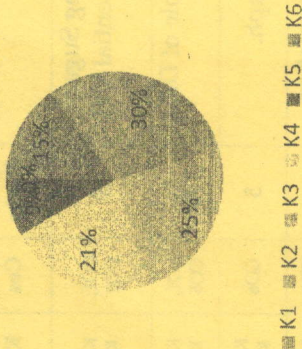


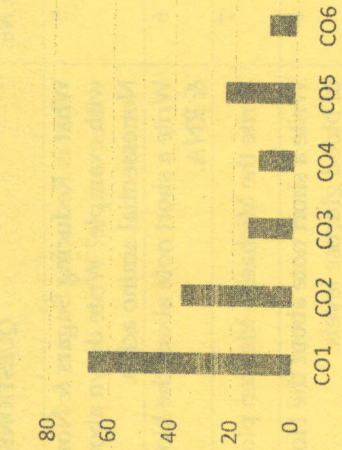
CO1	Acquire knowledge about chemistry and biological importance of biological macromolecules and biochemical energetic.
CO2	Understand the metabolism of carbohydrate in physiological and pathological conditions and biological oxidation of nutrient molecules.
CO3	Understand the metabolism of lipids in 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 marks distribution



Course Outcome wise Marks Distribution



Program	Bachelor of Pharmacy	
Subject Name	Biochemistry	
	Semester	II
	Year	June 2024
Time: 3 Hour Max. Marks : 75	<ul style="list-style-type: none"> 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 <u>Mobile Phones</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussing with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers.</u> 	
Knowledge Level (KL)	K1 : Remembering	K3 : Applying
	K2 : Understanding	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	The citric acid cycle known as a) Krebs cycle b) Glycolysis c) E.M. pathway d) None of the above	1	CO1, CO2	K1, K2	PO1
ii	Deoxyribose sugar is found in DNA a) True b) False c) Present in RNA d) None of the above	1	CO1, CO5	K1, K2	PO1
iii	Which of the following cell secrete insulin hormone? a) α-cell b) β-cell c) α and β cell both d) None of the above	1	CO1, CO2	K1, K2	PO1
iv	Genetic code AUG known as a) Methionine b) Amber c) Ochre d) Opal	1	CO1, CO5	K1, K2, K3	PO2
v	What is lipolysis? a) Breakdown of triacylglycerol b) Formation of lipids c) Breakdown of ketone bodies d) Formation of ketone bodies	1	CO1, CO8	K1, K2	PO1
vi	In the human body, the optimum temperature for enzymatic activities is: a) 37° Celsius b) 25° Celsius c) 20° Celsius	1	CO6	K1, K2	PO1
vii	Ketone bodies made off a) Acetone, acetoacetate and β-hydroxybutyrate	1	CO1, CO4	K2, K3	PO2

viii	b) Acetone, acetoacetate c) Acetoacetate and β -hydroxybutyrate d) Acetone and β -hydroxybutyrate	1	CO1, CO2	K1, K2	PO1
ix	Sucrose consists of a) Glucose + fructose c) Glucose + galactose d) Glucose + mannose	1	CO1, CO2	K1, K2	PO1
x	Substrate level phosphorylation occurs in..... a) TCA cycle c) HMP shunt	1	CO1, CO2	K1, K2	PO1
	Low energy compounds release a) More than 7cal/mol b) Less than 7cal/mol c) Equal to 7cal/mol d) None of above	1	CO2	K1, K2	PO1
xi	Name the energy source of the brain during starvation? a) Fat c) Protein	1	CO3	K1, K2	PO1
xii	The coenzyme is: a) Often a metal b) always a protein c) Often a vitamin d) always an inorganic compound	1	CO6	K1, K2	PO1
xiii	Optimum pH value of pepsin is: a) 1.4 c) 3.5	1	CO1, CO6	K1, K2	PO1
xiv	Which is not a pyrimidine base a) Adenine c) Uracil	1	CO1, CO5	K1, K2	PO2
xv	What is the value of ΔG , when a system is in equilibrium? a) $\Delta G = 0$ c) $\Delta G = -1$	1	CO2	K1, K2, K3	PO2
xvi	How many complexes presents at ETC a) 4 c) 6	1	CO2	K1, K2	PO1
xvii	Ketone bodies are produced in..... a) Kidney c) Brain	1	CO3	K1, K2	PO1
xviii	Bilirubin is..... a) Black pigment c) Blue pigment	1	CO1, CO3	K1, K2	PO1
ix	Enzymes are made of..... a) Fats b) Proteins	1	CO6	K1, K2	PO1

c) Nucleic acids
d) Vitamins

- Amino acid contains
a) Amino group
b) Carboxyl group
c) Amino & carboxyl group both
d) None of the above

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

Q.No.	QUESTIONS	Marks	COs	KL	PO
2	Give a detailed account on the glycolysis pathway. Write about the energetics (aerobic, anaerobic) glycolysis pathway.	10	CO1, CO2	K3, K4, K5	PO2
3	Give a brief note Translation or Protein synthesis with diagram.	10	CO1, CO5	K3, K4, K5	PO2
4	Give a brief note on α -helix, β -sheet of protein with structure. Write about the biological role of protein.	10	CO1, CO4	K2, K3, K4	PO1

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

Q.No.	QUESTIONS	Marks	COs	KL	PO
5	What is Reducing Sugars & Non-Reducing Sugars with example? Write down about the Essential and Nonessential amino acids.	5	CO1, CO2	K2, K3	PO1
6	Write a short note about the biological Role of DNA & RNA.	5	CO1, CO5	K1, K2	PO1
7	Write the Michaelis-Menten plot with graph.	5	CO6	K4, K5	PO2
8	Write a short note about the Hormonal regulation of blood glucose levels.	5	CO1, CO2	K2, K3	PO1
9	Write a short note about Urea cycle.	5	CO3	K2, K3, K4	PO2
10	Provide a brief note regarding the Genetic Code.	5	CO1, CO5	K2, K3, K4	PO2
11	Write a short note about Ketone bodies.	5	CO3	K2, K3, K4	PO1
12	What is Endergonic and Exergonic Reaction with graph?	5	CO2	K1, K2, K3	PO1
13	Write a short note about the biological Role of carbohydrate.	5	CO1, CO2	K1, K2	PO1

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END SEM EXAMINATION
School of Health & Allied Science

Program	Bachelor of Pharmacy	
Subject Name	Pathophysiology	
	Semester	II
	Year	June 2024
Time: 3 Hour Max. Marks : 75	<ul style="list-style-type: none"> 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 <u>Mobile Phones</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussing with Co-Student</u> will come 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

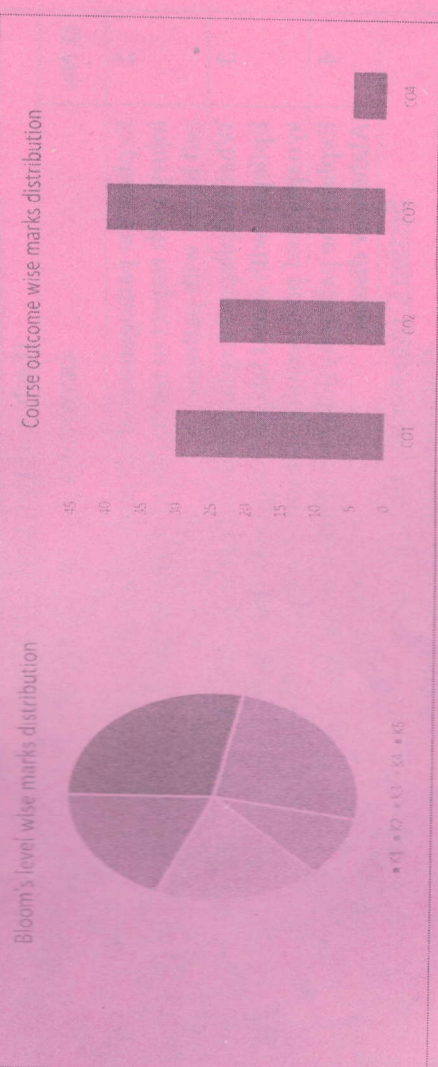
Section A (Each question Carry 01 Mark from Q1-i to xx) - 20 Marks

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	Accumulation of proteins involves a) Steatosis b) Alkaptonuria c) Proteinuria	1	CO1	K1	PO7
ii	Redness, heat, loss of function, swelling, pain are the symptoms of a) Wound healing b) Cell death c) Hypoxic/ Ischemic injury d) Inflammation	1	CO2	K4	PO7
iii	Structural changes seen in the Alzheimer brain a) Atrophy of cerebral cortex b) Dilatation or enlargement of ventricles c) Reduced brain volume d) All of the above	1	CO2	K2	PO9
iv	Alkaptonuria is a melanin like pigment caused by a) Oxidation of Homogenetic acid b) Hydrolytic enzyme c) Phospholipase d) Protease	1	CO2	K1	PO9
v	Cellular event comprises of a) Normal Axial flow b) Margination and Pavementing c) Rolling and adhesion d) All of the above	1	CO3	K5	PO9

7	What is phagocytosis? Explain the different stages of phagocytosis.	5	CO3	K4	PO9
8	Explain the pathogenesis of Gout.	5	CO1	K1	PO7
9	What is Hypertrophy and metaplasia? Explain with suitable examples.	5	CO3	K3	PO7
10	How does wound healing progresses by second intention?	5	CO3	K4	PO7
11	Explain the etiology and pathogenesis of Schizopfhrenia.	5	CO1, CO3	K1	PO9
12	What is atherosclerosis? Explain the etiology and pathogenesis of atherosclerosis.	5	CO1	K5	PO7
13	Explain the cellular event involved in inflammation with diagrammatic representation.	5	CO2, CO3	K4	PO9

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

Course Outcomes	CO1 Describe the aetiology 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



vi	Hallucination is defined as a) Disorganised thinking b) Disorganised speech c) Seeing and hearing things that do not exist d) Impaired thought	1	CO2	K2	PO7
vii	PET and SPECT scans are diagnostic scans for a) Cardiovascular diseases b) Respiratory diseases c) Nervous system disorder d) Muscular disorder	1	CO4	K4	PO7
viii	Degenerated dopaminergic neurons are seen in the case of a) Cerebral Palsy b) Alzheimer c) Parkinson d) Meningitis	1	CO2	K2	PO9
ix	Uric acid crystal deposition is seen in the case of a) Haemorrhage b) Osteoporosis c) Rheumatoid Arthritis d) Gout	1	CO3	K5	PO9
x	Diuretics are the common drugs given in the treatment of a) Congestive cardiac failure b) Hypoxia c) Myocardial Infarction d) Hypertension	1	CO4	K3	PO9
xi	Destruction of β cells in pancreas causes a) Diabetes Mellitus b) Hypertension c) Congestive Cardiac Failure d) Myocardial Infarction	1	CO3	K5	PO9
xii	Epilepsy is defined as a) Abnormal excitatory discharge of neurotransmitter b) Recurrent and unprovoked seizure c) Hypersynchronous discharge of action potential d) All of the above	1	CO1	K2	PO7
xiii	Specific diagnostic scans for nervous system disorder are a) ECG b) Mental frequency test c) PET and SPECT scan d) USG	1	CO4	K1	PO7
xiv	Cancer is defined as a) Abnormal proliferation of cells b) Uncontrolled growth of group of cells c) Unregulated differentiation of cells d) All of the above	1	CO1	K2	PO7
xv	Catecholamines are degraded by a) MAO b) COMT c) Acetylcholinesterase d) None of the above	1	CO3	K1	PO9

xvi	Hyper-Kalemia and Hypo-Kalemia is abnormal levels of a) Calcium b) Sodium c) Chloride d) Potassium	1	CO4	K5	PO9
xvii	Parkinson shows accumulation of a) Lewy bodies b) Accumulation of fats c) Accumulation of Carbohydrates d) All of the above	1	CO1	K3	PO7
xviii	The etiological factor for Alzheimer is a) Plaque formation b) Degenerated neurons c) Accumulation of β -amyloids and NFTs d) None of the above	1	CO1	K5	PO9
xix	Embolus formed away from the brain causing stroke comes under a) Plaque stroke b) Ischemic stroke c) Embolic stroke d) Cholesterol deposits	1	CO3	K2	PO7
xx	The function of "Good Cholesterol" HDL is a) Contributes to plaque build up b) Convert extra carbohydrates to fats c) Carry extra cholesterol to liver for elimination d) None of the above	1	CO3	K1	PO7
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 pathogenesis of Hypoxic/ Ischemic cell injury with respect to reversible and irreversible cell injury with pathway.	10	CO1, CO2, CO3	K1	PO9
3	What is Epilepsy? Explain in detail pathogenesis of Epilepsy with a neat labelled diagram of pre-synaptic and post synaptic neuron.	10	CO1, CO2, CO3	K2	PO9
4	Explain the pathophysiology of Parkinson and Alzheimer disease	10	CO1, CO2, CO3	K1	PO9
Section C (Answer any SEVEN out of NINE) – 35 Marks (Each question carry 05 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Explain the ultrastructural changes seen within the cell during cell injury with a diagram.	5	CO3	K2	PO9
6	What is Arachidonic acid metabolite? Explain the COX and LOX pathway.	5	CO4	K4	PO9

Program		Bachelor of Pharmacy	
Subject Name		Environmental Sciences	
Time: 2 Hour		Semester	
Max. Marks : 50		Year	
		June 2024	
<ul style="list-style-type: none"> Start writing from 2nd page onwards; don't Write on the 1st Page Backside Answer Any TWO out of THREE of Section A Answer Any SIX out of EIGHT of Section B Graf Paper / Drawing Sheet/ Log Book/ Ledger (please Mention if any) 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
		K2 : Understanding	K4 : Analysing
		K5 : Evaluating	K6 : Creating

Section A : Long Answer (Answer any TWO out of THREE) – 20 Marks
 Each question carry 10 marks

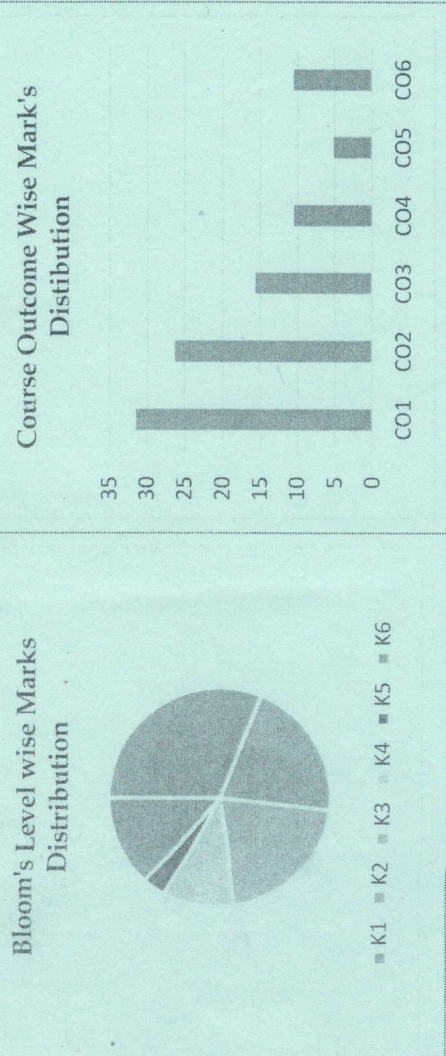
Q. No.	QUESTIONS	Marks	COs	KL	PO
1	What do you mean by Natural Resources? What are the main forms of Land Degradation? How can we prevent Land Degradation?	10	CO2, CO3	K2, K3, K4, K6	PO5, PO7
2	Define Solid Waste? Discuss the process of Solid Waste Management.	10	CO2, CO4	K1, K2, K3, K6	PO4
3	What do you mean by Ecosystem? Write in detail about Forest Ecosystem.	10	CO1	K1	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	Discuss Hydrological Cycle.	05	CO6	K2, K4	PO4
5	Describe the Electrostatic Precipitator's construction and operation.	05	CO5	K3	PO5
6	Why environmental studies are multidisciplinary?	05	CO1, CO6	K5	PO4
7	What are the Man-made Sources for Air Pollution?	05	CO3	K1, K2	PO5
8	Describe desertification.	05	CO1	K1	PO7

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.

GRAPHICAL REPRESENTATION



9	What are the methods of water conservation and management?	05	CO1	K1, K2, K3	PO7
10	Elaborate with diagram and relationship the Food chains	05	CO1	K1	PO7
11	Discuss the Structure of an Ecosystem.	05	CO2	K1	PO7



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END SEM EXAMINATION
School of Health & Allied Science

Program	Bachelor of Pharmacy	
Subject Name	Computer Application in Pharmacy (Lateral entry)	Semester II Year June 2024
Time:2 Hour Max. Marks : 50	<ul style="list-style-type: none"> • Start writing from 2nd page onwards; don't Write on the 1st Page Backside • 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, 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 : Long Answer (Answer any TWO out of THREE) – 20 Marks
(Each question carry 10 marks)

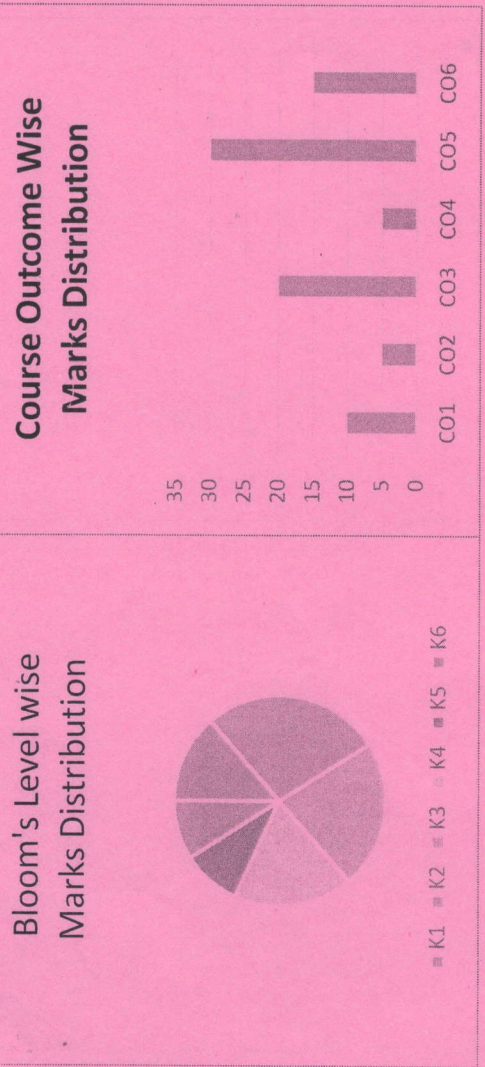
Q. No.	QUESTIONS	Marks	COs	KL	PO
1	What do you mean by Bioinformatics? Write down the Objectives & applications of bioinformatics	10	CO5	KL1, K2	PO.1
2	Describe briefly about Pharmacokinetics.	10	CO3, CO6	K2	PO.3
3	Describe briefly about Patient monitoring system and Pharmacy information system.	10	CO6	K3, K4	PO.9

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	Write the Major Components of Information Retrieval.	05	CO1, CO2	K2	PO.1
5	Write down the characteristics of Information System.	05	CO6	K3	PO.3
6	Give a Short note on mathematical model in drug design.	05	CO1	K5, K6	PO.9
7	Write a short note on Pharmacy information system.	05	CO3, CO5	K5, K6	PO.1

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

Course Outcomes	Description
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.



8	What is lab diagnostic system and what are the different diagnostic tests?	05	CO3, CO5	K3, K4	PO.1 0
9	Give A short note on Basic concept of information storage.	05	CO4	K1	PO.3
10	Describe about Text Information Management System.	05	CO2, CO5	K3, K4	PO.9
11	What do you mean by Bioinformatics? Write down the Objectives & applications of bioinformatics	05	CO5	K1, K2	PO.1 0



Program	Bachelor of Pharmacy	
Subject Name	Pharmaceutical Organic Chemistry-I	Semester II
		Year June 2024
Time: 3 Hour	Start writing from 2nd page onwards; don't Write on the 1st Page Backside	
Max. Marks: 75	<ul style="list-style-type: none"> 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 	
Knowledge Level (KL)	K1: Remembering K2: Understanding	K3: Applying K4: Analysing K5: Evaluating K6: Creating

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
3	Write a note on acidity of carboxylic acid and discuss the substituent effect on acidity of monocarboxylic acid?	10	CO4	K1, K2	PO1 0
4	Write a note on (a) sp ³ Hybridization (b) sp ² Hybridization (c) sp Hybridization (d) Write a note on addition of Hbr on propene with respect to Markownikoff's rule and Anti Markownikoffs rule?	10	CO2	K1, K2	PO9
5	Write a note on Hell-Volhard-Zelensky Reaction?	5	CO4	K1, K2	PO1
6	What is the difference between Sn ₁ & Sn ₂ reaction of alkyl halide?	5	CO3	K1, K2	PO1 0
7	Explain why Boiling Point of methyl alcohol is Higher than Methylamine?	5	CO3	K1, K2	PO9
8	Write the structural formulas and give the IUPAC names of the isomeric alcohol of formula C ₄ H ₁₀ O	5	CO3	K1, K2	PO1 0
9	How do Primary, secondary and tertiary alcohol Differ in their behavior toward oxidation?	5	CO4	K1, K2	PO2
10	What happens when formaldehyde is treated with concentrated NaOH Solution?	5	CO2	K1, K2	PO1 0
11	Write any two syntheses how Alkanes are Prepared? Discuss the Mechanism of Chlorination of Methane?	5	CO2	K1, K2	PO9
12	How will you distinguish between: (a) Acetaldehyde & Acetone (b) Propane & Propene	5	CO4	K1, K2	PO2
13	Explain why the four Covalent bonds in Methane is Equivalent?	5	CO4	K1, K2	PO1 0

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

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	High boiling point of alcohol, as compared to alkanes are due to a) Water solubility b) Hydrogen bonding c) Heavy oxygen atom d) None of the above	1	CO3	K1	PO1
ii	Name the reaction? $\text{H}_3\text{C}-\text{CH}_2-\text{Br} + \text{Na}-\text{I} \xrightarrow[\text{heat}]{\text{acetone}} \text{H}_3\text{C}-\text{CH}_2-\text{I} + \text{Na}-\text{Br}$ a) Halogenation b) Halogen Exchange Reaction c) Halogen substitute Reaction d) Halide Displacement reaction	1	CO3	K1	PO2
iii	Name the Reaction? $\text{H}_3\text{C}-\text{Br} + 2\text{Na} + \text{H}_3\text{C}-\text{Br} \xrightarrow{\text{Ether}} \text{H}_3\text{C}-\text{CH}_3$ a) Hydrogenation of Alkene b) Reduction of Alkyl halide c) Wurtz Synthesis d) Hydrolysis of Grignard reagent	1	CO4	K1	PO2
iv	Name the Reaction? $\text{H}_3\text{C}-\overset{\text{O}}{\parallel}{\text{C}}-\text{Cl} + \text{H}_2 \xrightarrow[\text{Poisoned}]{\text{Pd/BaSO}_4} \text{H}_3\text{C}-\overset{\text{O}}{\parallel}{\text{C}}-\text{H} + \text{HCl}$ a) Aldol Condensation b) Cross aldol condensation c) Cannizzaro reaction d) Rosenmund Reaction	1	CO3	K1	PO2

v	Name the reagent used in this reaction? $\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2-\text{OH} \xrightarrow{?} \text{H}_3\text{C}-\text{CH}=\text{CH}-\text{CH}_3$ <p>a) HCl b) H₂SO₄ c) HNO₃ d) None of the Above</p>	1	CO4	K1	PO2
vi	Name the Reagent used in the Reaction? $\text{H}_3\text{C}-\text{C}(=\text{O})-\text{H} + 2\text{CH}_3\text{OH} \xrightarrow{?} \text{H}_3\text{C}-\text{C}(\text{OCH}_3)_2-\text{H}$ <p>a) HCl b) H₂O c) HNO₃ d) None of the above</p>	1	CO4	K1	PO2
vii	Which of the following is least soluble in water? <p>a) Methylamine b) Trimethylamine c) dimethylamine d) Aniline</p>	1	CO3	K1	PO2
viii	The hybridization of Nitrogen in Amine is <p>a) sp b) sp² c) sp³ d) sp⁴</p>	1	CO4	K1	PO1
ix	Name the Product $\text{H}_3\text{C}-\text{N}^+(\text{O}^-) + 3\text{H}_2 \xrightarrow{\text{Pt}} ?$ <p>a) Methylamine b) Ethylamine c) Aniline d) Nitromethane</p>	1	CO3	K1	PO2
x	Which of the following is the strongest acid? <p>a) 2-chlorobutanoic acid b) 3-chlorobutanoic acid c) 4-chlorobutanoic acid d) 4-Chlorobutanoic acid</p>	1	CO3	K1	PO2
xi	Name the Reaction? $\text{H}_2\text{C}=\text{CH}_2 + \text{CO} + \text{H}_2\text{O} \xrightarrow[400\text{C}]{\text{H}_3\text{PO}_4} \text{H}_3\text{C}-\text{CH}_2-\text{COOH}$ <p>a) Wurtz Reaction b) Wolf-Kishner Reaction c) Kolbe electrolysis d) Koch Reaction</p>	1	CO4	K1	PO1
xii	Name the Reaction? $\text{H}_3\text{C}-\text{CH}_2-\text{COOH} + \text{Br}_2 \xrightarrow{\text{P}} \text{H}_3\text{C}-\text{CH}(\text{Br})-\text{COOH} + \text{HBr}$ <p>a) HVZ reaction b) Wolf-Kishner Reaction c) Aldol Condensation d) Koch Reaction</p>	1	CO4	K1	PO1
xiii	Name the Reaction? $\text{H}_3\text{C}-\text{CO} + \text{Br}_2 + 4\text{NaOH} \xrightarrow{\text{NH}_2} \text{H}_3\text{C}-\text{NH}_2 + 2\text{NaBr} + \text{Na}_2\text{CO}_3 + 2\text{H}_2\text{O}$ <p>a) Rosenmund Reaction b) Cannizzaro reaction c) Hoffmann Rearrangement d) Koch Reaction</p>	1	CO3	K1	PO2
xiv	Name the catalyst used in this reaction? $\text{H}_3\text{C}-\text{CH}=\text{CH}_2 \xrightarrow{?} \text{H}_3\text{C}-\text{CH}_2-\text{CH}_3$	1	CO3	K1	PO1

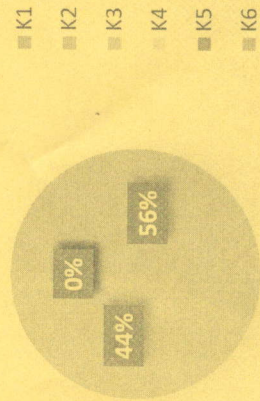
xv	a) Pd c) Pt Name the Reaction? $\text{H}_3\text{C}-\text{Br} + 2\text{Na} + \text{H}_3\text{C}-\text{Br} \xrightarrow{\text{Ether}} \text{H}_3\text{C}-\text{CH}_3$ <p>a) Hydrogenation of Alkene b) Reduction of Alkyl halide c) Wurtz Synthesis d) Hydrolysis of Grignard reagent</p>	1	CO3	K1	PO2
xvi	Name the product? $\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_3 \xrightarrow[773\text{K}/10-20\text{ atm}]{\text{Cr}_2\text{O}_3/\text{V}_2\text{O}_5} ?$ <p>a) Benzene b) Cyclohexane c) Benzynes d) None of the above</p>	1	CO2	K1	PO1
xvii	Name the reagent used in this reaction? $\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2-\text{Br} + ? \xrightarrow{\text{alcohol/heat}} \text{H}_3\text{C}-\text{CH}=\text{CH}_2$ <p>a) NaOH b) KOH c) Both a & b d) None of the above</p>	1	CO2	K1	PO1
xviii	Name the reagent used in this reaction? $\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2-\text{OH} \xrightarrow{?} \text{H}_3\text{C}-\text{CH}=\text{CH}-\text{C}_6\text{H}_5$ <p>a) HCl b) H₂SO₄ c) HNO₃ d) None of the Above</p>	1	CO3	K1	PO2
xix	Name the Product? $\text{H}_3\text{C}-\text{CH}=\text{CH}_2 + \text{HBr} \xrightarrow{\text{Peroxide}} ?$ <p>a) $\text{H}_3\text{C}-\text{CH}(\text{Br})-\text{CH}_3$ b) $\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2-\text{Br}$ c) Both a & b d) None of the Above</p>	1	CO4	K1	PO1
xx	Which of the following halide can give best S _N 2 reaction? <p>a) Primary alkyl halide b) Tertiary alkyl halide c) Secondary alkyl halide d) All can give S_N2 reaction at same rate</p>	1	CO4	K1	PO2
Section B (Answer any TWO out of THREE) – 20 Marks (Each question Carry 10 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Define and classify carbocation. Add a note on stability of carbocation. Differentiate between S _N 1 & S _N 2?	10	CO4	K1, K2	PO1

CO₂- Course Outcomes, **KL-** Knowledge Level, **PO** – Program Outcome

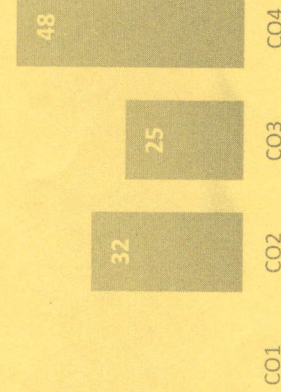
CO1	Elucidate the structure, name and the type of isomerism of the organic compound
CO2	Understand the reaction, name the reaction and orientation of reactions
CO3	Account for reactivity/ stability of compounds,
CO4	Identify/ confirm the identification of organic compound

GRAFICAL REPRESENTATION

Bloom's Level wise Marks Distribution



Course Outcome wise Marks Distribution



ARKA JAIN University
Jharkhand

NAAC GRADE A ACCREDITED UNIVERSITY

END SEM EXAMINATION
School of Health & Allied Science

Program	Bachelor of Pharmacy	
Subject Name	Human Anatomy and Physiology	Semester II
		Year June 2024
Time: 3 Hour Max. Marks : 75	<ul style="list-style-type: none"> 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 come under Unfair Means and will Result in the Cancellation of the Papers. 	
Knowledge Level (KL)	K1 : Remembering	K5 : Evaluating
	K2 : Understanding	K6 : Creating

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 digestion and absorption of carbohydrates.	5	CO5, CO6	K2	PO1,PO2, PO8,PO9
6	Write notes on spermatogenesis.	5	CO1, CO2, CO3, CO4	K1,K 2,K3, K4	PO1,PO2, PO8,PO9, PO10
7	Classification and properties of nerve fibre.	5	CO1, CO2, CO3, CO4	K1,K 2,K3, K4	PO1,PO2, PO8,PO9, PO10
8	Explain about micturition reflex.	5	CO4	K1,K 2,K3, K4	PO1,PO2, PO8,PO9, PO10
9	Explain lung volumes & lung capacities.	5	CO1, CO2, CO3, CO4	K1,K 2,K3, K4	PO1,PO2, PO8,PO9, PO10
10	Write notes on Liver and Gall bladder.	5	CO1, CO2, CO3, CO4	K1,K 2,K3, K4	PO1,PO2, PO8,PO9, PO10
11	Give a note on hypothalamus.	5	CO1, CO2, CO3, CO4	K1,K 2,K3, K4	PO1,PO2, PO8,PO9, PO10
12	Explain how respiratory areas control respiration.	5	CO1, CO2, CO3, CO4	K1,K 2,K3, K4	PO1,PO2, PO8,PO9, PO10
13	Briefly discuss about acid production in the stomach and regulation of acid production.	5	CO1, CO2, CO3, CO4	K1,K 2,K3, K4	PO1,PO2, PO8,PO9, PO10

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

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	Which of the following is not a human salivary gland? a) Parotid b) Submaxillary c) Sublingual	1	CO1, CO2, CO3, CO4	K1	PO1,PO2, PO8,PO9, PO10
ii	The layer of the uterine wall that is shed during menstruation is the a) Endometrium b) Myometrium c) Epimetrium d) None of the above	1	CO1, CO2, CO3, CO4	K2	PO1,PO2, PO8,PO9, PO10
iii	Cells present in the Bowman capsule that wrap around the capillaries of the glomerulus. a) Zymogenic cells b) Enterochromaffin-like cells c) Parietal cells d) Podocytes	1	CO1, CO2, CO3, CO4	K1,K 2	PO1,PO2, PO8,PO9, PO10
iv	Which of the following statements is true about involuntary breathing? a) It is controlled by the bronchioles b) It is controlled by the pulmonary arterioles c) It is controlled by the alveolar-capillary network d) It is controlled by the neurons, located in the medulla and pons	1	CO1, CO2, CO3, CO4	K1,K 2	PO1,PO2, PO8,PO9, PO10

v	This is not a function of insulin a) Decreasing glycogenolysis c) Gluconeogenesis d) Lipogenesis	1	CO1, CO2, CO3, CO4	K2	PO1,PO2, PO8,PO9, PO10
vi	Which of the following gastric cells indirectly help in erythropoiesis? a) Chief cells c) Goblet cells b) Mucous cells d) Parietal cells	1	CO1, CO2, CO3, CO4	K1,K 2	PO1,PO2, PO8,PO9, PO10
vii	_____ is also known as the proliferative phase. a) Luteal phase c) Follicular phase b) Menstrual phase d) None of these	1	CO1, CO2, CO3, CO4	K1,K 2	PO1,PO2, PO8,PO9, PO10
viii	Which of the following hydrolytic enzymes act in low pH? a) Peroxidases c) Amylases b) Hydrolases d) Proteases	1	CO1, CO2, CO3, CO4	K1,K 2	PO1,PO2, PO8,PO9, PO10
ix	The renal corpuscle is made up of a) Bowman's capsule and glomerulus c) Renal pyramid b) Descending loop of Henle d) Renal papilla	1	CO1, CO2, CO3, CO4	K1,K 2	PO1,PO2, PO8,PO9, PO10
x	The maximum volume of air contained in the lung by a full forced inhalation is called _____. a) Tidal volume c) Ventilation rate b) Vital capacity d) Total lung capacity	1	CO1, CO2, CO3, CO4	K1	PO1,PO2, PO8,PO9, PO10
xi	The Schwann cells form a myelin sheath around the: a) Dendrites c) Nucleus b) Cell body d) Axon	1	CO1, CO2, CO3, CO4	K1,K 2,K4	PO1,PO2, PO8,PO9, PO10
xii	The posterior pituitary stores and releases: a) Growth hormone and prolactin. c) Oxytocin and antidiuretic hormone (ADH). b) Prolactin and oxytocin. d) ADH and growth hormone.	1	CO1, CO2, CO3, CO4	K1,K 2	PO1,PO2, PO8,PO9, PO10
xiii	The enzyme enterokinase helps in the conversion of a) Pepsinogen into pepsin c) Caseinogen into casein b) Trypsinogen into trypsin d) Proteins into polypeptides	1	CO1, CO2, CO3, CO4	K1,K 2	PO1,PO2, PO8,PO9, PO10
xiv	Which organ in the human body is responsible for removing carbon dioxide from the body?	1	CO1, CO2, CO3, CO4	K1	PO1,PO2, PO8,PO9, PO10

xv	a) Kidney c) Blood b) Lungs d) Ureter Which of these is an accessory reproductive gland in male mammals a) Inguinal gland c) Mushroom-shaped gland b) Prostate gland d) Gastric gland	1	CO1, CO2, CO3, CO4	K1,K 2	PO1,PO2, PO8,PO9, PO10
xvi	Afferent nerves are called _____, and motor nerves are called _____. a) Motor nerves; sensory nerves c) Mixed nerves; motor nerves b) Peripheral nerves; cranial nerves d) Sensory nerves; efferent nerves	1	CO1, CO2, CO3, CO4	K1,K 2	PO1,PO2, PO8,PO9, PO10
xvii	Which of the following membranes encloses lungs? a) Pleural membrane c) Perichondrium b) Pericardium d) Periosteum	1	CO1, CO2, CO3, CO4	K1,K 2	PO1,PO2, PO8,PO9, PO10
xviii	The enzymes present in pancreatic juice are a) Amylase, Trypsinogen, Peptidase, Rennin c) Peptidase, Pepsin, Amylase, Rennin b) Trypsinogen, Lipase, Amylase, Procarbo-xypeptidase d) Maltase, Amylase, Trypsinogen, Pepsin	1	CO1, CO2, CO3, CO4	K1	PO1,PO2, PO8,PO9, PO10
xix	Which of the following leads to the secretion of aldosterone from the adrenal cortex? a) Chymotrypsin c) Renin b) Trypsin d) None of these	1	CO5, CO6	K1,K 2	PO1,PO2, PO8,PO9, PO10
xx	The hormone that stimulates uterine contractions is a) Oxytocin c) Granular cell carcinoma b) Estrogen d) Progesterone	1	CO1, CO2, CO3, CO4	K1,K 2	PO1,PO2, PO8,PO9, PO10
Section B (Answer any TWO out of THREE) - 20 Marks (Each question Carry 10 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Write synthesis, storage & release of thyroid hormone.	10	CO1, CO2, CO3, CO4	K1,K 2,K3, K4,	PO1,PO2, PO8,PO9, PO10
3	Describe the phases of the female reproductive cycle.	10	CO1, CO2, CO3, CO4	K1,K 2,K3, K4,	PO1,PO2, PO8,PO9, PO10
4	Write in detail about the hormones released by anterior pituitary gland.	10	CO1, CO2, CO3, CO4	K1,K 2,K3, K4,	PO1,PO2, PO8,PO9, PO10

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	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

K1 K2 K3 K4

Course Outcome Wise Marks Distribution

