M	CO2	L3
		OR			
5	a	Verify Cayley-Hamilton theorem for the matrix	5M	CO2	L4

		$A=\begin{bmatrix}1 & 2 & 1\\ 0 & 1 & -1\\ 3 & -1 & 1\end{bmatrix}$ and hence find its inverse.			
	b	Reduce the Quadratic Form $x^2+3y^2+3z^2-2yz$ to the canonical form by Orthogonal Transformation and also find its Rank, Index Signature and Nature of Quadratic Form	5M	CO2	L5
		UNIT-III			
6	a	Verify Rolle's theorem for the function $f(x)=x^2-2x-3$ in the interval $[1,3]$	5M	CO 3	L4
	b	Verify Cauchy's mean value theorem for $f(x)=\sin x$ and $g(x)=\cos x$ in $[0,\pi/2]$.	5M	CO 3	L4
		OR			
7		Verify Lagrange's mean value theorem for $f(x)=\cos x$ in $[0,\pi]$	5M	CO3	L5
	b	Verify the Taylors theorem $f(x)=(1-x)^{\frac{5}{2}}$ with Lagrange's form of remainder upto 2 terms in the interval $[0,1]$.	5M	CO3	L4
		UNIT-IV			
8	a	If $u=x+y+z, y+z=uv, z=uvw$, Show that $J\left(\frac{x,y,z}{u,v,w}\right)=u^2v$.	5M	CO4	L5
	b	Find the maxima and minima of the function $u(x,y)=x^3y^2(1-x-y)$	5M	CO4	L1
		OR			
9	a	Verify $u=\frac{x^2-y^2}{x^2+y^2}, v=\frac{2xy}{x^2+y^2}$ are functionally dependent or not? If dependent then find the relation between them.	10M	CO4	L5
		UNIT-V			
10	a	Solve $\int_{-c}^{c}\int_{-b}^{b}\int_{-a}^{a}(x^2+y^2+z^2)dxdydz$	5M	CO5	L5
	b	Evaluate $\int_0^1\int_0^{\sqrt{1-x^2}}\int_0^{\sqrt{1-x^2-y^2}} xyz\,dzdydx$	5M	CO5	L5
		OR			
11	A	Evaluate $\int_0^1\int_0^{\sqrt{1-x^2}}\int_0^{\sqrt{1-x^2-y^2}} xyz\,dz\,dy\,dx$	5M	CO5	L1
	b	Find the volume bounded by the xy-plane $x^2+y^2=1$ and the plane $x+y+z=3$. .	5M	CO5	L1

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