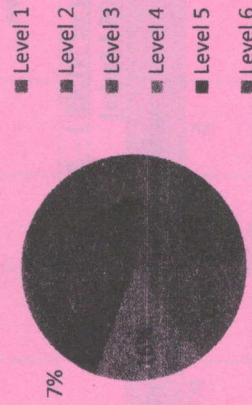


12	Describe the menstruation process in detail.	5	CO6	K6 K2 K3	PO2
13	Write short notes on RAAS.	5	CO3	K1 K3	PO2

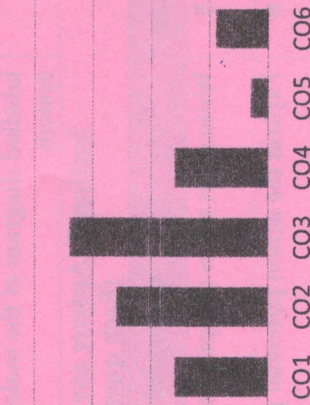
CO- Course Outcomes,		KL- Knowledge Level,	PO – Program Outcome
CO1	Understand the gross morphology, structure and functions of various organs of the human body.		
CO2	Describe the various homeostatic mechanisms and their imbalances.		
CO3	Identify the various tissues and organs of different systems of human body.		
CO4	Perform the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume.		
CO5	Appreciate coordinated working pattern of different organs of each system		
CO6	Appreciate the interlinked mechanisms in the maintenance of normal functioning (Homeostasis) of human body.		

GRAPHICAL REPRESENTATION

Bloom's level wise marks distribution



Course outcome wise marks distribution



ARKA JAIN University
 Jharkhand

NAAC
 GRADE A
 ACCREDITED UNIVERSITY

[20-06-2025]
END SEM EXAMINATION
 School of Allied Health
 Science

Program	Bachelor of Pharmacy		
Subject Name	Human Anatomy and Physiology-II		
Semester	II	Session	Even, 2024-2025
		Year	June, 2025
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 <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers</u> .		
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing	K5 : Evaluating K6 : Creating

Section A (Each question Carry 01 Mark from Q1-i to xx) – 20 Marks					
Q. N I	QUESTIONS	Marks	COs	KL	PO
i	Which of the following nerve is home to the sensory fibres involved in hearing? a) Cranial nerve-II b) Cranial nerve-III c) Cranial nerve-VII d) Cranial nerve-VIII	1	CO5	K2 K1	PO9
ii	The olfactory region is located in the a) Frontal lobe b) Parietal lobe c) Temporal lobe d) Occipital lobe	1	CO3	K2 K1	PO1
iii	The head part of sperm contains a) Hydrolytic enzymes b) DNA c) Both A & B d) None of These	1	CO5	K5 K1	PO2
iv	Leydig cells are found a) In the wall of the epididymis b) Within seminal vesicles c) Within the seminiferous tubules d) In the spaces between adjacent seminiferous tubules	1	CO2	K5	PO2
v	Which of these is produced and stored in the liver cells? a) Galactose b) Glycogen c) Arabinose d) Lactose	1	CO3	K2 K1	PO1

vi	When swallowing, _____ keeps food from getting into the glottis. a) Epiglottis c) Larynx	1	CO1	K1	PO2
vii	The two-layer membrane that covers the lungs is known as: a) Respiratory-membrane b) Pleura c) Intercostal muscles d) Diaphragm	1	CO4	K1 K3	PO1
viii	Transitional epithelium is found in _____ a) Heart c) Urinary bladder	1	CO2	K1 K4	PO1
ix	The hair-pin shaped part of nephron is known as a) Glomerulus b) PCT c) Loop of Henle d) DCT	1	CO4	K2 K3	PO1 0
x	The largest endocrine gland is known as a) Pituitary c) Para-thyroid	1	CO4	K2 K4	PO1
xi	Smallest gland which helps in Circadian rhythm a) Pituitary c) Pineal	1	CO3	K1 K2	PO2
xii	Which type of gland pancreas is a) Endocrine c) Both A & B	1	CO3	K1 K2	PO1
xiii	Endocrine glands include all of the following, with the exception of: a) Sweat gland c) Thyroid gland	1	CO1	K1 K2	PO2
xiv	The cone-shaped portion of fallopian tube is known as a) Infundibulum c) Fimbri	1	CO3	K1 K2	PO1
xv	The nongerminal cells found within seminiferous tubules are known as a) Interstitial cells c) Sertoli cells	1	CO2	K1 K2	PO2
xvi	Which enzyme in the human body initiates the breakdown of proteins? a) Trypsin c) Pepsin	1	CO2	K2 K3	PO2
xvii	Which of the following brain region regulates appetite and body temperature? a) Hypothalamus b) Thalamus	1	CO2	K2 K3	PO2

xviii	c) Cerebellum d) pons	1	CO1 CO3	K4 K5	PO2
xix	Which portion of the human digestive system is: a) Oesophagus c) Large intestine Upper part of stomach is known as a) Cardia c) Body	1	CO4	K4 K5	PO1
xx	Which region is known as sensory cortex a) Frontal lobe c) Temporal lobe	1	CO4	K4 K5	PO1
Section B (Answer any TWO out of THREE) – 20 Marks (Each question Carry 10 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Draw a clear, labelled brain diagram and give a brief explanation of the central nervous system.	10	CO2	K1 K2 K4	PO1
3	Give a detailed explanation of the stomach's acid production physiology and the alimentary canal.	10	CO3	K1 K2 K3 K6	PO2
4	Write a concise explanation of the physiology of Spermatogenesis and draw a clear, labelled diagram of the male reproductive system.	10	CO4	K2 K5 K1	PO1 0
Section C (Answer any SEVEN out of NINE) – 35 Marks (Each question Carry 05 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Write short notes on Spinal cord.	5	CO1	K2 K4	PO1
6	Explain the action potential process in detail.	5	CO1 CO2	K1 K6	PO2
7	Write brief notes about pepsin's function in the digestion of proteins.	5	CO2	K3 K5	PO1
8	Briefly explain the gall bladder and pancreas.	5	CO3	K1 K6	PO2
9	Briefly describe the physiology of breathing.	5	CO3 CO2	K1 K2	PO2
10	Explain the location, composition, and role of the Pituitary gland.	5	CO3	K3 K6	PO4
11	Describe the components of the Female reproductive system	5	CO3	K1 K3 K4	PO7

 ARKA JAIN University Jharkhand				[03-07-2025] END SEM EXAMINATION School of Allied Health Science	
Program	Bachelor of Pharmacy				
Subject Name	Environmental Sciences - Theory		Session	Even, 2024-2025	
Semester	II		Year	June, 2025	
Time: 2 Hour Max. Marks : 50	• Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</u> • Answer Any TWO out of THREE of Section A • Answer Any SIX out of EIGHT of Section B • Possession of Mobile Phones or any kind of Written Material, <u>Arguments with the Invigilator or Discussing with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Papers.</u>				
Knowledge Level (KL)	K1 : Remembering		K3 : Applying		K5 : Evaluating
	K2 : Understanding		K4 : Analysing		K6 : Creating

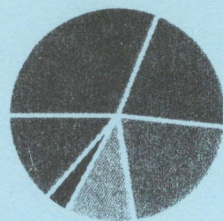
Section A : Long Answer (Answer any TWO out of THREE) - 20 Marks					
Each question carry 10 marks					
Q. No.	QUESTIONS	Marks	COs	KL	PO
1	Explain the key characteristics, structural components, and functions of desert ecosystems.	10	CO1	K1	PO7
2	What is Water Pollution? Describe Wastewater Management.	10	CO5	K1 K2 K3 K6	PO4
3	What are Natural Resources? What are the major types of Land Degradation, and how can it be prevented?	10	CO2 CO3	K2 K3 K4 K6	PO5 PO7
Section B: Short Answer (Answer any SIX out of EIGHT) - 30 Marks					
(Each question Carry 5 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
4	What are the Man-made Sources for Air Pollution?	05	CO3	K1 K2	PO5
5	Describe the construction and operation of Bag Filter.	05	CO5	K3	PO5
6	What is meant by Stratification?	05	CO1	K1	PO7
7	Discuss Hydrological Cycle.	05	CO6	K2 K4	PO4

8	Elaborate with diagram and relationship the Food chains	05	CO1	K1	PO7
9	What are the various methods used for water conservation and management?	05	CO1	K1 K2 K3	PO7
10	Explain the structural components of an ecosystem.	05	CO2	K1	PO7
11	Why is environmental studies considered a multidisciplinary field?	05	CO1, CO 6	K5	PO4

CO- Course Outcomes,	KL- Knowledge Level,	PO - Program Outcome
CO1	Create the awareness about environmental problems among learners.	
CO2	Impart basic knowledge about the environment and its allied problems.	
CO3	Develop an attitude of concern for the environment.	
CO4	Motivate learner to participate in environment protection and environment improvement.	
CO5	Acquire skills to help the concerned individuals in identifying and solving environmental problems.	
CO6	Strive to attain harmony with Nature.	

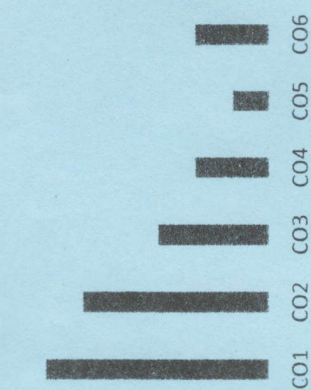
GRAPICAL REPRESENTATION

Bloom's Level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course Outcome Wise Mark's Distribution



	ARKA JAIN University Jharkhand	NAAC GRADE ACCREDITED UNIVERSITY	END SEM EXAMINATION School of Allied Health Science
Program	Bachelor of Pharmacy		
Subject Name	Computer Applications in Pharmacy – Theory	Session	Even, 2024-2025
Semester	II	Year	June, 2025
Time: 2 Hour Max. Marks : 50	• Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</u> • Answer Any TWO out of THREE of Section A • Answer Any SIX out of EIGHT of Section B • Possession of Mobile Phones or any kind of Written Material, <u>Arguments with the Invigilator or Discussing with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Papers.</u>		
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

Section A : Long Answer (Answer any TWO out of THREE) – 20 Marks				
Each question carry 10 marks				
Q. No.	QUESTIONS	Marks	COs	KL
1	What is Chromatographic Data System (CDS)? Explain the basic feature of CDS. What are the type of CDS and importance of CDS in Pharma industry.	10	CO1	K4
2	Explain the use of TIMS and what are the difference between TIMS and LIMS	10	CO6	K4
3	Represent the flow of data in a library book issuance system at different levels (L-0, L-1, L-2) of detail, from an overview to a more detailed breakdown	10	CO2	K2, K3
Section B: Short Answer (Answer any SIX out of EIGHT) – 30 Marks				
(Each question Carry 5 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
4	How bioinformatics Helps in Vaccine Discovery.	05	CO2	K3
5	What is a questionnaire? Explain the basic rules for constructing questionnaire items.	05	CO3	K2
6	List the steps involved in the Bioinformatics Data Flow Life Cycle.	05	CO6	K2
7	Explain the process of converting a decimal number to a binary number with an example.	05	CO6	K4

8	What is the need of XML?	05	CO6	K2
9	Describe in detail the Laboratory Information Management System (LIMS). Explain its hardware and software architecture with the help of a neatly labelled diagram.	05	CO6	K1
10	What is QSAR? Discuss the Hansch equation used in QSAR.	05	CO1	K4
11	Explain the significance of each parameter involved in Hansch equation with the example of Ciprofloxacin.	05	CO1	K4

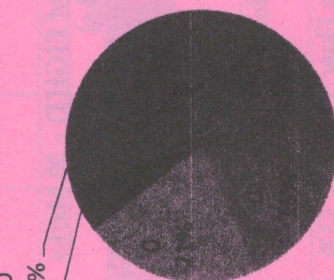
CO- Course Outcomes, KL- Knowledge Level, PO - Program Outcome

Course Outcomes	CO1	Apply the knowledge of mathematics and computing fundamentals to pharmaceutical applications for any given requirement
	CO2	Discuss about computers (I/O devices), binary conversion, applications of computers in pharmacy.
	CO3	Describe Concept of common languages in computers, algorithm flow chart, solution of problems based on biostatistics and other simple problems of pharmaceutical interest.
	CO4	Explain MS Word, MS Excel, MS Power Point.
	CO5	Explain Concept of ISIS, RASMOL, CHEMSKETCH
	CO6	Know the web-based tools for pharmacy practice. Apply the knowledge to design and develop digital tools for pharmaceutical applications.

GRAPHICAL REPRESENTATION

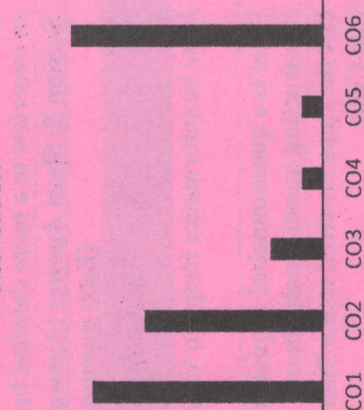
Bloom's Level wise Marks Distribution

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Course outcome wise marks distribution

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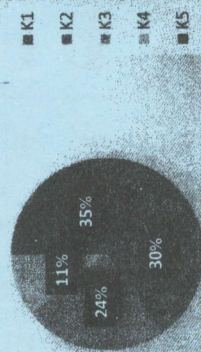
10	Give brief discussion about chemical reaction of aldehyde.	5	CO2 CO3	K1 K2 K3	PO1
11	Describe the structure and uses of Cinnamaldehyde, Vanilline & Benzyl alcohol.	5	CO1 CO4	K1 K2	PO1
12	Give brief discussion about halogenation reaction and define its mechanism.	5	CO1 CO4	K1 K2	PO2
13	Describe the structure and uses of Methanol, Citric acid & Acetylsalicylic acid.	5	CO2 CO3	K1 K2 K3	PO2

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

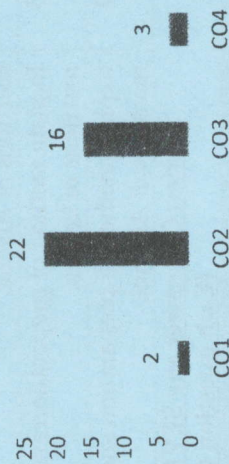
Course Outcomes	CO1	Elucidate the structure, name and the type of isomerism of the organic compound
	CO2	Understand the reaction, name the reaction and orientation of reactions
	CO3	Understand the Account for reactivity/stability of compounds
	CO4	Identify/confirm the identification of organic compound

GRAPHICAL REPRESENTATION

Bloom's level wise marks distribution



Course outcome wise marks distribution



Program	Bachelor of Pharmacy	Session	Even, 2024-2025
Subject Name	Pharmaceutical Organic Chemistry I	Year	June, 2025
Semester	II		
Time: 3 Hour Max. Marks : 75	- Start writing from 2nd page onwards; <u>don't</u> 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 <u>Written Material</u>, Arguments with the Invigilator or <u>Discussing</u> with Co-Student will comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers</u>.		
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing	K5 : Evaluating K6 : Creating

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

Q. N I	QUESTIONS	Marks	COs	KL	PO
i	Propene and cyclopropane are example of which isomer? a) Cis-trans b) Tautomerism c) Ring d) Metamerism	1	CO1	K1	PO1
ii	Which term used for the product of Diel-Alder reaction? a) Diene b) Dienophile c) Adduct d) Product	1	CO2	K2 K1	PO1
iii	Which rule States the more substituted alkene is the major product? a) Saytzeff's rule b) Anti- Markovnikov's rule c) Markovnikov's rule d) Fajan's rule	1	CO2	K4 K1 K2	PO2
iv	What is the other name of Anti-Markovnikov's rule? a) Oxide effect b) Markovnikov's rule c) Anion rule d) Peroxide effect	1	CO2	K4 K1 K2	PO2
v	SN ¹ reaction is a _____ step reaction. a) Three step b) Two step c) Multistep d) One step	1	CO3	K2 K1	PO1

vi	What stands for 2 in E ² reaction? a) Bimolecular b) Unimolecular c) Trimolecular d) One step	1	CO2	K1	PO2
vii	SN ² reaction is a _____ step reaction. i) Three step ii) Two step iii) Multistep iv) One step	1	CO2	K1K3	PO1
viii	Which catalyst used for conversion of alkene to Benzene? a) Pd/BaSO ₄ b) Cr ₂ O ₃ -Al ₂ O ₃ c) FeCl ₃ d) Br ₂ /H ₂ O	1	CO2	K1 K4 K3	PO1
ix	In which name reaction conversion of alkyl bromide to alkyl fluoride occur? a) Finkelstein reaction b) Rosenmund reaction c) Swarts reaction d) Wurtz reaction	1	CO2	K2 K3	PO1
x	In which name reaction conversion of acid chloride to aldehyde occur? a) Finkelstein reaction b) Rosenmund reaction c) Swarts reaction d) Wurtz reaction	1	CO2	K2 K4 K1 K3	PO1
xi	Which effect increase the Acidic properties of carboxylic acid? a) +I b) -I c) +M d) -F	1	CO3	K1 K3	PO2
xii	Which rule states the -ve part of unsymmetrical reagent will be attached to less hydrogen bonded carbon? a) Saytzeff's rule b) Anti-Markovnikov's rule c) Markovnikov's rule d) Fajan's rule	1	CO3	K1 K2 K3	PO1
xiii	What stands for 1 in E ¹ reaction? a) Bimolecular b) Unimolecular c) Trimolecular d) One step	1	CO2	K1	PO2
xiv	In Halogenation reaction which intermediated formed? a) Free radical b) Carbocation c) Electrophile d) Carboanion	1	CO3	K1 K2	PO1
xv	Halogenation reaction is which type of reaction? a) Addition b) Cyclization c) Elimination d) Substitution	1	CO2	K1 K2	PO2
xvi	Nucleophile possess which charge? a) +Ve b) Neutral c) -Ve d) None of the above	1	CO3	K2 K3	PO2

xvii	Which compound undergoes Fehling's test? a) Alkane b) Aldehyde c) Carboxylic acid d) Ketone	1	CO2	K1 K2 K3	PO2
xviii	Which type of alkyl halides undergo E ² reaction? a) Primary b) Secondary c) Tertiary d) Quaternary	1	CO2	K1 K2 K3	PO2
xix	What is the molecular formula of Benzaldehyde? a) C ₆ H ₅ CHO b) C ₆ H ₅ COCl c) C ₆ H ₅ OH d) C ₆ H ₅ COCH ₃	1	CO4	K1	PO1
xx	Which compound undergoes Ozonolysis reaction? a) Alkane b) Aldehyde c) Carboxylic acid d) Alkene	1	CO2	K1 K2 K3	PO1

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Explain method of preparation and chemical reactions of Alkene.	10	CO2 CO3	K1 K2 K3	PO1
3	Explain method of preparation and chemical reactions of ketone.	10	CO2 CO3	K1 K2 K3	PO2
4	Explain method of preparation and chemical reactions of Alcohol.	10	CO2 CO3	K1 K2 K3	PO1

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Give brief discussion about E ² reaction and its mechanism.	5	CO2 CO3	K1 K2 K3 K4	PO1
6	Give brief discussion about anti-Markovnikov's rule and explain its mechanism.	5	CO2 CO3	K1 K2 K3 K4	PO2
7	Give brief discussion about Aldol condensation reaction with example and explain its mechanism.	5	CO2 CO3	K1 K2 K3 K4	PO1
8	Give brief discussion about SN ² reaction and its mechanism.	5	CO2 CO3	K1 K2 K3 K4	PO2
9	Give brief discussion about basic property of aliphatic amine, explain the electronic effect on basicity of aliphatic amine.	5	CO2 CO3	K1 K2 K3 K4	PO2

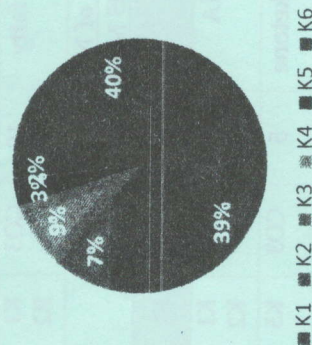
12	Explain jaundice. Describe its types, causes, and clinical significance.	5	CO4	K3 K4	PO1
13	Write a short note on nucleic acids.	5	CO5	K1	PO1 PO2

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

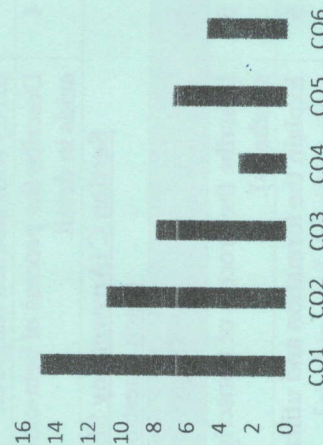
Course Outcomes	CO1	Acquire knowledge about chemistry and biological importance of biological macromolecules and biochemical energetic.
	CO2	Understand the metabolism of carbohydrate in physiological and pathological conditions and biological oxidation of nutrient molecules.
	CO3	Understand the metabolism of lipids in physiological and pathological conditions.
	CO4	Understand the metabolism of proteins in physiological and pathological conditions
	CO5	Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.
	CO6	Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.

GRAPHICAL REPRESENTATION

BLOOM'S LEVEL WISE MARK DISTRIBUTION



COURSE OUTCOME WISE MARK DISTRIBUTION



Program	Bachelor of Pharmacy		
Subject Name	Biochemistry	Session	Even, 2024-2025
Semester	II	Year	June, 2025
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 <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers</u>.		
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing	K5 : Evaluating K6 : Creating

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

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	Which of the following is not a carbohydrate? a. Glucose b. Fructose c. Phospholipid d. Galactose	1	CO1 CO2	K1 K2	PO2
ii	What are the basic building blocks of most lipids? a. Monosaccharides b. Nucleotides c. Fatty acids and glycerol d. Amino acids	1	CO1 CO3	K1 K4	PO1
iii	Which type of fatty acid contains no double bonds between carbon atoms? a. Monounsaturated b. Polyunsaturated c. None of the above d. Saturated	1	CO1 CO3	K1 K4	PO1 PO2
iv	Which of the following enzyme catalyzes the first step of glycolysis? a. Hexokinase b. Pyruvate kinase c. Glucokinase d. Phosphofructokinase-1	1	CO1 CO2	K1 K2	PO2
v	Where does TCA cycle take place? a. Cytoplasm b. Inside the matrix of the mitochondria. c. Inner mitochondrial membrane d. Lipid bilayer of cell membranes	1	CO1 CO2	K1 K2	PO2

vi	Which enzyme catalyzes the conversion of succinate to fumarate in the Krebs cycle? a. Isocitrate dehydrogenase b. Citrate synthase c. Succinate dehydrogenase d. Fumarase	1	CO1 CO6	K1 K2	PO1
vii	Which molecule enters the Krebs cycle by combining with oxaloacetate to form citrate? a. Pyruvate b. Acetyl-CoA c. Lactate d. Succinyl-CoA	1	CO1	K1 K2	PO2
viii	Where does glycolysis occur in the cell? a. Mitochondria b. Cytoplasm c. Endoplasmic reticulum d. Nucleus	1	CO1 CO2	K1 K3	PO1
ix	What is the end product of glycolysis? a. Acetyl-CoA b. Lactic acid c. Pyruvate d. Oxaloacetate	1	CO1 CO4	K1 K2	PO2
x	What is glycogenolysis? a. Synthesis of glycogen from glucose b. Breakdown of glycogen into glucose c. Conversion of glucose into pyruvate d. Breakdown of proteins into amino acids	1	CO1 CO2 CO3	K1 K2	PO2
xi	How do enzymes affect the activation energy of a chemical reaction? a. Enzymes increase the activation energy b. Enzymes do not affect the activation energy c. Enzymes lower the activation energy d. None of the above	1	CO6	K5 K6	PO1 PO2
xii	How many molecules of Acetyl-CoA are produced from the complete β -oxidation of one molecule of palmitic acid? a. 6 b. 7 c. 8 d. 9	1	CO3	K1 K2	PO1
xiii	Which is not a ketone body? a. Acetoacetate b. Acetone c. Beta-hydroxybutyrate d. Pyruvate	1	CO3	K1 K2	PO1
xiv	Which of the following is the end product of the urea cycle? a. Uric acid b. NH_3 c. Urea d. Creatinine	1	CO5	K1 K2	PO1
xv	What molecule is synthesized during the process of transcription? a. DNA b. Protein c. RNA d. Enzymes	1	CO5	K1 K2	PO1 PO2
xvi	Jaundice is caused by accumulation of: a. Urea b. Bilirubin c. Cholesterol d. Ketone bodies	1	CO3	K4 K5	PO1

xvii	Which of the following nitrogenous bases are classified as pyrimidines? a. Guanine and Cytosine b. Cytosine, Thymine, and Uracil c. Adenine and Guanine d. Uracil and Guanine	1	CO1 CO5	K1 K2	PO2
xviii	Which enzyme classification includes oxidoreductases? a. Class I b. Class II c. Class III d. Class IV	1	CO6	K4	PO1
xix	Which of the following is a polysaccharide? a. Glucose b. Lactose c. Starch d. Maltose	1	CO1 CO2	K1 K2	PO1 PO2
xx	In DNA, adenine pairs with: a. Cytosine b. Guanine c. Uracil d. Thymine	1	CO5	K1 K2	PO1 PO2
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 10 steps of glycolysis? Explain it with labelled diagram.	10	CO2	K2 K4	PO2
3	Write short note on electron transport chain (ETC) with labelled diagram.	10	CO1	K1 K2	PO2
4	Describe the process of beta-oxidation of fatty acids in detail.	10	CO3	K1 K2	PO1
Section C (Answer any SEVEN out of NINE) - 35 Marks (Each question Carry 05 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Describe the process of transcription (RNA synthesis).	5	CO5	K1 K2	PO1 PO2
6	Explain the formation and utilization of ketone bodies. What is ketoacidosis?	5	CO3	K5	PO1
7	Draw a labeled diagram of glycogenolysis.	5	CO1	K1 K2	PO2
8	Write short note on bioenergetics.	5	CO1	K1 K2	PO2
9	Define enzymes. Mention general properties of enzymes.	5	CO6	K3	PO1
10	What are the steps of urea cycle?	5	CO5	K1 K2	PO1
11	What is the IUB classification of enzymes? Give examples.	5	CO6	K2	PO2

 ARKA JAIN University Jharkhand				[27-06-2025] END SEM EXAMINATION School of Allied Health Science	
Program	Bachelor of Pharmacy				
Subject Name	Pathophysiology				
Semester	II				
	• 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 <i>Two</i> out of <i>Three</i> of Section B • Answer Any <i>Seven</i> out of <i>Nine</i> 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 <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers</u>.				
Time: 3 Hour Max. Marks : 75	K1 : Remembering K2 : Understanding		K3 : Applying K4 : Analysing		K5 : Evaluating K6 : Creating
Knowledge Level (KL)					

Section A (Each question Carry 01 Mark from Q1-i to xx) - 20 Marks					
Q. N1	QUESTIONS	Marks	COs	KL	PO
i	Which enzyme's overactivity contributes to increased uric acid production in gout? a. Xanthine oxidase b. Adenosine deaminase c. Lactate dehydrogenase d. Glucose-6-phosphatase	1	CO1	K2 K1	PO9
ii	Which of the following best describes the process of diapedesis? a. The destruction of pathogens by antibodies in the bloodstream b. The movement of leukocytes from the bloodstream into surrounding tissues c. The production of white blood cells in the bone marrow d. The engulfment of pathogens by neutrophils and macrophages	1	CO5	K2 K1	PO1
iii	Which enzyme deficiency is associated with early-onset emphysema? a. Alpha-1 antitrypsin deficiency b. Lipase deficiency c. Amylase deficiency d. Elastase deficiency	1	CO2	K4 K1	PO2

xx	a. Regular blood transfusions b. Antibiotics only c. Insulin therapy d. Iron restriction	1	CO4	K5	PO1
	Which neurotransmitter is mainly involved in inhibitory signaling in the brain and is often decreased in epilepsy? a. Glutamate b. GABA (gamma-aminobutyric acid) c. Dopamine d. Acetylcholine				
Section B (Answer any TWO out of THREE) - 20 Marks (Each question Carry 10 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Explain the pathophysiology of hypertension. Discuss the roles of renal, neural, hormonal, and vascular mechanisms in the development and maintenance of elevated blood pressure.	10	CO2	K1 K2 K4	PO1
3	Discuss etiology, pathogenesis, sign and symptom, diagnosis test and management of Peptic ulcer.	10	CO3	K1 K2 K3 K4	PO2
4	Describe the pathophysiology of epilepsy. Explain various mechanisms that lead to seizure generation and propagation.	10	CO4	K1 K2 K3	PO1 0
Section C (Answer any SEVEN out of NINE) - 35 Marks (Each question Carry 05 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Briefly discuss about role of Vit. B12 and Folic acid in Megaloblastic anemia.	5	CO1	K2 K4	PO1
6	Briefly explain the pathophysiology of Parkinson's disease. Discuss the role of dopaminergic neurons and neurodegeneration in the development of motor symptoms.	5	CO1 CO2	K1 K2	PO2
7	Write notes on Phagocytosis.	5	CO2	K1 K2	PO1
8	Briefly explain the pathophysiology of Type II Diabetes Mellitus. Highlight the roles of insulin resistance and pancreatic β -cell dysfunction.	5	CO3	K1 K4	PO2

iv	Which test is commonly used for the diagnosis of latent TB infection? a. Acid-fast bacilli stain b. Tuberculin skin test (Mantoux test) c. Chest X-ray d. Sputum culture	1	CO4	K5	PO2
v	In a patient with hyperthyroidism, the typical level of thyroid-stimulating hormone (TSH) is: a. Elevated b. Normal c. Suppressed/Low d. Variable depending on the cause	1	CO3	K3	PO1
vi	Which protein forms the characteristic Lewy bodies found in the brains of Parkinson's patients? a. Tau protein b. Beta-amyloid c. Alpha-synuclein d. Huntingtin	1	CO1	K1	PO2
vii	Foam cells in atherosclerotic plaques are primarily: a. Smooth muscle cells filled with calcium b. Macrophages that have ingested oxidized LDL c. Platelets aggregated at the lesion site d. Endothelial cells undergoing apoptosis	1	CO4	K1 K3	PO1
viii	Pernicious anemia is caused by: a. Lack of intrinsic factor leading to impaired B12 absorption b. Excess iron absorption c. Folate deficiency d. Hemolysis	1	CO1	K1 K4	PO1
ix	Which of the following lifestyle modifications is most effective in managing Type II diabetes? a. Increased sedentary behavior b. Weight loss and regular exercise c. High-fat diet d. Smoking	1	CO4	K2 K3	PO1
x	Which enzyme is responsible for converting viral RNA into DNA during HIV replication? a. Reverse transcriptase b. Integrase c. DNA polymerase d. RNA polymerase	1	CO4	K2 K4	PO1
xi	What is the primary function of erythropoietin (EPO) in the human body?	1	CO3	K1 K2	PO2

	a. To stimulate platelet production in the bone marrow b. To regulate blood glucose levels c. To promote the production of red blood cells d. To initiate the clotting cascade	1	CO3	K1 K2	PO1
xii	Which of the following is NOT a cardinal sign of inflammation? a. Rubor (redness) b. Calor (heat) c. Tumor (swelling) d. Cyanosis	1	CO1	K1 K2	PO2
xiii	Hypertrophy is best defined as: a. Increase in cell number b. Decrease in cell size c. Increase in cell size d. Change from one differentiated cell type to another	1	CO3	K1 K2	PO1
xiv	Leprosy is also known as: a. Syphilis b. Tetanus c. Hansen's disease d. Tuberculosis	1	CO2	K1 K2	PO2
xv	Which of the following is an example of a positive feedback mechanism? a. Regulation of blood glucose b. Blood clotting c. Body temperature control d. Regulation of blood pressure	1	CO2	K2 K3	PO2
xvi	Which of the following is a hallmark microscopic finding in Alzheimer's disease? a. Lewy bodies b. Neurofibrillary tangles and amyloid plaques c. Pick bodies d. Rosenthal fibers	1	CO2	K2 K3	PO2
xvii	Angina pectoris is primarily caused by: a. Inflammation of the pericardium b. Myocardial ischemia due to imbalance between oxygen supply and demand c. Valvular heart disease d. Congenital heart defects	1	CO2	K2 K3	PO2
xviii	Which test is used to detect Helicobacter pylori infection? a. Electrocardiogram b. Urea breath test c. Complete blood count d. Serum glucose	1	CO1 CO3	K4 K5	PO2
xix	Treatment of thalassemia major often requires:	1	CO4	K4	PO1

9	Describe the pathophysiology of HIV/AIDS.	5	CO3 CO2	K1 K2	PO2
10	Briefly describe the pathophysiology of Tuberculosis. How does Mycobacterium tuberculosis evade the immune response and cause disease?	5	CO3	K3 K4	PO4
11	Discuss about hallmarks of Alzheimer's disease.	5	CO3	K1 K3 K4	PO7
12	Briefly describe the pathophysiology of gout. How does hyperuricemia lead to acute joint inflammation?	5	CO6	K2 K3	PO2
13	Discuss about pathogenesis of Reversible cell injury.	5	CO5	K1 K3	PO2

CO- Course Outcomes,

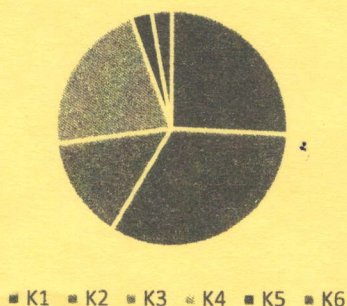
KL- Knowledge Level,

PO - Program Outcome

Course Outcomes	CO1	Describe the etiology and basics of pathophysiology
	CO2	Acquire knowledge of signs and symptoms of the diseases
	CO3	Identify the complications of the diseases.
	CO4	Know about most commonly encountered pathophysiological state(s) and/or disease mechanism(s), as well as any clinical testing requirements
	CO5	Describe Basic principles of Cell injury Adaptation and explain the concept of inflammation and repair

GRAPHICAL REPRESENTATION

Bloom's level wise marks distribution



Course outcomewise marks distribution

