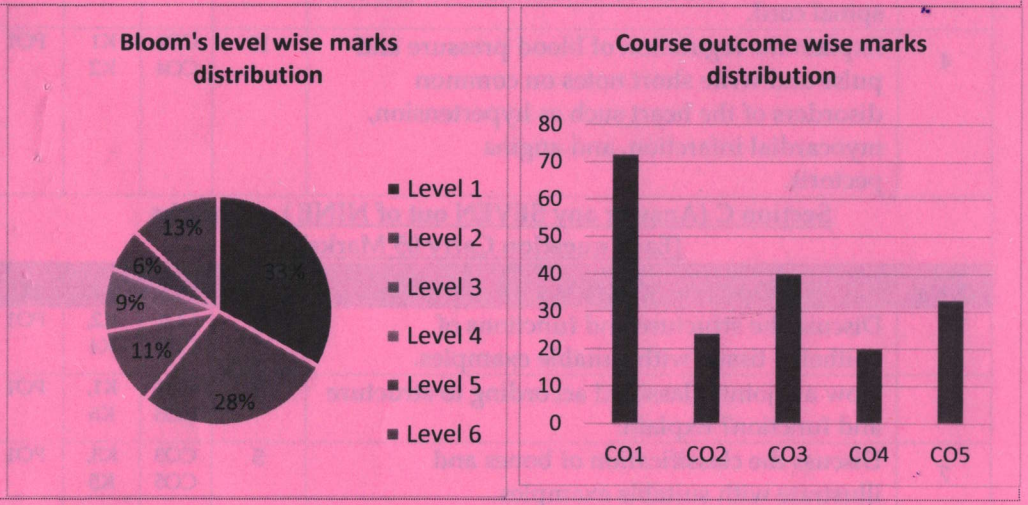
13	Write the difference between artery, vein, and capillary.	5	CO1 CO3	K1, K3	PO1

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

Course Outcomes	CO1	Understand the gross morphology, structure and functions of various organs of the human body
	CO2	Understand the various homeostatic mechanisms and their imbalances
	CO3	Understand the various tissues and organs of different systems of human body
	CO4	Analyze the various experiments related to special senses and nervous system
	CO5	Evaluate coordinated working pattern of different organs of each system

GRAPHICAL REPRESENTATION



JGI **ARKA JAIN University** Jharkhand — NAAC GRADE A ACCREDITED UNIVERSITY

[16-01-2026]
END SEM EXAMINATION
School of Health & Allied Sciences

Program	**Bachelor of Pharmacy**		
Subject Name	**Human Anatomy and Physiology-I**	**Session**	**Odd, 2025-26**
Semester	**I**	**Year**	**Jan, 2026**
Time: 3 Hour Max. Marks : 75	• Start writing from 2nd page onwards; **don't Write on the 1st Page Backside** • **Answer all Questions of Section A (Compulsory)** • **Answer Any *Two* out of *Three* of Section B** • **Answer Any *Seven* out of *Nine* of Section C** • **Possession of Mobile Phones** or any kind of **Written Material, Arguments with the Invigilator or Discussing with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Papers**.		
Knowledge Level (KL)	**K1 :** Remembering	**K3 :** Applying	**K5 :** Evaluating
	K2 : Understanding	**K4 :** Analysing	**K6 :** Creating

Section A (Each question Carry 01 Mark from Q1-i to xx) – 20 Marks

Q. N 1	QUESTIONS	Marks	COs	KL	PO
i	The organelles that generate cellular energy need for division are: a. Mitochondria b. Ribosomes c. Lysosomes d. Golgi apparatus	1	CO1 CO2	K1, K2	PO1
ii	Which of the following tissues is avascular? a. Adipose b. Skeletal muscle c. Cardiac muscle d. Compact bone	1	CO1 CO3	K1, K2	PO1
iii	In which type of signalling does the signal molecule act on the same cell that secreted it? a. Endocrine b. Paracrine c. Autocrine d. Synaptic	1	CO1 CO3	K1, K2	PO1
iv	Which part of the brain acts as the body thermostat and controls body temperature? a. Hypothalamus b. Thalamus c. Cerebellum d. Pons	1	CO2	K1, K2	PO2
v	Which bone is known as the 'collarbone'? a. Scapula b. Sternum c. Clavicle d. Humerus	1	CO1 CO5	K1, K2	PO1
vi	Which type of joint is found in the shoulder and hip region? a. Hinge joint b. Ball and socket joint c. Pivot joint d. Gliding joint	1	CO1 CO5	K1, K2	PO1

vii	Which type of muscle is voluntary and striated? a. Cardiac muscle b. Smooth muscle c. Skeletal muscle d. None of these	1	CO1 CO5	K1, K2	PO1
viii	During muscle contraction, calcium ions bind to: a. Myosin b. Actin c. Troponin d. Tropomyosin	1	CO1 CO3	K1, K2	PO1
ix	Lymph nodes are rich in: a. RBCs b. Platelets c. Lymphocytes d. Plasma proteins	1	CO1 CO3	K1, K2	PO1
x	Which of the following is not a lymphatic organ? a. Thymus b. Spleen c. Liver d. Tonsils	1	CO1 CO3	K1, K2	PO1
xi	Which of the following is not a function of blood? a. Transport of nutrients b. Maintenance of pH c. Production of hormones d. Defence mechanism	1	CO2 CO3	K1, K2	PO1
xii	The average volume of blood in an adult human is: a. 2–3 litres b. 3–4 litres c. 5–6 litres d. 7–8 litres	1	CO2 CO3	K1, K2	PO1
xiii	The condition in which lens becomes opaque leading to blindness is called: a. Glaucoma b. Myopia c. Cataract d. Hypermetropia	1	CO1 CO3	K1, K2	PO1
xiv	The auditory receptor is located in the: a. Tympanum b. Organ of Corti c. Oval window d. Semi-circular canal	1	CO1 CO3	K1, K2	PO1
xv	The sensory receptors for smell are located in the: a. Nasal septum b. Olfactory epithelium c. Soft palate d. Frontal sinus	1	CO1 CO3	K1, K2	PO1
xvi	Inflammation of the middle ear is called: a. Otitis externa b. Otitis media c. Myopia d. Tinnitus	1	CO1 CO3	K1, K3	PO1
xvii	The human heart is located in the: a. Abdominal cavity b. Thoracic cavity c. Cranial cavity d. Pelvic cavity	1	CO1 CO3	K2, K2	PO1
xvii i	The duration of one complete cardiac cycle is approximately: a. 0.4 sec b. 0.6 sec c. 0.8 sec d. 1.0 sec	1	CO1 CO3	K1, K2	PO1
xix	Which instrument is used to record the electrical activity of the heart? a. ECG b. EEG c. EMG d. Stethoscope	1	CO1 CO3	K1, K2	PO1
xx	Coronary arteries supply blood to the: a. Brain b. Lungs c. Heart muscle (myocardium) d. Kidneys	1	CO1 CO3	K1, K2	PO1

Section B (Answer any TWO out of THREE) – 20 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	What are the six levels of structural organization of the human body? Give one example showing how structure is related to function.	10	CO1 CO2	K1 K2 K4 K5 K6	PO1
3	Write in detail the function of Central nervous system, focusing on the brain and spinal cord.	10	CO1 CO4	K1 K2	PO1
4	Explain the regulation of blood pressure and pulse and write short notes on common disorders of the heart such as hypertension, myocardial infarction, and angina pectoris.	10	CO1 CO4	K1 K2	PO1

Section C (Answer any SEVEN out of NINE) – 35Marks
(Each question Carry 05 Marks)

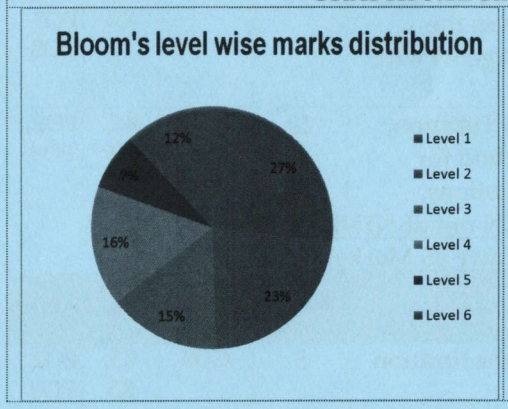
Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Discuss the structure and functions of epithelial tissue with suitable examples.	5	CO1 CO3	K2, K4	PO1
6	How are joints classified according to structure and function? Explain.	5	CO3 CO5	K1, K6	PO1
7	Discuss the classification of bones and illustrate with suitable examples.	5	CO3 CO5	K3, K5	PO1
8	Describe the composition and functions of blood in detail.	5	CO2	K1, K6	PO1
9	Describe the steps involved in blood coagulation.	5	CO2	K1, K2	PO1
10	Differentiate between the somatic and autonomic nervous systems.	5	CO1 CO5	K3, K6	PO1
11	Enumerate the functions of the parasympathetic nervous system.	5	CO1 CO5	K1, K3, K4	PO1
12	What is the role of SA node and AV node in heart regulation?	5	CO1 CO3 CO5	K6, K2. K3,	PO1

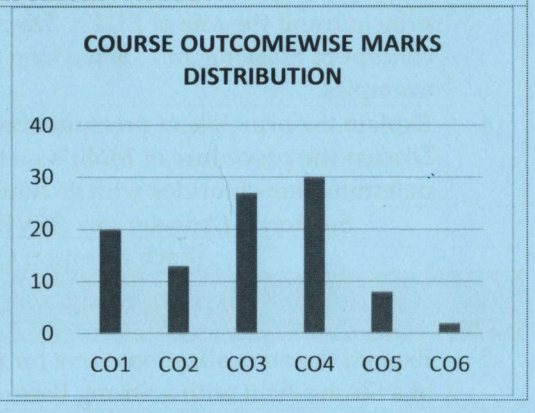
9	Write the rules for determining Significant Figures with suitable examples.	5	CO1	K1, K2	PO1, PO5
10	Describe the preparation and standardization of 0.1N Hydrochloric Acid (HCl)	5	CO3	K3, K4	PO2, PO3
11	Differentiate Primary Standard and Secondary Standard with suitable example.	5	CO1	K1, K2	PO1
12	Explain the principle and steps involved in Gravimetric Analysis.	5	CO1	K1, K2	PO2, PO3
13	Write the difference between Iodometry and Iodimetry.	5	CO5	K1, K2	PO2

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

Course Outcomes	CO1	Understand the ideas with the fundamental of analytical chemistry
	CO2	Remember the sources of mistakes and errors in analysis and their minimizing techniques
	CO3	Apply the fundamentals of volumetric analytical skills.
	CO4	Understand the fundamentals and mechanism of precipitation, and complexometric titration
	CO5	Understand the fundamentals and types of redox titration
	CO6	Understand the basic knowledge in the principles of electrochemical analytical techniques

GRAPHICAL REPRESENTATION





ARKA JAIN University
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[19-01-2026]
END SEM EXAMINATION
School of Health & Allied Sciences

Program	**Bachelor of Pharmacy**		
Subject Name	**Pharmaceutical Analysis I**	**Session**	**Odd, 2025-26**
Semester	**I**	**Year**	**Jan, 2026**

Time: 3 Hour
Max. Marks : **75**

- Start writing from 2nd page onwards; **don't Write on the 1st Page Backside**
- **Answer all Questions of Section A (Compulsory)**
- **Answer Any *Two* out of *Three* of Section B**
- **Answer Any *Seven* out of *Nine* of Section C**
- **Possession of Mobile Phones** or any kind of **Written Material, Arguments with the Invigilator or Discussing with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Papers**.

Knowledge Level (KL)	**K1** : Remembering	**K3** : Applying	**K5** : Evaluating
	K2 : Understanding	**K4** : Analysing	**K6** : Creating

Section A (Each question Carry 01 Mark from Q1-i to xx) – 20 Marks

Q. N 1	QUESTIONS	Marks	COs	KL	PO
i	In the Limit Test for Iron, the purple colour is due to the formation of: a) Ferrous thioglycolate b) Ferric thiocyanate c) Ferrous sulphate d) Ferric chloride	1	CO1	K1, K4	PO1
ii	Which of the following solvents is "Protogenic" in non-aqueous titrations? a) Acetic acid b) Ammonia c) Water d) Pyridine	1	CO3	K1, K3	PO1
iii	How many significant figures are in the number 2.0050? a) 3 b) 4 c) 5 d) 2	1	CO1	K2, K5	PO1
iv	Which electrode is used as a reference electrode in Potentiometry? a) Glass Electrode b) Platinum Electrode c) Saturated Calomel Electrode (SCE) d) Antimony Electrode	1	CO6	K1, K4	PO4
v	According to Lewis theory, an acid is a substance that a) Accepts a proton	1	CO1, CO3	K1, K2	PO2

	b) Donates a proton c) Accepts an electron pair d) Donates an electron pair				
vi	The titrant used in Complexometric titration (EDTA) is a type of: a) Lewis Acid b) Lewis Base c) Bronsted Acid d) Arrhenius Base	1	CO4	K2	PO2
vii	The equivalent weight of H2SO4 is: a) 98 b) 49 c) 24.5 d) 196	1	CO3	K4, K5	PO2, PO3
viii	Which indicator is most suitable for titrating a Strong Acid against a Weak Base (e.g., HCl vs. NH4OH)? a) Phenolphthalein b) Methyl Orange c) Thymol Blue d) Phenol Red	1	CO3	K3, K4	PO3
ix	Which masking agent is used to mask Zinc in the presence of Magnesium? a) Triethanolamine b)Potassium Cyanide c) Thioglycerol d) Ammonium Fluoride	1	CO4	K3, K4	PO2
x	Degree of uncertainty is known as_____. a) Accuracy b) Precision c) Error d) Mean	1	CO2	K1	PO1
xi	If an analyst repeatedly obtains the same result but far from the true value, the results are: a) Accurate but not precise b) Precise but not accurate c) Both accurate and precise d) Neither accurate nor precise	1	CO2	K2	PO5
xii	Which indicator is commonly used in Fajan's method of precipitation titration? a) Ferroin b) Eosin c) Methyl Red d) Mordant Black II	1	CO4	K1, K2	PO2
xiii	The color change of Phenolphthalein in a basic medium is: a) Colorless to Pink b) Pink to Colorless c) Red to Yellow d) Yellow to Red	1	CO3	K1, K2	PO2, PO3
xiv	Which of the following is a Secondary Standard? a) Potassium Hydrogen Phthalate b) Oxalic Acid c) Sodium Hydroxide (NaOH) d) Zinc metal	1	CO1	K1, K2	PO3
xv	Ceric Ammonium Sulphate is a standardized oxidizing agent used in:	1	CO5	K2, K3	PO5
	a) Iodometry b) Cerimetry c) Diazotization d) Argentometry				
xvi	Potassium Chromate is used as an indicator in: a) Volhard's Method b) Mohr's Method c) Fajan's Method d) Gay-Lussac Method	1	CO4	K2, K3	PO2
xvii	At the equivalence point of a titration between a Weak Acid and a Strong Base, the pH will be: a) Exactly 7 b) Less than 7 c) More than 7 d) Zero	1	CO3	K3, K4	PO2
xvii i	Which one always acts as an oxidizing Agent? a) HNO3 c) H202 c) MnO2 d) SO2	1	CO5	K1, K2	PO2
xix	Which instrument is used to detect end Point? a) Potentiometer b) Conductometer c) Both a & b d) None of the above	1	CO6	K2, K3	PO4
xx	The loss of hydrogen atoms by an element is Called a) Hydrogenation b) Reduction c) Oxidation d) Sublimation	1	CO5	K2	PO3

Section B (Answer any TWO out of THREE) – 20 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	What is Error? Write the different types of Error. Discuss briefly about the Systemic error.	10	CO2	K1, K2	PO1
3	What is Complexometric Titration? Explain the principle and the role of EDTA. Discuss the concept of Masking and Demasking agents with examples.	10	CO4	K3, K4	PO2, PO3, PO5
4	Explain the principle of precipitation Titration. Discuss the procedure of Mohr's method for determination chlorides with its limitations.	10	CO4	K2, K5	PO2, PO3

Section C (Answer any SEVEN out of NINE) – 35Marks
(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Explain the neutralization curve for the titration of a Strong Acid with a Strong Base.	5	CO3	K3, K5	PO2, PO3
6	Discuss the different types of solvents used in Non-Aqueous Titration.	5	CO3	K2	PO2
7	Write a note on the Assay of Ammonium Chloride.	5	CO3	K3, K4	PO2, PO3
8	Explain Volhard's method for the determination of chlorides	5	CO4	K3, K4	PO2

ARKA JAIN University, Jharkhand — NAAC GRADE A, ACCREDITED UNIVERSITY			[31-01-2026] END SEM EXAMINATION School of Health & Allied Sciences
Branch	**Bachelor of Pharmacy**	**Program**	**Pharmacy**
Subject Name	**Remedial Biology**	**Session**	**Odd, 2025-26**
Semester	**I**	**Year**	**Jan, 2026**
Time: 1.5 Hour Max. Marks: **35**	• **Answer Any One out of Two of Section A** • **Answer Any Five out of Six of Section B** • **Possession of Mobile Phones** or any kind of **Written Material, Arguments with the Invigilator or Discussing with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Papers**.		
Knowledge Level (KL)	**K1 :** Remembering	**K3 :** Applying	**K5 :** Evaluating
	K2 : Understanding	**K4 :** Analysing	**K6 :** Creating

Section A Answer any One out of Two [1 x 10 = 10 Marks]

Q. No.	QUESTIONS	Marks	COs	KL	PO
1	Explain the anatomy and physiology of the human heart with the help of a labelled diagram.	10	CO2	K1, K6	PO1 PO10
2	Explain the structure of the female reproductive system. Discuss the process of oogenesis in detail.	10	CO4	K1, K6	PO1 PO10

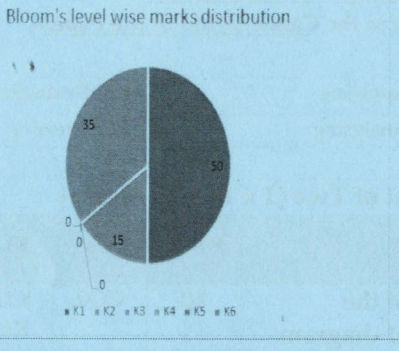
Section B Answer any Five out of Six [5 x 5 = 25 Marks]

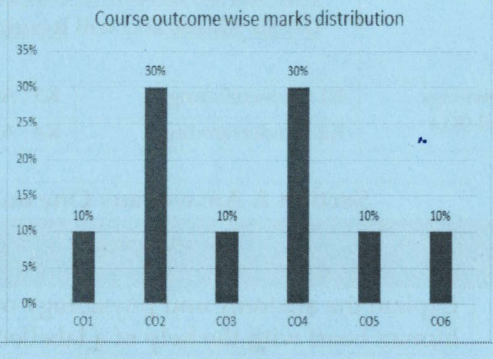
Q. No.	QUESTIONS	Marks	COs	KL	PO
3	Draw a schematic diagram and write a morphological study of the flower.	5	CO2	K1, K6	PO1
4	Describe the process of aerobic respiration in plants.	5	CO5	K1, K2	PO1, PO7
5	Write in details about the five kingdom classifications of organisms.	5	CO1	K1, K2	PO1, PO7
6	Describe the structure of a typical animal cell with a neat labelled diagram.	5	CO6	K1, K6	PO1, PO7
7	Explain the Light reaction and Calvin cycle (dark reaction).	5	CO3	K1, K2	PO1, PO7
8	Explain the functions of the human alimentary canal.	5	CO4	K1, K6	PO1, PO7

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

Course Outcomes	CO1	Understand classification system of the living world.
	CO2	Know the morphology and anatomy of plants and animals
	CO3	Understand the organ system in plant and their physiology
	CO4	Know the organ system in animals and their physiology
	CO5	Know about the nutrition and growth regulators of plant
	CO6	Understand cell biology (Basic Nature of Plant cell and Animal cell)

GRAPHICAL REPRESENTATION





JGi ARKA JAIN University Jharkhand — NAAC GRADE A ACCREDITED UNIVERSITY			[31-01-2026] END SEM EXAMINATION School of Health & Allied Sciences
Branch	**Bachelor of Pharmacy**		
Subject Name	**Remedial Mathematics**	**Session**	**Odd, 2025-26**
Semester	**I**	**Year**	**Jan, 2026**
Time: 1.5 Hour Max. Marks : 35	• **Answer Any One out of Two of Section A** • **Answer Any Five out of Six of Section B** • **Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Papers.**		
Knowledge Level (KL)	**K1** : Remembering	**K3** : Applying	**K5** : Evaluating
	K2 : Understanding	**K4** : Analysing	**K6** : Creating

Section A Answer any One out of Two [1 x 10 = 10 Marks]

Q. No.	QUESTIONS	Marks	COs	KL	PO
1	If $A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$, prove that $A^3 - 6A^2 + 7A + 2 = 0$	10	CO2	K2	PO1, PO10
2	Evaluate: $\lim_{x \to 0} \left(\frac{x}{tanx}\right)$ Evaluate : $\lim_{x \to 1}(3x^2 - 5x + 3)$	10	CO4	K1, K2	PO1, PO10

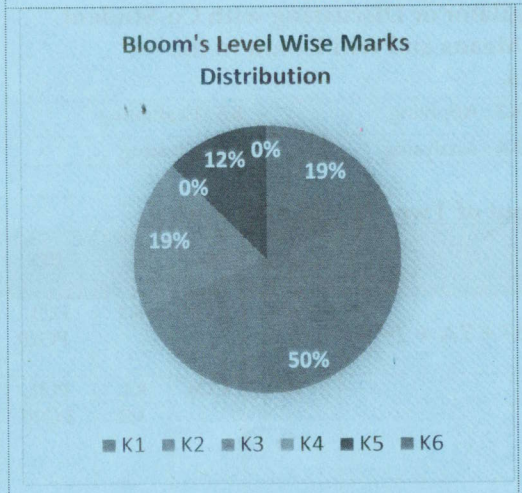
Section B Answer any Five out of Six [5 x 5 = 25 Marks]

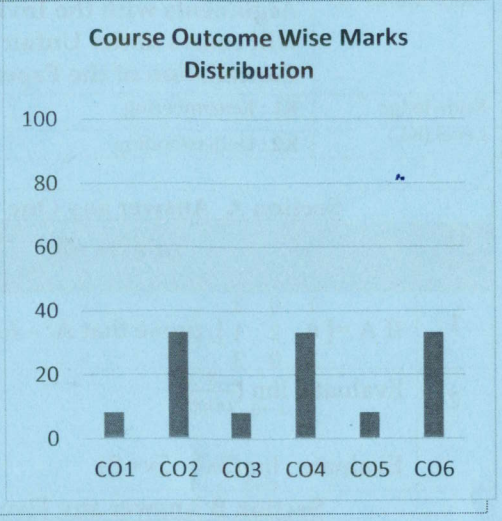
Q. No.	QUESTIONS	Marks	Cos	KL	PO
3	Find the slope (m) of line passing through the points P(-2,3) and Q(2,7).	5	CO3 CO5	K2, K3	PO1
4	Differentiate $6x^4 - 7x^3 + 3x^2 - x + 8$ with respect to x.	5	CO1	K2	PO1, PO7
5	If $A = \begin{bmatrix} 4 & 5 & 6 \\ 2 & 3 & 1 \\ 5 & 7 & 3 \end{bmatrix}, B = \begin{bmatrix} 1 & 0 & 1 \\ 2 & 2 & 1 \\ 3 & 2 & 0 \end{bmatrix}$ then find the value of A – 2B	5	CO2	K3, K5	PO1, PO7
6	Find integrals: $\int(12x^{3/4} - 9x^{5/3})dx$	5	CO4	K2	PO1, PO7
7	Evaluate: $\int xe^x dx$	5	CO6	K3, K5	PO1, PO7
8	Differentiate : Cosx.logx with respect to x.	5	CO4	K1, K2,	PO1, PO7

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

Course Outcomes	CO1	Evaluate and demonstrate the partial fraction, logarithms, functions and limits and continuity.
	CO2	Explain matrices and determination.
	CO3	Explain simple equations using graphs.
	CO4	Evaluate relationship and functions; fundamentals of trigonometry and geometry.
	CO5	Analyze sequences and binomial series.
	CO6	Evaluate calculus and integral calculus

GRAPHICAL REPRESENTATION



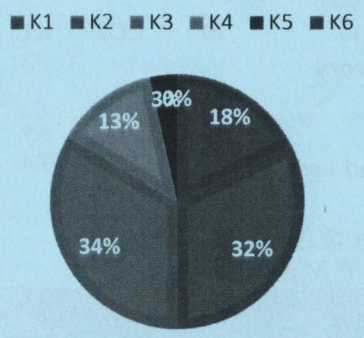


CO- Course Outcomes, **KL**- Knowledge Level, **PO** – Program Outcome

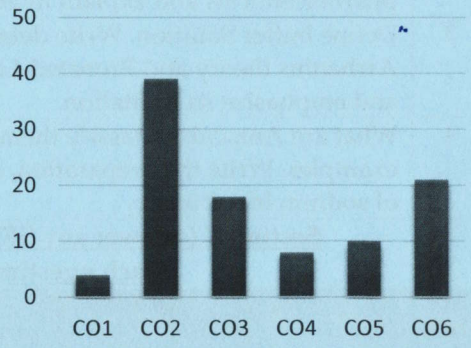
Course Outcomes	CO1	Remember the principles of limit tests.
	CO2	Understand different classes of inorganic pharmaceuticals and their analysis
	CO3	Remember the identification and test for purity of different inorganic pharmaceuticals.
	CO4	Understand the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals
	CO5	Understand the medicinal and radiopharmaceutical importance of inorganic compounds
	CO6	Remember to a variety of inorganic drug classes.

GRAPHICAL REPRESENTATION

Bloom's Levelwise Marks Distribution



Course Outcomewise Marks Distribution



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[27-01-2026]
END SEM EXAMINATION
School of Health & Allied Sciences

Program	**Bachelor of Pharmacy**		
Subject Name	**Pharmaceutical Inorganic Chemistry (Theory)**	**Session**	**Odd, 2025-26**
Semester	**I**	**Year**	**Jan, 2026**
Time: 3 Hour Max. Marks : 75	• Start writing from 2nd page onwards; **don't Write on the 1st Page Backside** • **Answer all Questions of Section A (Compulsory)** • **Answer Any *Two* out of *Three* of Section B** • **Answer Any *Seven* out of *Nine* of Section C** • **Possession of Mobile Phones** or any kind of **Written Material, Arguments with the Invigilator or Discussing with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Papers**.		
Knowledge Level (KL)	**K1 :** Remembering	**K3 :** Applying	**K5 :** Evaluating
	K2 : Understanding	**K4 :** Analysing	**K6 :** Creating

Section A (Each question Carry 01 Mark from Q1-i to xx) – 20 Marks

Q. N 1	QUESTIONS	Marks	COs	KL	PO
i	Limit Test for Heavy Metal is carried to identify and control impurities. a) Mercury b) Cadmium c) Bismuth d) All of the these	1	CO1	K1, K4	PO1
ii	Impurities in pharmaceutical substances can arise from: a) Raw materials b) Storage conditions c) Manufacturing process d) All of the above	1	CO4	K1, K2	PO1, PO2
iii	Which acid-base theory defines acids as electron acceptors? a) Arrhenius b) Lewis c) Bronsted-Lowry d) None of the above	1	CO2	K2, K3	PO1 PO10
iv	The concept of pH was introduced by a) Arrhenius b) Sorensen c) Lewis d) Bronsted	1	CO2	K1	PO1
v	Sodium bicarbonate is an example of which type of antacid? a) Systemic antacid b) Topical antacid c) Both a and b d) None of the above	1	CO2	K1, K2	PO1

vi	Expectorants primarily act on which part of the body? a) Brain b) Lungs c) Stomach d) Liver	1	CO6	K1, K2	PO1
vii	Alum is commonly used as a) Anti-infective b) Astringent c) Protectives d) All of these	1	CO2, CO6	K1, K3	PO1
viii	Hydrogen peroxide is used as a) Antiseptic b) Acidifying agent c) Protective d) Antioxidant	1	CO2, CO6	K1, K3	PO1
ix	Dentifrices are used for-_____. a) Antacid b) Emetics c) Dental product d) Antimicrobial	1	CO2, CO6	K1, K3	PO1
x	Which of the following indicators is commonly used in acid-base titrations? a) Litmus paper b) Bromothymol blue c) Phenolphthalein d) All of the these	1	CO2	K3, K4	PO1
xi	Which of the following is a major intracellular electrolyte? a) Sodium b) Potassium c) Magnesium d) All of the these	1	CO2	K1, K2	PO1
xii	_____is used as a remedy for cyanide poisoning: a) Sodium fluoride b) Sodium iodide c) Silver nitrate d) Sodium thiosulphate	1	CO2, CO6	K1, K3	PO1, PO5
xiii	Sodium Potassium Tartrate is also known as a) Blue vitrol b) Rochelle salt c) Green vitrol d) Red vitrol	1	CO2, CO6	K1, K2	PO1
xiv	Which of the following is NOT a haematinic? a) Folic acid b) Vitamin c) Iron d) Erythropoietin	1	CO2, CO6	K1	PO1, PO5
xv	Which of the following is also known as 'White Vitriol'? a) Calcium carbonate b) Sulfuric acid c) Sodium carbonate d) Zinc Sulphate	1	CO2, CO6	K1	PO1,
xvi	The half-life of radioactive isotope Iodine-131 is: a) 8 hours b) 8 days c) 8 month d) 80 years	1	CO5	K3, K5	PO1, PO10
xvii	Write the application of Se 75 isotope a) To study Bone b)To study Embryo c) To Study Plant d) To study Proteins in life science	1	CO5	K4, K5	PO1, PO7
xviii	The penetrating power of alpha particles is: a) Very high b) Very low c) Equal to beta rays d) Equal to gamma rays	1	CO5	K1, K2	PO1
xix	Ca-45 is commonly used to study: a) Lungs function b) calcium metabolism disorder c) Thyroid function d) Kidney function	1	CO5	K1, K3	PO1 PO7
xx	The "universal antidote" in poisoning cases is? a) Activated Charcoal b) Atropine c) Naloxone d) Flumazenil	1	CO2, CO6	K1, K3	PO1, PO5

Section B (Answer any TWO out of THREE) – 20 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Define impurity. Enlist sources of impurities in pharmaceuticals and explain its effect in brief.	10	CO4	K2	PO1 PO2
3	Define buffer Solution. Write details about Arrhenius theory and Bronsted-Lowry theory and emphasize its limitation.	10	CO2	K2, K3	PO1
4	What are Antacids? Classify them with examples. Write the preparation, assay and uses of sodium bicarbonate.	10	CO2, CO3, CO6	K3, K4	PO1 PO2

Section C (Answer any SEVEN out of NINE) – 35 Marks
(Each question Carry 05 Marks)

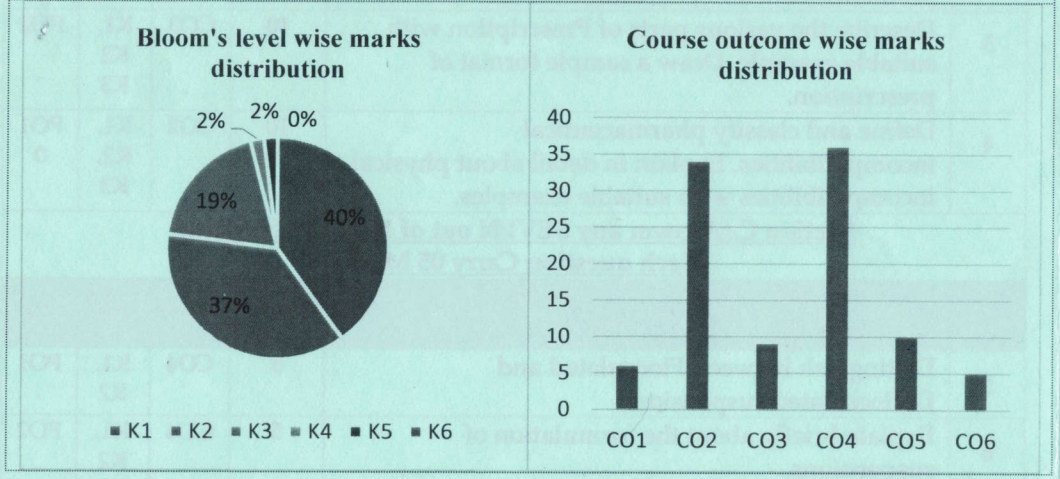
Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Define isotonic solution. Explain methods of adjusting isotonicity?	5	CO2	K1, K2	PO1 PO2
6	Write the details about Boric acid.	5	CO2	K2, K3	PO1 PO5
7	Explain acid base as per Lewis Theory?	5	CO2	K1	PO1
8	Describe the storage condition of radiopharmaceuticals.	5	CO5	K1, K2	PO1 PO6
9	Write the procedure and principle with reactions for limit test for lead.	5	CO1 CO3	K3, K5	PO1 PO2
10	Write the method of preparation assay and use of Copper sulphate.	5	CO2 CO3	K3, K4	PO1 PO2
11	Write a detailed note on radiopharmaceuticals used as diagnostic agent.	5	CO5	K2, K3	PO1 PO5
12	Define Expectorants. Explain the method of preparation and assay of Ammonium chloride.	5	CO2 CO3	K3, K4	PO1 PO2
13	Write detailed note on buffer used in pharmaceutical system.	5	CO2	K2, K3	PO1 PO8

11	Define Powders and classify them with suitable examples.	5	CO2 CO4	K1, K2	PO1
12	List the ideal characteristics of a good suppository base.	5	CO5	K1, K2	PO2
13	Explain the mechanism of drug penetration through the skin.	5	CO6	K1, K2	PO2

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

Course Outcomes	CO1	Remember the history of profession of pharmacy
	CO2	Understand the basics of different dosage forms, pharmaceutical incompatibilities and pharmaceutical calculations
	CO3	Apply the professional way of handling the prescription
	CO4	Apply the knowledge of various conventional dosage forms
	CO5	Understand various pharmaceutical incompatibilities and formulation techniques of suppositories
	CO6	Apply basic methodology to prepare various conventional semisolid dosage forms

GRAPHICAL REPRESENTATION



ARKA JAIN University
Jharkhand

NAAC GRADE A
ACCREDITED UNIVERSITY

[21-01-2026]
END SEM EXAMINATION
School of Health & Allied Sciences

Program	**Bachelor of Pharmacy**		
Subject Name	**Pharmaceutics I (Theory)**	**Session**	**Odd, 2025-26**
Semester	**I**	**Year**	**Jan, 2026**

Time: 3 Hour
Max. Marks : **75**

- Start writing from 2nd page onwards; **don't Write on the 1st Page Backside**
- **Answer all Questions of Section A (Compulsory)**
- **Answer Any *Two* out of *Three* of Section B**
- **Answer Any *Seven* out of *Nine* of Section C**
- **Possession of Mobile Phones** or any kind of **Written Material, Arguments with the Invigilator or Discussing with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Papers.**

Knowledge Level (KL)	**K1 :** Remembering	**K3 :** Applying	**K5 :** Evaluating
	K2 : Understanding	**K4 :** Analysing	**K6 :** Creating

Section A (Each question Carry 01 Mark from Q1-i to xx) – 20 Marks

Q. N 1	QUESTIONS	Marks	COs	KL	PO
i	The zeta potential affects: A. Colour of suspension B. Sedimentation rate and flocculation C. Odor D. pH	1	CO2 CO4	K2	PO1 PO2
ii	The conductivity test distinguishes emulsions because: A.O/W emulsions conduct electricity B. W/O emulsions conduct electricity C. Both conducts equally D. None conduct electricity	1	CO4	K2	PO2
iii	The creaming of an emulsion refers to: A. Upward or downward movement of dispersed droplets B. Coalescence of droplets C. Formation of hard sediment D. Formation of foam	1	CO4	K2	PO1
iv	Elixirs are: A. Sweetened hydroalcoholic solutions B. Concentrated sugar solutions C. Oily suspensions	1	CO2	K1	PO1

	D. Semi-solid emulsions				
v	The concentration of sucrose in a simple syrup IP is about: A. 20% w/v B. 66.7% v/v C. 66.7% w/w D. 80% v/v	1	CO2	K1	PO1
vi	Process of deposition of smaller particles onto larger ones in suspension is known as: A. Ostwald Ripening B. Coalescence C. Sedimentation D. Creaming	1	CO2 CO4	K1, K2	PO2
vii	Effervescent powders release which gas when dissolved in water? A. Oxygen B. Carbon dioxide C. Nitrogen D. Sulphur dioxide	1	CO2 CO4	K1, K2	PO1
viii	The sixth edition of IP was published in? A. 1996 B. 2000 C. 2007 D. 2010	1	CO1	K1	PO1
ix	Which one of the following is not an aqueous monophasic liquid dosage form A. Linctus B. Liniments C. Tincture D. Elixir	1	CO2	K1, K2	PO1
x	The abbreviation of Latin word Rx is? A. You take B. To make C. To sold D. To use	1	CO1	K1	PO1
xi	Cold cream is a: A. W/O cream B. O/W cream C. Gel D. Paste	1	CO4	K1	PO2
xii	Caking of a suspension is a: A. Physical incompatibility B. Therapeutic incompatibility C. Chemical incompatibility D. Microbial spoilage	1	CO2 CO4	K1, K2	PO1
xiii	Hand Moulding is commonly used for preparing: A. Tablets B. Suppositories C. Syrups D. Suspensions	1	CO5	K1, K2	PO2
xiv	Vaginal suppositories are also called: A. Bougies B. Pessaries C. Inserts D. Rods	1	CO5	K1	PO1
xv	A fatty base example: A. PEG 6000 B. Glycerinated gelatine C. Cocoa butter D. Tragacanth	1	CO5	K1	PO2
xvi	Suppositories melt, soften, or dissolve at: A. Room temperature B. Body temperature C. Boiling point D. Flash point	1	CO5	K1, K2	PO2
xvii	Displacement value refers to: A. Displacement of drug B. Displacement of base by drug C. Volume displaced in mould D. Weight change of mould	1	CO5	K1, K2	PO2
xvii i	Theobroma Oil is also known as: A. PEG B. Cocoa Butter C. Glycerinated gelatine D. Stearate base	1	CO5	K1	PO2
xix	Liniments are applied to: A. Skin without rubbing B. Skin by rubbing C. Mouth D. Rectum		CO2	K1	PO1
xx	An evaluation test for gels is: A. Friability B. Spreadability C. Hardness D. Disintegration	1	CO6	K1	PO1

Section B (Answer any TWO out of THREE) – 20 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Define Emulsion. Explain various identification tests for emulsion. Discuss the different stability problems related to emulsions.	10	CO4	K1, K2, K3	PO1
3	Describe the various parts of Prescription with suitable example. Draw a sample format of prescription.	10	CO3	K1, K2 K3	PO2
4	Define and classify pharmaceutical incompatibilities. Explain in detail about physical incompatibilities with suitable examples.	10	CO2	K1, K2, K3	PO1 0

Section C (Answer any SEVEN out of NINE) – 35Marks
(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Distinguish between Flocculated and Deflocculated suspension.	5	CO4	K1, K2	PO1
6	Explain briefly about the formulation of suspensions.	5	CO4	K1, K2	PO2
7	Differentiate between: - (i) Mouth washes and gargles (ii) Lotion and Liniment	5	CO2 CO4	K1, K2	PO1
8	Explain different solubility enhancement technique used in the improvement of solubilization of drugs.	5	CO2 CO4	K1, K2	PO1 PO2
9	What is pharmacopoeia? Add a note on Indian Pharmacopoeia.	5	CO1	K1	PO2
10	Define posology. Discuss the various factor affecting Posology.	5	CO2	K2, K3	PO2

JGi ARKA JAIN University Jharkhand — NAAC GRADE A ACCREDITED UNIVERSITY			[29-01-2026] END SEM EXAMINATION School of Health & Allied Sciences
Program	Bachelor of Pharmacy		
Subject Name	Communication Skills	Session	Odd, 2025-26
Semester	I	Year	Jan, 2026
Time: 1.5 Hour Max. Marks : 35	• Answer Any One out of Two of Section A • Answer Any Five out of Six of Section B • Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Papers.		
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

Section A Answer any One out of Two [1 x 10 = 10 Marks]

Q. No.	QUESTIONS	Marks	COs	KL	PO
1	Explain the importance of effective communication for health-care professionals. Discuss the role of verbal, non-verbal, and written communication in patient care and safety.	10	CO2	K2, K3	PO1, PO5
2	Write a letter to your Dean for an educational trip to a Pharma Industry.	10	CO3	K1, K5	PO1, PO4

Section B Answer any Five out of Six [5 x 5 = 25 Marks]

Q. No.	QUESTIONS	Marks	COs	KL	PO
3	Explain the communication process in detail and discuss the importance of effective communication in academic and professional life.	5	CO2	K1, K3	PO1
4	Discuss the different perspectives of communication (psychological, social, cultural, and organizational).	5	CO1	K1, K2	PO1, PO7
5	Explain the barriers to effective communication. Suggest suitable measures to overcome these barriers.	5	CO2	K1, K3	PO1, PO6
6	What is an interview? Discuss the different types of interviews and explain the key skills required for facing an interview successfully.	5	CO4	K1, K3	PO1, PO3
7	Explain the concept of Group Discussion (GD). Discuss its objectives and importance in the selection	5	CO4	K1, K4	PO1, PO4

	process.				
8	Describe the essential skills for effective participation in a Group Discussion. How can one perform well and make a positive impression in a GD?	5	CO4	K1, K3	PO1, PO5

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

Course Outcomes	CO1	To understand the behavioural needs for a Pharmacist to function effectively in the areas of pharmaceutical operation
	CO2	To Communicate effectively (Verbal and Non Verbal)
	CO3	To Effectively manage the team as a team player
	CO4	To develop interview skills
	CO5	To develop Leadership qualities and essentials

GRAPHICAL REPRESENTATION