

CO1	Understand the concept & terminology of Human Anatomy
CO2	Enlist and memorizing the structure, function & location of cells, tissues and major human organ's system/ part
CO3	Recognizing the different organ and organ system
CO4	Understand relationship between different organs of the body with organ system
CO5	Develop a holistic approach to human health and medical research

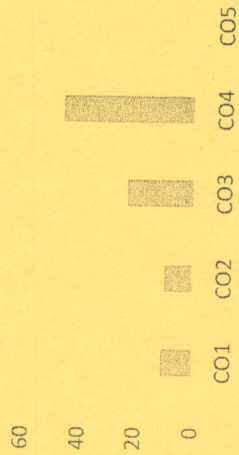
**GRAPHICAL REPRESENTATION**

Bloom's level wise marks distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course outcome wise marks distribution



2017/18 50



**ARKA JAIN University**  
Jharkhand



NAAC GRADE A  
ACCREDITED UNIVERSITY

END SEM EXAMINATION  
School of Health and Allied Science

<p><b>Program</b> Bachelor of Optometry</p>	<p><b>Semester I</b> Year January, 2025*</p>
<p><b>Subject Name</b> Anatomy</p>	
<p>Time: 2 Hour Max. Marks : 50</p>	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; don't write on the 1st Page Backside</li> <li>Answer all Questions of Section A (Compulsory)</li> <li>Answer Any Four out of Six of Section B</li> <li>Answer Any Two out of Four of Section C</li> <li>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>.</li> </ul>
<p>Knowledge Level (KL)</p>	<p>K1 : Remembering      K3 : Applying      K5 : Evaluating K2 : Understanding    K4 : Analysing        K6 : Creating</p>

Section A (Each question Carry 01 Marks from Q1-i to x) – 10 Marks		QUESTIONS	Marks	COs	KL
Q. N1					
i	The suicidal bag of the cell is known as:	a) Golgi body b) Mitochondria c) Lysosome d) Ribosome	01	CO2	K1
ii	The ciliated columnar epithelium is present in	a) Bronchioles and fallopian tube b) Bile duct and oesophagus c) Fallopian tube and urethra d) Eustachian tube and stomach lining	01	CO2	K1
iii	Which types of cells line blood vessels?	a) Columnar epithelium b) Smooth muscle tissue c) Connective tissue d) Squamous epithelium	01	CO2	K4
iv	The areolar tissue connects	a) Two bones b) Muscle and bones c) Muscle and the fat tissue d) Muscle and their compound	01	CO3	K1
v	On the human body, the thickest skin is located on the _____	a) Palm and soles b) Buttocks	01	CO1	K1


**Section C (Answer any TWO out of FOUR) – 20 Marks**  
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	Elaborate the Cranial nerves and Spinal nerves along with the comparison between the Parasympathetic and Sympathetic nervous system.	10	CO4	K6, K4
9	What is the skeletal system? Write in detail about axial and appendicular bones with the help of a diagram.	10	CO1	K2
10	Explain the Brain stem and different regions with a diagram	10	CO4	K2
11	Briefly describe the endocrine system.	10	CO3 CO4	K2


vi	c) Abdomen d) Thighs What quality is notable about the stratum corneum? a) It is the thinnest layer of the skin b) It is the weakest layer of skin c) It is the toughest layer of the skin d) It is lower most layer of the skin	01	CO2	K4
vii	Which of the following layers of the skin does not contain blood vessels? a) Cutis b) Dermis c) Corium d) Epidermis	01	CO4	K4
viii	The walls of capillaries are made of a) Endothelium only b) Endothelium and smooth muscles c) A tunica interna and a tunica media d) Smooth muscle and elastic connective tissue	01	CO2	K1
ix	Telencephalon refers to which part of the brain? a) Brainstem b) Cerebrum c) Cortex d) Cerebral hemispheres	01	CO3	K1
x	What is the main source of adrenaline? a) Thyroid gland b) Parathyroid gland c) Pituitary gland d) Adrenal gland	01	CO3	K1

**Section B (Answer any FOUR out of SIX) – 20 Marks**  
(Each question Carry 5 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Write a short note on the thalamus and hypothalamus.	05	CO4	K2
3	Write a short note on lymphatic vessels	05	CO3	K2
4	Draw well labeled diagram of skin and also explain its functions.	05	CO3	K2
5	Explain Cerebrum with its functions.	05	CO4	K2
6	Explain briefly synovial joints and its types	05	CO4	K2
7	Write a short note on dense connective tissue?	05	CO2	K2



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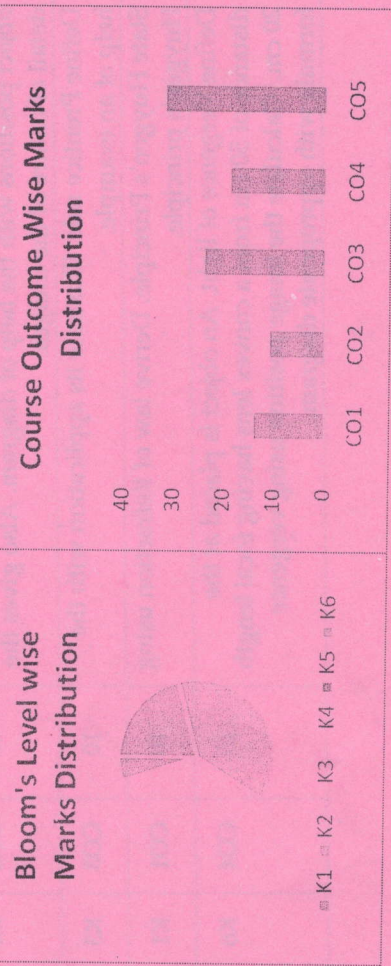


**NAAC GRADE A**  
ACCREDITED UNIVERSITY

**END SEM EXAMINATION**  
School of Health & Allied Sciences

<b>Program</b>	Bachelor of Optometry	
<b>Subject Name</b>	Geometrical Optics - I	Semester I Year January, 2025
<b>Time: 2 Hour Max. Marks : 50</b>	<ul style="list-style-type: none"> <li>• Start writing from 2nd page onwards; don't Write on the 1st Page Backside</li> <li>• Answer all Questions of Section A (Compulsory)</li> <li>• Answer Any Four out of Six of Section B</li> <li>• Answer Any Two out of Four of Section C</li> <li>• Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation</u> of the Papers.</li> </ul>	

CO1	Understand concepts and theories of light, its nature & properties
CO2	Understand concepts and properties of mirror & lenses
CO3	Identifying various of lens & mirror during practical
CO4	Applying formula calculation related to vergence
Knowledge Level (KL)	<b>K1</b> : Remembering <b>K3</b> : Applying <b>K5</b> : Evaluating <b>K2</b> : Understanding <b>K4</b> : Analysing <b>K6</b> : Creating



Section A (Each question Carry 01 Marks from Q1-i to x) – 10 Marks				
QNI	QUESTIONS	Marks	COs	KL
i	Prentice rule is used to calculate..... a) Decentration b) Prismatic Effect c) Prism Dioptre d) All of the above	01	CO3	K1
ii	Images formed by Convex lens will be virtual and erect if an object is placed at..... a) Beyond 2F b) Between F and O c) At Focus d) At 2F	01	CO2	K4
iii	The angle of Incidence will be equal to angle of refraction in ..... a) Specular Reflection b) Diffuse Reflection c) Refraction d) None of the above	01	CO1	K5
iv	Deviation of rays in prism depends on ..... a) Apical Angle b) Angle of Incidence c) Both (a) and (b) d) None of the above	01	CO2	K4
v	Normal value of vertex distance is..... a) 12-13 mm b) 12 – 13 cm c) 1.2-1.3 cm	01	CO4	K2

vi	d) Both (a) and (c) What will be the refractive index of glass with respect to air? a) 1 b) 1.33 c) 1.5 d) 2.46	01	CO1	K1
vii	The ratio of size of image by size of object is known as a) Linear Magnification b) Angular Magnification c) Both a and b d) Cannot say	01	CO3	K1
viii	Which of the following materials have higher refractive index? a) CR - 39 b) Poly carbonate c) Trivex d) None of the above	01	CO3	K1
ix	What will be the focal length of convex lens with power 5.00 D? a) + 20 cm b) -20 cm c) +0.2 metre d) Both (a) and (c)	01	CO2	K4
x	S.H.M stands for..... a) Simple Harmonic Motion b) Sinusoidal Harmonic Motion c) Simple Harmonic Mass d) None of the above	01	CO1	K1
<b>Section B (Answer any FOUR out of SIX) – 20 Marks</b> (Each question Carry 5 Marks)				
<b>Q. No.</b>	<b>QUESTIONS</b>	<b>Marks</b>	<b>COs</b>	<b>KL</b>
2	Define effectivity of lens. A lens having power +10.00D is placed at vertex distance of 15 mm. What will be the effective power of same lens if fitted at 10 mm vertex distance?	05	CO3	K4
3	Differentiate between crown glass and flint glass. Define dispersive power of prism.	05	CO2	K2
4	Define Refractive index. Explain different types of wavefronts.	05	CO1	K1
5	Explain Sign Convention in detail with appropriate diagram.	05	CO1	K4

6	Explain in detail about 6 cardinal points in convex lens.	05	CO4	K3
7	Explain in detail about linear and angular magnification.	05	CO2	K1
<b>Section C (Answer any TWO out of FOUR) – 20 Marks</b> (Each question Carry 10 Marks)				
<b>Q. No.</b>	<b>QUESTIONS</b>	<b>Marks</b>	<b>COs</b>	<b>KL</b>
8	Explain Image formation by convex lens for 6 standard object positions with the help of diagram. Also gives the detail of nature of the images.	10	CO2	K4
9	Define Prentice rule. Illustrate its application with the help of an example.	10	CO3	K3
10	State Huygen's Principle. Derive law of Refraction using Huygen's principle.	10	CO1	K1
11	Define Vergence of light. An object is placed at the distance of 50 cm from a convex lens having focal length 20 cm. Calculate the image position using vergence formula with appropriate diagram.	10	CO4	K6

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

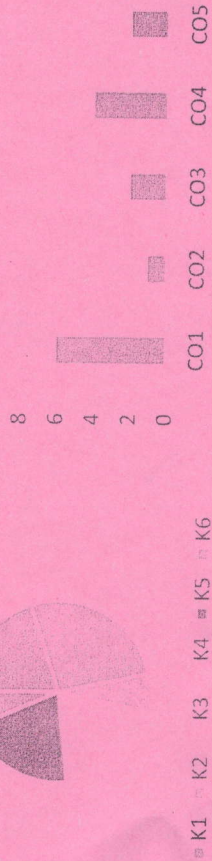
CO1	Establish fluent professional communication between the clinician and the patient
CO2	Emphasize on the writing skill of the student for better writing of articles or manuscripts
CO3	Appreciate literature through critical study of select literary work
CO4	Demonstrate effective speaking skills
CO5	Demonstrate comprehension in reading texts

**GRAPHICAL REPRESENTATION**

**Bloom's Level wise Marks Distribution**



**Course Outcome Wise Marks Distribution**



1 SET REPORT



**ARKA JAIN University**  
Jharkhand



**END SEM EXAMINATION**  
School of Health and Allied Science

**Program** Bachelor of Optometry

**Subject Name** English

**Semester I**  
**Year** January, 2025

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

Time: 1.5 Hour Max. Marks : 35

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

**Section A (Each question Carry 01 Marks from Q1-i to v) – 05 Marks**

**QUESTIONS**

Q.N I	QUESTIONS	Marks	COs	KL
i	What is the meaning of the homonym "bark" when referring to a tree? a) The sound a dog makes b) The outer covering of a tree c) Both a and b d) None of these	01	CO1	K1
ii	Which pair of words are analogies for "Sun:Day"? a) Moon:Night b) Water:Ocean c) Tree:Fores d) Book:Library	01	CO3	K2
iii	Convert the following sentence to passive voice: "She writes a letter." a) A letter wrote by her. b) A letter was written by her. c) A letter is written by her. d) A letter writes by her.	01	CO4	K3
iv	Which prefix can be added to the word "agree" to make it mean "not agree"? a) Pre- b) Un- c) Dis- d) Re-	01	CO1	K1

v	Why is individual feedback important for each student during speech practice? a) It discourages improvement. b) It helps identify personal strengths and weaknesses. c) It is not useful. d) It makes students nervous.	01	CO4	K4
<b>Section B (Answer any FIVE out of SIX) – 10 Marks</b> (Each question Carry 02 Marks)				
<b>Q. No.</b>	<b>QUESTIONS</b>	<b>Marks</b>	<b>COs</b>	<b>KL</b>
2	Explain the difference between active and passive voice in grammar.	02	CO4	K2
3	Evaluate the importance of feedback in improving public speaking skills.	02	CO4	K5
4	Rewrite the sentences "The teacher gave the student a book" in passive voice.	02	CO3	K3
5	Analyze the importance of audience awareness in public speaking.	02	CO3	K4
6	Explain the difference between Formal and Informal letter.	02	CO1	K2
7	Write a letter to your Program Coordinator for two-day leave.	02	CO2	K6
<b>Section C (Answer any TWO out of FOUR) – 20 Marks</b> (Each question Carry 10 Marks)				
<b>Q. No.</b>	<b>QUESTIONS</b>	<b>Marks</b>	<b>COs</b>	<b>KL</b>
8	Write a short essay on 'Importance of English Language'.	05	CO2	K6
9	Write a formal letter to The Minister of Education highlighting the need for better infrastructure and resources in government schools.	05	CO2	K1
10	Evaluate the role of non-verbal expressions in communication?	05	CO3	K5
11	Write a short story using descriptive language and sensory details, Exploring a theme or issue relevant to your audience.	05	CO2	K6

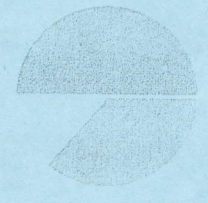
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CO- Course Outcomes      KL- Knowledge Level      PO - Program Outcome

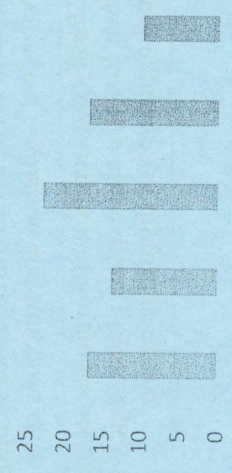
CO1	Understand concepts & terminology of human physiology
CO2	Enlist and memorizing the function & structure of cells, tissues and major human organs systems/parts
CO3	Understand function of various organ systems and employing its knowledge to identify diseases related to them
CO4	Identify and explaining the interrelation between different organ systems
CO5	Differentiate various organs & organs system

**GRAPHICAL REPRESENTATION**

Bloom's level wise marks distribution



Course outcome wise marks distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6



Program	Bachelor of Optometry
Subject Name	Physiology
Time: 2 Hour Max. Marks : 50	
Knowledge Level (KL)	K1 : Remembering K2 : Understanding K3 : Applying K4 : Analysing K5 : Evaluating K6 : Creating
Semester	I
Year	January, 2025

END SEM EXAMINATION  
School of Health and Allied Science

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- Answer all Questions of Section A (Compulsory)
- Answer Any Four out of Six of Section B
- Answer Any Two out of Four of Section C
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Q. N1	QUESTIONS	Marks	COs	KL
i	The total amount of air inhaled or exhaled during normal breathing is known as _____ a. Inspiratory volume b. Tidal volume c. Expiratory Volume d. Respiration Capacity	01	CO2	K1
ii	Metabolic rate is Controlled by _____. a. Pancreas b. spleen c. liver d. thyroid	01	CO3	K2
iii	The primary target of the and inhibiting the hormones of the hypothalamus is _____. a. liver and Adipose tissue b. Gonads c. Anterior gland d. Bone marrow	01	CO4	K1
iv	In which part of the respiratory system, gaseous exchange takes place? a. Alveoli b. Pharynx c. Larynx d. Trachea	01	CO2	K2

Section A (Each question Carry 01 Marks from Q1-i to x) – 10 Marks

v	Which Neurotransmitter is responsible for the function of the Para-Sympathetic Nervous System? a. Dopamine b. Acetyl Choline c. Adrenaline d. Noradrenaline	01	CO1	K1
vi	The total amount of air inhaled or exhaled during normal breathing is known as _____. a. Inspiratory volume b. Tidal volume c. Expiratory Volume d. Respiration Capacity	01	CO3	K1
vii	The functional unit of the kidney _____. a. Hilum b. Neurons c. Nephrons d. Medulla	01	CO4	K1
viii	The total number of alveoli present in the human lungs is estimated to be around _____. a. 1 billion b. 800 million c. 500 million d. 1500 million	01	CO2	K1
ix	Cartilage at the end of long bones is a. Calcified cartilage b. Fibrous cartilage c. Hyaline cartilage d. Elastic cartilage	01	CO2	K1
x	The gaseous exchange in alveoli is a type of a. Simple diffusion b. Osmosis c. Active transport d. Passive transport	01	CO1	K2
<b>Section B (Answer any FOUR out of SIX) – 20 Marks</b> (Each question Carry 5 Marks)				
<b>Q. No.</b>	<b>QUESTIONS</b>	<b>Marks</b>	<b>COs</b>	<b>KL</b>
2	Write the physiology of respirations and explain non respiratory functions of Lungs.	05	CO4	K2
3	Write a note on Neurohumoral regulations of alimentary functions.	05	CO3	K4
4	Give a short note on Epithelial tissue and its types.	05	CO5	K1

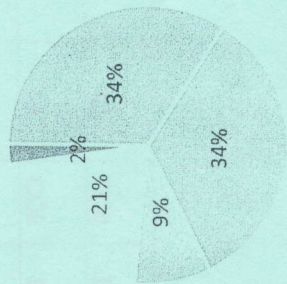
5	Explain about Lung volumes and capacities.	05	CO3	K2
6	Give a short note on Cartilage.	05	CO5	K1
7	Write Blood Grouping Classification, Importance of transfusion and Rh factor.	05	CO1	K1, K4
<b>Section C (Answer any TWO out of FOUR) – 20 Marks</b> (Each question Carry 10 Marks)				
<b>Q. No.</b>	<b>QUESTIONS</b>	<b>Marks</b>	<b>COs</b>	<b>KL</b>
8	Explain the physiology of peripheral circulation.	10	CO2	K2
9	Briefly explain about the Male reproductive system?	10	CO1	K2
10	What is Bone? Write the types, development, hormonal regulation and functions of bone.	10	CO3	K1, K4
11	Classify the secretion of hormones according to their function and explain physiological function and regulation of thyroid hormone.	10	CO4	K4



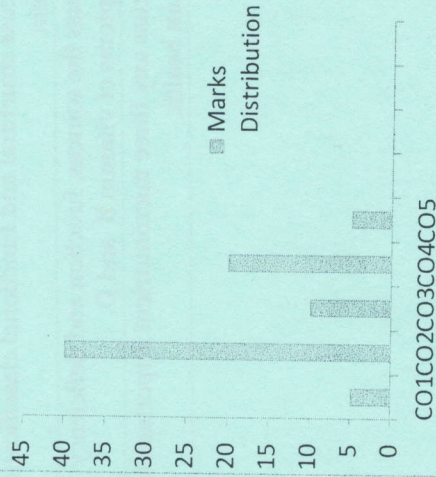
CO1	Understand the concept and theories of biochemistry related to optometry
CO2	Understanding the chemistry of carbohydrates, protein, lipids and amino acids
CO3	Analyze the mechanism of enzyme action
CO4	Understand the role of mineral with respect to eyes
CO5	Understanding the biochemical testing and analysing the test results

**GRAPHICAL REPRESENTATION**

Bloom's Level wise Marks Distribution



Marks Distribution



Program	Bachelor of Optometry	
Subject Name	Biochemistry	
Semester	I	Year
	January, 2025	

• Start writing from 2nd page onwards; don't Write on the 1st Page Backside

• Answer all Questions of Section A (Compulsory)

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Time: 2 Hour  
Max. Marks : 50

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

**Section A (Each question Carry 01 Marks from Q1-i to x) - 10 Marks**

Q. N	QUESTIONS	Marks	COs	KL
1				
i	Biologically important compounds derived from cholesterol are a. Vitamin D b. Sex hormone c. Adrenocortical hormones d. All the above	01	CO2	KL2
ii	Gangliosides and cerebrosides are examples of a. Glycolipid b. Glycoprotein c. Proteoglycan d. None	01	CO2	KL3
iii	CPPP ring is present in a. Sterols b. Steroids c. Ganglioside d. Both a and b	01	CO2	KL1
iv	It is made up of glucose and fructose unit a. Maltose b. Insulin c. Lactose d. Sucrose	01	CO2	KL4

v	Alpha glucose and beta glucose are a. Anomers b. Epimers c. Both d. None	01	CO2	KL4
vi	Which of these amino acid does not contain asymmetric carbon atom a. Leucine b. Glycine c. Glutamate d. Histidine	01	CO2	KL3
vii	All monosaccharides are a. Reducing sugars b. Non reducing sugar c. Any of these d. None of these	01	CO2	KL2
viii	Major lipid in mitochondrial membrane a. Phosphatidic acid b. Cardiolipin c. Lecithin d. Cephalin	01	CO2	KL4
ix	Which of the following statements is true about proteins? a. Proteins are polymers of glucose b. Proteins are polymers of amino acids c. Proteins are polymers of peptide bonds d. Proteins are polymers of disulfide bridges	01	CO2	KL5
x	Mutarotation is a. The gradual change in specific rotation b. The specific rotation c. Optical activity d. The dextrorotation	01	CO2	KL1

**Section B (Answer any FOUR out of SIX) – 20 Marks**  
(Each question Carry 5 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Discuss any two eye diseases related to deficiency of vitamins.	05	CO1	KL2
3	What do you mean by balanced diet? Do you think it plays important role?	05	CO4	KL2
4	Discuss Classification of lipids.	05	CO2	KL1
5	Define epimer and anomers and give their examples.	05	CO2	KL2

6	Discuss the factors which influence BMR.	05	CO4	KL3
7	Discuss Purpose principle and procedure of Molish test	05	CO5	KL4
<b>Section C (Answer any TWO out of FOUR) – 20 Marks</b> (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs*	KL
8	What are lipids? Discuss the importance of lipids and phospholipids. What are their functions in human body?	10	CO2	KL2
9	Discuss structural and functional classification of Protein.	10	CO2	KL1
10	Discuss the sources, function and deficiency symptoms of vitamin B and D.	10	CO3	KL4
11	Discuss any three micronutrient important for human health.	10	CO4	KL1