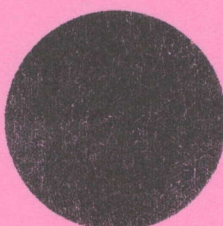
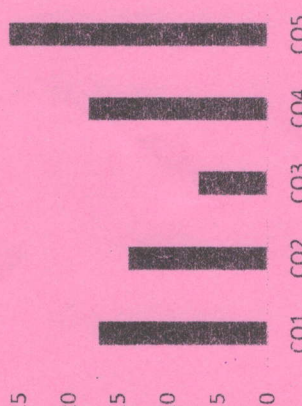


 ARKA JAIN University Jharkhand				[24-06-2025] END SEM EXAMINATION School of Engineering & IT	
Program	EEE & CSE	Branch	Diploma		
Subject Name	Applied Chemistry	Session	Even, 2024-2025		
Semester	II	Year	June, 2025		
Time: 3 Hour Max. Marks : 70					
• Start writing from 2nd page onwards; don't Write on the 1st Page Backside • Answer all Questions of Section A (Compulsory) • Answer Any Four out of Six of Section B • Answer Any Three out of Five of Section C • Possession of Mobile Phone or any kind of Written Material, Arguments with the Invigilator or Discussion with Co-Student will comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Paper(s)</u> .					
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating		
	K2 : Understanding	K4 : Analysing	K6 : Creating		

Section A (Each question Carry 02 Marks from Q1-i to x - 20 Marks)					
Q.N	QUESTIONS	Marks	COs	KL	
1					
i	With help of example write about polymers and copolymers.	2	CO1 CO5	K1	
ii	What do you mean by covalent bond? Explain it with the help of example.	2	CO1	K3	
iii	Write in detail about the Hund's Rule of maximum multiplicity.	2	CO2 CO4	K1	
iv	State few ores present in Aluminium.	2	CO1	K2	
v	What are lubricants? Write about the properties of Lubricants.	2	CO1	K1	
vi	Differentiate between strong and weak electrolytes with proper examples.	2	CO1	K1	
vii	Give proper Justification about why Rusting of iron is quicker in saline water than in ordinary water.	2	CO1	K3	
viii	Explain: Why the rate of metallic corrosion increase with increase in temperature.	2	CO2	K2	
ix	What is oxidation and reduction reaction .Discuss with the help of example.	2	CO4	K1	
x	What do you mean by Caloric value of a fuel.	2	CO5	K1	

Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Write the derivation of the Faraday's first law of electrolysis also state the law.	05	CO4 CO5	K1
3	Define Lubricants and it's mechanism. Explain the physical properties of Lubricants in terms of viscosity, flash point and fire point.	05	CO1 CO3 CO4 CO5	K1
4	Explain how electroplating is applied in industry through the process of electrolysis.	05	CO5	K1
5	What led Rutherford to propose his model of the atom?	05	CO5 CO3	K1 K2
6	Define corrosion and explain its electrochemical theory.	05	CO1 CO5	K1
7	What is Rutherford's model of the atom? Explain in detail.	05	CO4 CO5	K3
Section C (Answer any THREE out of FIVE) – 30 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	What is the working principle of the EDTA method? Discuss the procedure for determining water hardness using complexometric titration.	10	CO1 CO2	K1
9	Define an alloy, provide its classification and discuss the key properties associated with alloys.	10	CO4 CO5	K2
10	Define alkalinity. Identify the ions that contribute to alkalinity and explain the method used for its estimation.	10	CO4 CO5	K1
11	How is hard water different from soft water? What is meant by temporary and permanent hardness?	10	CO1 CO2 CO4 CO5	K1 K2
12	Explain the process of proximate analysis of coal. How is it conducted and why is it important?	10	CO5	K1

CO- Course Outcomes,		KL- Knowledge Level,	PO - Program Outcome
Course Outcomes	CO1	Classify matter based on state of aggregation and substantiate the laws and principles on which structure of atom is established.	
	CO2	Explain cause and facture factors which adversely affecting natural water quality and remedial measure available for water purification to achieve water quality standards.	
	CO3	Qualitatively analyze the engineering materials and understand their properties and applications and explain the chemistry of various polymers.	
	CO4	Ascertain constructions, mechanism efficiency of electrochemical cells and understand corrosion and develop economical prevention techniques.	
	CO5	Select most efficient fuel and lubricant for engine and engineering applications in relevant applications.	
GRAPHICAL REPRESENTATION			
Bloom's Level Wise Marks Distribution		Course Outcome Wise Marks Distribution	
			
■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6			

 ARKA JAIN University Jharkhand		NAAC GRADE A ACCREDITED UNIVERSITY		[26-06-2025] END SEM EXAMINATION School of Engineering & IT	
Program	EEE & CSE		Branch	Diploma	
Subject Name	Applied Physics		Session	Even, 2024-2025	
Semester	II		Year	June, 2025	
Time: 3 Hour Max. Marks : 70		• Start writing from 2nd page onwards; don't Write on the 1st Page Backside			
		• Answer all Questions of Section A (Compulsory)			
		• Answer Any Four out of Six of Section B			
		• Answer Any Three out of Five of Section C			
		• Possession of <u>Mobile Phone</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussion with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Paper(s)</u> .			
Knowledge Level (KL)	K1 : Remembering		K3 : Applying		K5 : Evaluating
	K2 : Understanding		K4 : Analysing		K6 : Creating

Section A (Each question Carry 02 Marks from Q1-i to x - 20 Marks)					
Q.N	QUESTIONS		Marks	COs	KL
1					
i	What is Hook's Law?		2	CO4	K1
ii	Define adiabatic process and Isothermal process?		2	CO5	K1
iii	State the Zeroth law of thermodynamics?		2	CO5	K1
iv	What is Photoelectric effect?		2	CO6	K2
v	What do you mean by a nanometer?		2	CO6	K1
vi	Name two non-conventional sources of energy?		2	CO6	K1
vii	What is critical or transition temperature?		2	CO6	K3
viii	Write the Three equation of motion?		2	CO2	K2
ix	The unit vector along $\hat{i}+\hat{j}$ is?		2	CO1	K3
x	What is a null vector and unit vector?		2	CO1	K3

Section B (Answer any FOUR out of SIX) - 20 Marks
(Each question Carry 05 Marks)

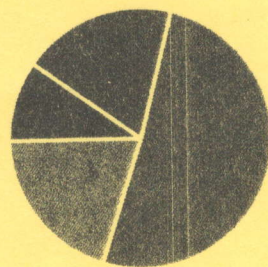
Q. No.	QUESTIONS	Marks	COs	KL
2	Analyze which vector must be added to the two vectors $\hat{i}-2\hat{j}+2\hat{k}$ and $2\hat{i}+\hat{j}-\hat{k}$ so that the resultant may be a unit vector along x-axis	05	CO1	K4
3	Distinguish between streamline and turbulent flow?	05	CO4	K3
4	Distinguish between entropy and enthalpy?	05	CO5	K3
5	State and Explain Boyles law, Charles laws?	05	CO5	K2
6	A superconducting material when placed in a magnetic field will repel all the magnetic lines of force passing through it. Explain true or false?	05	CO6	K3
7	The ratio of the terminal velocities of two water drops while falling towards the earth's surface is 4:9. Determine the ratio of the radii?	05	CO4	K4

Section C (Answer any THREE out of FIVE) - 30 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	Calculate the time period of a simple pendulum of length 1.12m, when acceleration due to gravity is 9.8ms^{-2}	10	CO2	K4
9	Derive parallelogram law of vector addition.	10	CO1	K3
10	Derive $y=3\alpha$? Where α is the coefficient of linear expansion and y is the coefficient of volume expansion?	10	CO4	K3
11	Briefly analyse the advantages and disadvantages of solar energy	10	CO6	K2
12	Show that total mechanical energy of freely falling body at all the positions is conserved?	10	CO2	K3

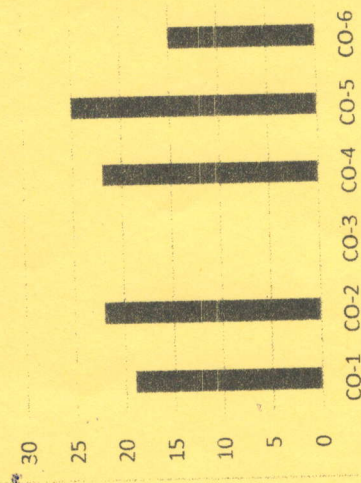
GRAPHICAL REPRESENTATION

Bloom's level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

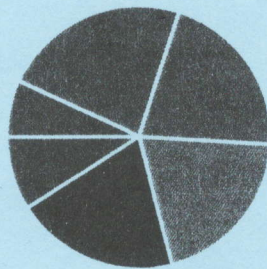
Course Outcome wise Marks Distribution



CO- Course Outcomes,	KL- Knowledge Level,	PO – Program Outcome
CO1	Develop basic speaking and writing skills including proper usage of language and vocabulary so that they can become highly confident and skilled speakers and writers.	
CO2	Be informed of the latest trends in basic verbal activities such as presentations, facing interviews and other forms of oral communication.	
CO3	Also develop skills of group presentation and communication in team. Develop non-verbal communication such as proper use of body language and gestures.	
CO4	Learn the Reading Comprehension	
CO5	Learn Grammar and Vocabulary.	

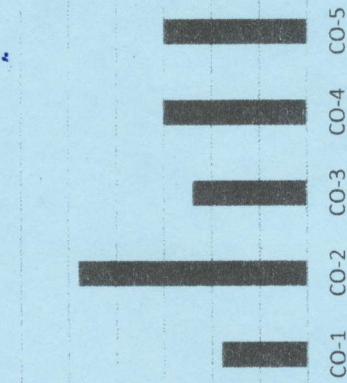
GRAPHICAL REPRESENTATION

Bloom's level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course Outcome wise Marks Distribution



		ARKA JAIN University Jharkhand		NAAC GRADE A ACCREDITED UNIVERSITY		[30-06-2025] END SEM EXAMINATION School of Engineering & IT	
Program	EEE & CSE			Branch	Diploma		
Subject Name	Communication Skills In English			Session	Even, 2024-2025		
Semester	II			Year	June, 2025		
Time: 3 Hour Max. Marks : 70	• Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</u> • Answer all Questions of Section A (Compulsory) • Answer Any <u>Four</u> out of Six of Section B • Answer Any <u>Three</u> out of Five of Section C • Possession of <u>Mobile Phone</u> or any kind of <u>Written Material</u>, <u>Arguments with the Invigilator</u> or <u>Discussion with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation</u> of the <u>Paper(s)</u>.						
Knowledge Level (KL)	K1 : Remembering		K3 : Applying		K5 : Evaluating		
	K2 : Understanding		K4 : Analysing		K6 : Creating		

Section A (Each question Carry 02 Marks from Q1-i to x – 20 Marks)

Q.N	QUESTIONS	Marks	COs	KL
i	Define Self- awareness.	2	CO1	KL1
ii	Name the main characters of the short story 'Gift of Magi'.	2	CO2	KL2
iii	State any 2 importance of Soft Skills.	2	CO2	KL1
iv	List down the name of the main character of the short story 'Room on the Roof'.	2	CO3	KL5
v	Mention any two themes of the poem 'Night of the Scorpion'.	2	CO3	KL2
vi	Mention the publishing year of the poem 'Night of the Scorpion'.	2	CO4	KL5
vii	What does the term CC stand for in Email Writing?	2	CO2	KL2
viii	Write the Synonyms of: Rich & Beautiful.	2	CO5	KL4
ix	Define Proverbs.	2	CO2	KL4
x	Write the Antonym of: Appear & Blunt.	2	CO5	KL1

Section B (Answer any FOUR out of SIX) - 20 Marks (Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	State all the forms of Technical Communication.	05	CO5	KL6
3	Differentiate between Formal and Informal communication.	05	CO2	KL3
4	Describe Technical Communication.	05	CO1	KL2
5	State why Self- Awareness is important for Students.	05	CO2	KL4
6	List down the Power of Struggle: a. Planning b. Introspection c. Ambition d. Leading e. Perfection	05	CO3	KL2
7	Differentiate between Soft Skill and Hard Skill.	05	CO3	KL5
Section C (Answer any THREE out of FIVE) - 30 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Define the following and give suitable examples: a. Noun b. Pronoun c. Verb d. Adverb e. Preposition	10	CO2	KL3
9	State down the meaning of the following Proverb: a. Don't judge a book by it's cover. b. Honesty is the best policy. c. Action speaks louder than words. d. An apple a day keeps the doctor away. e. All that glitters are not of gold. f. Rome was not built in a day. g. Prevention is better than cure.	10	CO2	KL3
10	Define Resume. List down the key elements of a Resume.	10	CO1	KL1
11	Mention 2 synonyms each of the following: a. Speak b. Respect c. Always	10	CO3	KL4

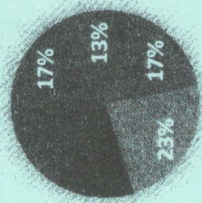
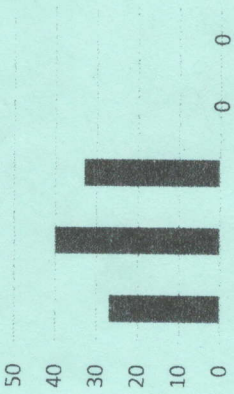
12	d. Rich e. Mistake Explain the purpose of a Resume.	10	CO4	KL4
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 ARKA JAIN University Jharkhand		NAAC GRADE A ACCREDITED UNIVERSITY	[02-07-2025] END SEM EXAMINATION School of Engineering & IT
Program	EEE & CSE		Branch Diploma
Subject Name	Sports and Yoga Or NSS / NCC		Session Even, 2024-2025
Semester	II		Year June, 2025
Time: 1.5 Hour Max. Marks : 35		Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</u>	
- Answer all Questions of Section A (Compulsory) - Answer Any Five out of Six of Section B - Answer Any Two out of Four of Section C - Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers.</u>		K1 : Remembering K3 : Applying K5 : Evaluating K2 : Understanding K4 : Analysing K6 : Creating	
Knowledge Level (KL)			

Section A (Each question Carry 01 Marks from Q1-i to v) – 05 Marks					
Q. N	QUESTIONS	Marks	COs	KL	
1					
i	What is the primary objective of the National Cadet Corps (NCC)?	01	CO1	K2	
ii	How does the National service scheme (NSS) contribute to the personal development of youth in India?	01	CO2	K1	
iii	How many players from each team are allowed to be on the field at the start of a cricket match?	01	CO1	K4	
iv	How does yoga help in reducing stress?	01	CO3	K1	
v	What is the primary goal of yoga?	01	CO1	K1	
Section B (Answer any FIVE out of SIX) – 10 Marks (Each question Carry 02 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	
2	What are the primary benefits of practicing yoga regularly?	02	CO4	K1	
3	How can yoga be incorporated into a daily routine to improve mental and physical health?	02	CO3	K3	
4	How does NCC promote national integration?	02	CO3	K2	

5	What is the mission of the NSS?	02	CO1	K1
6	How does NSS help student in their career development and employability?	02	CO2	K2
7	What is the objective of NCC	02	CO1	K1
Section C (Answer any TWO out of FOUR) - 20 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	What is the National Service Scheme (NSS), and how does it promote social welfare and volunteerism among students?	10	CO3	K2
9	How does the NCC contribute to social service and community development, and what are some key activities undertaken by cadets in this area?	10	CO2	K3
10	What are some key community development projects undertaken by NSS volunteers?	10	CO3	K1
11	What are the similarities and differences between NSS and NCC in terms of objectives and activities?	10	CO1	K3

CO- Course Outcomes, KL- Knowledge Level, PO - Program Outcome

Course Outcomes	CO1	Train volunteer youth to become confident, committed and competent leaders in all walks of life.
	CO2	Enhance awareness levels of cadets to become empowered and responsible citizens of the country.
	CO3	Undertake adventure activities to hone leadership qualities and risk taking abilities.
	CO4	Provide a platform to launch 'Good Will Ambassadors' to project the image of the country overseas.
	CO5	Provide opportunities and encourage cadets to enrich their knowledge, develop communication skills and build character.
GRAPHICAL REPRESENTATION		
Bloom's Level wise Marks Distribution  ■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6		Course Outcome wise Marks Distribution  CO1 CO2 CO3 CO4 CO5

 ARKA JAIN University Jharkhand		 NAAC GRADE A ACCREDITED UNIVERSITY	[21-06-2025] END SEM EXAMINATION School of Engineering & IT
Program	ME, EEE, CSE & Mechatronics	Branch	Diploma
Subject Name	Mathematics - II	Session	Even, 2024-2025
Semester	II	Year	June, 2025
Time: 3 Hour Max. Marks : 70	• Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</u> • Answer all Questions of Section A (Compulsory) • Answer Any Four out of Six of Section B • Answer Any Three out of Five of Section C • Possession of <u>Mobile Phone</u> or any kind of <u>Written Material</u> , <u>Arguments with the Invigilator</u> or <u>Discussion with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation</u> of the <u>Paper(s)</u> . Paper(s): K1 : Remembering K3 : Applying K5 : Evaluating K2 : Understanding K4 : Analysing K6 : Creating		
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing	K5 : Evaluating K6 : Creating

Section A (Each question Carry 02 Marks from Q1-i to x – 20 Marks)				
Q.N	QUESTIONS	Marks	COs	KL
1				
i	What is the result of the multiplication $5 \times \begin{bmatrix} 5 & 0 \\ 2 & -3 \end{bmatrix}$	2	CO1	KL1
ii	Evaluate $\lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2}$	2	CO2	KL2
iii	What is a Square matrix? Give one example.	2	CO2	KL2
iv	Find the order and degree of the given differential equation : $\left(\frac{d^2y}{dx^2}\right) + \left(\frac{d^3y}{dx^3}\right)^4 = \frac{dy}{dx}$	2	CO1	KL1
v	Find the integral value a) $\int_0^2 x^2 dx$	2	CO3	KL3
vi	Differentiate $\frac{d}{dx} \{\sin(x^4 + 4)\}$	2	CO5	KL5
vii	Find the differential equation of $y = mx$, by eliminating arbitrary constant m.	2	CO2	KL2
viii	Construct a 2x2 matrix whose elements are given by $a_{ij} = i+j$	2	CO6	KL6
ix	Find the slope of the tangent to the curve $y = x^2$ at $x = 8$.	2	CO5	KL5
x	Check the function $f(x) = x^3$ is an even function or odd function.	2	CO3	KL3

Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Find the product AB, if $A = \begin{bmatrix} 2 & 1 \\ 0 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 1 & 3 \\ 2 & 0 \end{bmatrix}$	05	CO4	KL4
3	Find the solution of the differential equation $\frac{dy}{dx} = \frac{x}{y}$, by variable separable method.	05	CO6	KL6
4	Find the differential equation of $y = ax + b$ by eliminating arbitrary constants a and b.	05	CO3	KL3
5	If $A = \begin{bmatrix} 4 & y+2 \\ 2y-3 & y+1 \end{bmatrix}$ is Symmetric Matrix, find y.	05	CO5	KL5
6	Find the integral $\int x \sin 2x \, dx$	05	CO4	KL4
7	Check the function $f(x) = x^4$ is an even function or odd function. Also find $f(2) = ?$	05	CO4	KL4
Section C (Answer any THREE out of FIVE) – 30 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Find the Adjoint and Inverse of the matrix $B = \begin{bmatrix} \cos \alpha & \sin \alpha \\ \sin \alpha & \cos \alpha \end{bmatrix}$	10	CO2	KL2
9	Solve the system of linear equation using Cramer's Rule $x + 3y = 5$ $x + y = 3$	10	CO3	KL3
10	Find the derivatives of $\sin x$ by First Principle method.	10	CO5	KL5
11	A function is defined as $f(x) = x^2 - 3x$ a) Find the value of $f(2)$ b) Find the value of x for which $f(x) = 4$	10	CO5	KL5
12	Evaluate $\lim_{x \rightarrow 0} \frac{\sqrt{1+x} - \sqrt{1-x}}{x}$	10	CO6	KL6

CO- Course Outcomes,		KL- Knowledge Level,	PO – Program Outcome
Course Outcomes	CO1	Remembering several areas of mathematics beyond calculus	
	CO2	Understand to solve differential equations using appropriate methods.	
	CO3	Analyzing the Concepts of differentiation in physics & engineering courses	
	CO4	Evaluating the ODE of first degree, first order in engineering field	
	CO5	Creating interest in mathematics	
	CO6	Gain proficiency in calculus computations.	
GRAPHICAL REPRESENTATION			
Bloom's level wise Marks Distribution		Course Outcome wise Marks Distribution	