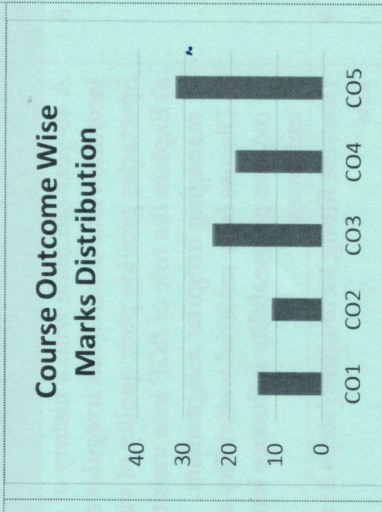
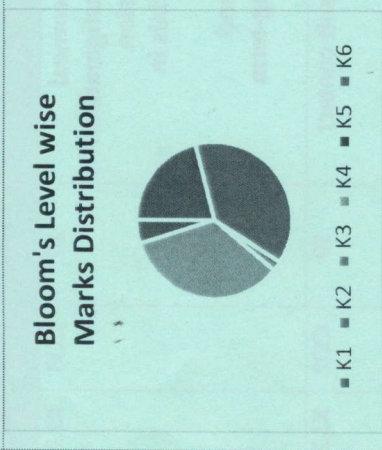


CO1	Understand about contact lens history, introduction, design & relation with structure of eye
CO2	Understand about RGP contact lens material & their property their parameter
CO3	Understand about RGP contact lens manufacturing techniques & fitting of RGP lenses
CO4	Understand and know about care maintenance and do's & don't of RGP contact lens
CO5	Learn about complication and their management of RGP contact Lenses

**GRAPHICAL REPRESENTATION**



**ARKA JAIN University**  
Jharkhand



[18-11-2025]  
**END SEM EXAMINATION**  
School of Health & Allied Sciences

Program	Bachelor of Optometry	
Subject Name	Contact Lens 1	Session
Semester	V	Year
Time: 2 Hour	Start writing from 2nd page onwards; <b>don't Write on the 1st Page Backside</b>	
Max. Marks : 50	<ul style="list-style-type: none"> <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 <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>	
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 x) – 10 Marks**

Q.N1	QUESTIONS	Marks	COs	KL
i	The components of care and maintenance a) Daily cleaner b) Rinsing solution c) Lubricants d) All of the above	01	CO1	KL2
ii	Purpose of care and maintenance a) Clean lenses and good comfort b) Good vision c) Safe lens wear d) All of the above	01	CO1	KL1
iii	Wearing RGP lens should provide a) Good visual acuity with comfort b) No ocular insult c) No facial appearance d) All of the above	01	CO2	KL2
iv	The degree of fluorescein pooling can be graded as a) Slightly steep b) Steep c) Very steep d) All of the above	01	CO2	KL2

v	Ideal lens movement during fitting assessment is a) Smooth b) Rocky c) Apical d) All of the above	01	CO2	KL3
vi	Dynamic fitting assessment is done by observing a) Decentration & stability b) Movement after blinking c) Movement in lateral gaze d) All of the above	01	CO2	KL2
vii	Post fitting assessment is done by assessing a) Dynamic fit b) Static fit c) Vision assessment d) All of the above	01	CO2	KL2
viii	Preliminary measures for RGP a) HVID b) Radius of curvature c) Lid tonicity d) All of the above	01	CO3*	KL3
ix	Patient selection criteria for RGP a) High motivation of patient b) Moderate to high refractive error c) Corneal toricity d) All of the above	01	CO3	KL3
x	Oxygen permeability is a a) Material property b) Optical property c) Lens property d) None of the above	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	Assess the role of Dk/t in preventing hypoxic complications in contact lens wearers.	05	CO4	KL3
3	Differentiate between enzymatic cleaners and surfactant cleaners.	05	CO3	KL3

4	Compare the clinical significance of front vertex power vs. back vertex power in contact lens dispensing.	05	CO3	KL2
5	Explain the differences between flat fit and steep fit.	05	CO2	KL3
6	Write a short note on vertex distance calculation	05	CO2	KL3
7	Discuss optics of contact lenses	05	CO2	*KL2

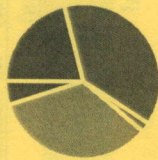
**Section C (Answer any TWO out of FOUR) - 20 Marks**  
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	A 40-year-old male with a history of corneal laceration and sutures has irregular astigmatism. Spectacles provide poor quality of vision. a) Explain the role of RGP lens materials in managing irregular astigmatism. b) Discuss how material wettability and oxygen permeability influence long-term outcomes	10	CO3	KL2
9	Describe fitting techniques/steps in soft contact lens	10	CO2	KL2
10	Define soft and RGP lens Properties (DK, Water Content, Modulus of Elasticity etc).	10	CO2	CL3
11	Describe the classification of contact lenses	10	CO2	KL2

CO1	Understand the basic definition and classification of Low Vision
CO2	Analyze the various causes of Low Vision
CO3	Understand how to do examination of a low vision Patient
CO4	Apply various optical and non-optical devices for visual rehabilitation of a low vision Patient.
CO5	Understand the legal aspects of Low Vision in India, as well as applying case studies to for visual rehabilitation of a low vision Patient

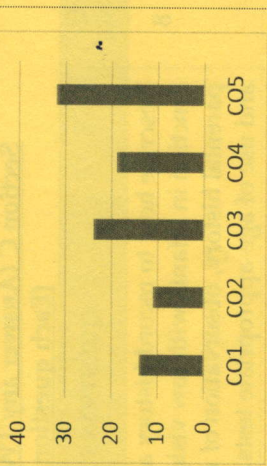
**GRAPHICAL REPRESENTATION**

**Bloom's Level wise Marks Distribution**



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

**Course Outcome Wise Marks Distribution**



**ARKA JAIN University**  
Jharkhand



[20-11-2025]  
**END SEM EXAMINATION**  
School of Health & Allied Sciences

Program	Bachelor of Optometry	
Subject Name	Low Vision Care	
Semester	V	Year
	Start writing from 2nd page onwards; don't Write on the 1st Page Backside	Session
	<ul style="list-style-type: none"> <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 <u>Papers</u>.</li> </ul>	Odd, 2025-26
Time: 2 Hour		Nov, 2025
Max. Marks : 50		
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing K5 : Evaluating K6 : Creating

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

Q. N1	QUESTIONS	Marks	COs	KL
i	Most of the causes of low vision are due to? a) Retinal disorders b) Corneal disorders c) Lenticular diseases d) Neurological problems	01	CO1	K4
ii	If a low vision patient's visual acuity is 20/400, estimate the near add requirement using Kestenbaum's rule: a) 2.5D @ 40 cm b) 4D @ 25 cm c) 20D @ 5 cm d) 10D @ 10 cm	01	CO4	K3
iii	Which of the following is not the cause of pediatric low vision? a) Retinitis pigmentosa b) Retinoblastoma c) Glaucoma d) Retinopathy of Prematurity	01	CO2	K4
iv	The most common cause of avoidable blindness is a) Refractive error b) RP c) AMD d) Nystagmus	01	CO2	K2
v	According to WHO there are _____ categories of Vision impairment? a) 4 b) 3	01	CO2	K1

c) 5	d) 8	01	CO5	K3
vi	Which of the following diseases cause peripheral vision loss? a) Macular edema b) Optic neuritis c) Stargardt disease d) Glaucoma	01	CO2	K4
vii	Which of the following statements is false? a) Congenital low vision patients adapt tasks and activities to necessary levels b) Sudden loss of spouse can impact the life of a low vision patient c) Peer support groups can be helpful in low vision patients d) Low vision does not affect the mental health of pediatric age group	01	CO3	K5
viii	Which of the following is an example of relative distance magnification? a) Hand magnifier b) Bringing text closer to the eye c) Large print book d) Stand magnifier	01	CO4	K3
ix	In an RP patient, where he is restricted to remain indoors it is a a) Visual disorder b) Visual impairment c) Visual disability d) Visual handicap	01	CO3	K1
x	The two visual functions considered under WHO's definition of low vision are _____ and _____ a) Visual field and contrast sensitivity b) Visual field and visual acuity c) Contrast sensitivity and color perception d) Glare and visual acuity	01	CO5	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	Discuss and compare spectacle magnifiers and hand-held magnifiers used in low vision rehabilitation.	05	CO2	K2
3	Explain the psychosocial implications of low vision on an individual, highlighting its impact on emotional well-being, social interaction, education, occupation, and overall quality of life.	05	CO4	K1

4	Define optical filters. Outline their diagnostic and therapeutic applications in eye care.	05	CO3	K2
5	Illustrate the importance of contrast sensitivity, explaining its role in visual function, daily activities, and clinical relevance beyond standard visual acuity testing.	05	CO4	K3
6	Explain the different levels of low vision service delivery (primary, secondary, tertiary, and community/rehabilitation levels), highlighting the scope of care and services provided at each level.	05	CO2	K5
7	What are the key laws and legal provisions related to the rights and welfare of the visually impaired population? Briefly discuss their significance in eye care practice.	05	CO4	K3
<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	Describe how to record history and assess visual function in infants with low vision, including parental history, observation of visual behaviors, and use of age-appropriate tests.	10	CO3	K2
9	Justify the name any two diseases where visual field is compromised. How can we rehabilitate a person with severe visual field loss?	10	CO4	K2
10	A 15-year-old with retinitis pigmentosa has VA of 20/40 OU but severe visual field restriction. He reports bumping into objects and difficulty playing sports. How would you address his visual field loss, educational needs, and psychosocial concerns?	10	CO5	K4
11	A 10-year-old girl with albinism has a visual acuity of 20/120 OU, associated with photophobia. She struggles with outdoor play and has reading difficulties. What low vision interventions, devices, and environmental modifications will you recommend to maximize her functional vision?	10	CO5	K3

CO1	Understand the concept of Ocular anatomy and Physiology in geriatric and pediatric population.
CO2	Understand the concept of systemic diseases of geriatric and pediatric patients.
CO3	Apply concept of optometric Evaluation procedure.
CO4	Understand the concept of ocular drainage and other mechanical systems
CO5	Utilize the concept of various optical and primarily medicated intervention and therapeutic procedure

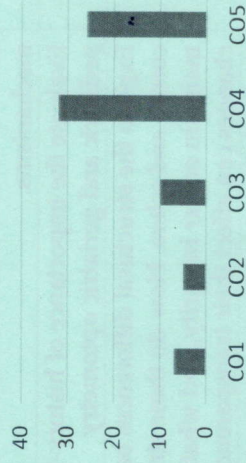
**GRAPHICAL REPRESENTATION**

**Bloom's Level wise Marks Distribution**



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

**Course outcome wise marks distribution**



**ARKA JAIN University**  
Jharkhand



[22-11-2025]  
**END SEM EXAMINATION**  
School of Health & Allied Sciences

<b>Program</b>	Bachelor of Optometry		
<b>Subject Name</b>	Geriatric Optometry & Pediatric Optometry	<b>Session</b>	Odd, 2025-26
<b>Semester</b>	V	<b>Year</b>	Nov, 2025
<b>Time: 2 Hour</b> <b>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 of the Papers.</u></li> </ul>		
<b>Knowledge Level (KL)</b>	<b>K1 : Remembering</b>	<b>K3 : Applying</b>	<b>K5 : Evaluating</b>
	<b>K2 : Understanding</b>	<b>K4 : Analysing</b>	<b>K6 : Creating</b>

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

Q. N	QUESTIONS	Marks	COs	KL
1				
i	What is the hallmark finding in age-related macular degeneration (AMD)? A. Cup-to-disc ratio increase B. Drusen in the macula C. Cotton wool spots D. Corneal arcus	01	CO1	K1
ii	Which of the following is considered a normal visual behavior in a 6-week-old infant? A. Brief fixation on caregiver's face B. Tracking a moving object across midline C. Recognizing colors D. Accurate saccades	01	CO3	K3
iii	Which of the following best explains why low vision is more prevalent in the elderly? A. Better access to eye care B. Less interest in visual tasks C. Age-related degenerative changes in ocular structures D. Improved diagnosis	01	CO3	K3
iv	If a child shows unequal red reflex during a vision screening, what should the optometrist suspect?	01	CO4	K4

Q. No.	QUESTIONS	Marks	COs	KL
2	What are the main types of amblyopia, and how do their underlying causes differ and their management	05	CO4	K2
3	Define ARMD and explain the difference between the non-exudative and exudative ARMD.	05	CO2	K2
4	Differentiate between Primary Open-Angle Glaucoma and Primary Angle-Closure Glaucoma in terms of clinical features, risk factors, and mechanisms.	05	CO4	K4
5	Evaluate the importance of history-taking in pediatric and geriatric optometry	05	CO3	K5
6	Explain the structural differences between the cornea and sclera. How do these structures maintain ocular integrity, and what pathological changes can affect their transparency and function?	05	CO1	K4
7	Evaluate the advantages and disadvantages of contact lenses versus spectacles in elderly patients with presbyopia.	05	CO5	K5
<b>Section C (Answer any TWO out of FOUR) - 20 Marks</b> (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Explain the management options for myopia in pediatric patients. Discuss optical, pharmacological, and behavioral interventions with supporting evidence.	10	CO5	K5
9	Differentiate between Non-Proliferative and Proliferative Diabetic Retinopathy. Include key clinical features and complications of each stage.	10	CO4	K4
10	Describe the classification of Hypertensive Retinopathy based on the Keith-Wagener-Barker system. Include key fundus findings in each grade.	10	CO4	K2
11	Describe the challenges faced by geriatric patients while wearing contact lenses.	10	CO5	K2

v	A. Color blindness B. Conjunctivitis C. Media opacity or refractive asymmetry D. Allergic reaction A fundus exam reveals flame-shaped hemorrhages, cotton wool spots, and narrowed arterioles. What condition is likely? A. Diabetic retinopathy B. Hypertensive retinopathy C. AMD D. Glaucoma	01	CO4	K4
vi	A patient presents with yellowish nodules on the nasal conjunctiva bilaterally. What is the most likely diagnosis? A. Pterygium B. Pinguecula C. Conjunctivitis D. Episcleritis	01	CO1	K4
vii	Why might an elderly patient struggle to adapt to new progressive lenses? A. Reduced tear film B. Reduced adaptability of the visual system with age C. Frame weight D. Incorrect pupillary distance	01	CO3	K4
viii	What binocular status finding suggests good sensory fusion? A. Suppression on Worth 4-dot test B. Fusion without diplopia on Worth 4-dot and stereopsis present C. Constant esotropia on cover test D. Alternate suppression on Bagolini lenses	01	CO3	K5
ix	What is a common compensatory treatment option for congenital nystagmus? A. Anti-reflective lenses B. Occlusion therapy C. Prisms to aid in null point positioning D. Anti-allergy eye drops	01	CO5	K2
x	What is the most appropriate advice for an elderly patient with early presbyopia and active lifestyle? A. Recommend bifocals B. Recommend reading glasses only C. Recommend progressive lenses with anti-scratch	01	CO3	K6

CO1	Understand the concept of Binocular Single vision.
CO2	Understand the concept of development and function of Binocular vision
CO3	Apply concept of Optometric Investigation for binocular vision anomalies
CO4	Understand the anatomy of extra ocular muscles and its actions
CO5	Utilize the concept of exercised and therapy for the management of binocular vision anomalies

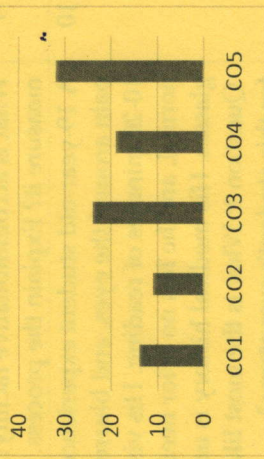
**GRAPHICAL REPRESENTATION**

**Bloom's Level wise Marks Distribution**



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

**Course Outcome Wise Marks Distribution**



Program	Bachelor of Optometry		
Subject Name	Binocular Vision I	Session	Odd, 2025-26
Semester	V	Year	Nov, 2025
Time: 2 Hour Max. Marks : 50	<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 comes under Unfair Means and will Result in the Cancellation of the Papers.</li> </ul>		
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 x) – 10 Marks**

Q. N1	QUESTIONS	Marks	COs	KL
i	Primary action of inferior oblique is a) Elevation b) Adduction c) Extortion d) Intortion	01	CO1	K1
ii	All of the following are examples of sensory adaption except a) Suppression b) ARC c) Amblyopia d) NRC.	01	CO2	K2
iii	Physiological diplopia is manifested in case of object situated a) On horoptor b) Within panum's area c) Outside panum's area d) None of these	01	CO5	K1
iv	The pair of Yoke muscles involved in Levoelevation are a) Lt Sup Obl & Rt Sup Rectus b) Lt Med Rectus & Rt Lat Rectus c) Lt Inf Rectus & Rt Med Rectus	01	CO3	K3

v	d) Lt Sup Rectus & Rt Inf Obl.  Hirschberg test is used to detect a) Heterophoria b) Heterotropia c) Diplopia d) None of these	01	CO3	K3
vi	Primary action of superior oblique is a) Elevation b) Adduction c) Extortion d) Intortion	01	CO2	K1
vii	According to Sherrington law, reciprocal innervation goes to _____ (a) Agonist and Antagonist muscles (b) Synergistic muscles (c) Both the above eye (d) None of the above	01	CO2	K1
viii	Coordinated vision between two eyes a) Monocular b) Binocular c) Bi ocular d) None of these	01	CO2	K1
ix	The correct neuromuscular development so that the visual axes are directed at the object a) Motor mechanism b) Sensory mechanism c) Mental process d) None of these	01	CO2	K1
x	The equal image clarity and size of two eyes a) Motor mechanism b) Sensory mechanism c) Mental process d) None of these	01	CO2	K1

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

Q. No.	QUESTIONS	Marks	COs	KL
2	Define Binocular vision and grades of binocular vision.	05	CO1	K2
3	Define (i) Panum's fusional area (ii) Suppression (iii) Corresponding retinal points	05	CO1	K2

4	Write a short note on Extraocular muscles	05	CO4	K2
5	Discuss anomalies of convergence, its etiology and management.	05	CO2	K4
6	Explain monocular cues of depth perception	05	CO1	K2
7	Describe advantages of binocular single vision	05	CO1	K2
<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 is BSV? Describe the advantages of BSV? What are the prerequisites of BSV? How is BSV measured using Synaptophore?	10	CO1 CO3	K3
9	What is accommodative facility? How do we measure it? Explain the process.	10	CO3	K3
10	A 19-year-old student experiences eye strain, pain around the eyes, and blurred vision after 10-20 minutes of reading. His visual acuity is normal, and he has no prior need for glasses. His medical history is unremarkable. Question 1: What is the most likely diagnosis for this student's symptoms? Question 2: What specific tests would you perform to confirm the diagnosis and assess the severity of the condition? Question 3: What is the initial management for this condition, and what longer-term strategies might be beneficial?	10	CO3	K3
11	Describe Amblyopia and its management.	10	CO5	K2

CO1	Understand the basics of systemic Disease having impact on the ocular health.
CO2	Understand the definition, classification, clinical Complications, diagnosis and management of various systemic diseases
CO3	Analyze the Ocular manifestation of some common systemic diseases like DM, HT, etc.
CO4	Understand the pathophysiology of the ocular changes due to underlying systemic disease.
CO5	Apply the knowledge to manage the ocular manifestation of various systemic diseases

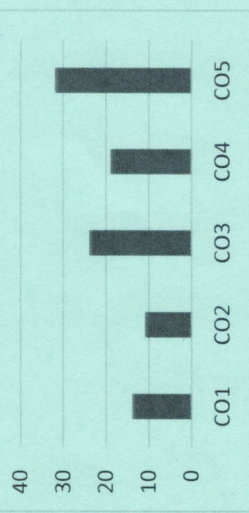
**GRAPHICAL REPRESENTATION**

**Bloom's Level wise Marks Distribution**



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

**Course Outcome Wise Marks Distribution**



**ARKA JAIN University**  
Jharkhand



[27-11-2025]  
**END SEM EXAMINATION**  
School of Health and Allied Sciences

Program	Bachelor of Optometry	
Subject Name	Systemic disease	
Semester	V	Year
Time: 3 Hour Max. Marks : 70	<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 comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers.</u></li> </ul>	
Knowledge Level (KL)	K1 : Remembering	K5 : Evaluating
	K2 : Understanding	K6 : Creating

**Section A (Each question Carry 01 Mark from Q1-i to xii) – 12 Marks**

Q.N	QUESTIONS	Marks	COs	KL
i	Normal range of diastolic blood pressure- a) 100-120 mmHg b) 60-80 mmHg c) 90-120 mmHg d) 100-140 mmHg	01	CO3	K1
ii	Exudates seen in - a) Inner limiting membrane. b) Outer plexiform layer. c) Nerve fiber layer. d) External limiting membrane	01	CO4	K2
iii	Ectopia lentis can be seen due to- a) Osteogenesis imperfect b) Marfan's syndrome c) Scleroderma d) Behset's disease.	01	CO2	K4
iv	Blue sclera can be seen due to- a) Osteogenesis imperfect b) Marfan's syndrome c) Scleroderma d) Behset's disease.	01	CO1	K3
v	Coronary artery aneurysm can be seen in - a) Myocarditis b) Rheumatic heart disease c) Kawasaki's disease d) Endocarditis	01	CO5	K4
vi	Insulin resistance causes- a) Type 1 diabetes b) Type 2 diabetes. c) Gestational diabetes. d) Secondary diabetes	01	CO3	K2

vii	Cotton wool spot can be seen in- a) Diabetic retinopathy b) Hypertensive retinopathy c) Choroideropathy d) Both a & b	01	CO1	K1
viii	Deposition of extracellular matrix in the skin called as- a) Scleroderma b) Polymyositis c) Dermatomyositis d) Behcet's disease	01	CO2	K3
ix	Sickle cell anemia causes- a) HBB gene b) FBN1 gene c) CFTR gene d) None of the above	01	CO4	K2
x	Xerophthalmia can be seen due to a) vitamin A deficiency b) Vitamin C deficiency c) Vitamin D deficiency d) Vitamin B1,B12 deficiency	01	CO2	K5
xi	Thyroid ocular manifestation causes- a) Proptosis b) Eyelid retraction c) Buphthalmos d) Both a & b	01	CO4	K4
xii	Hepadna virus cause which type of hepatitis- a) Hepatitis A b) Hepatitis B c) Hepatitis C d) Hepatitis D	01	CO5	K3
<b>Section B (Answer any FOUR out of SIX) - 28 Marks</b> (Each question Carry 07 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Enlist the sign and symptoms of cushing's syndrome.	07	CO4	K5
3	Write a short notes about the two types of diabetes? And how will you differentiate?	07	CO3	K4
4	Enlist the ocular findings of leukemia and describe the causes of leukemia?	07	CO5	K5
5	How will you identify scleritis and episcleritis by review the sign and symptoms?	07	CO1	K4
6	Write a short notes about keratoconjunctivitis sicca.	07	CO2	K3
7	What are the ocular indication of grave's ophthalmopathy?	07	CO1	K2
<b>Section C (Answer any TWO out of FOUR) - 30 Marks</b> (Each question Carry 15 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Explain the pathophysiology and ocular manifestations of sickle cell anemia. How will you differentiate BRVO and CRVO By see the ocular indication. And name two ocular surgery that you can prefer for this case.	15	CO5	K5

9	How will you identify TB by review the sign and symptoms? What are the diagnostic test you should prefer for Tb cases? And also write the Tb microorganism name.	15	CO2	K6
10	Discuss the pathogenesis, clinical features, and ocular complications of vitamin A, B1 ,B12 and D deficiency.	15	CO1	K3
11	Explain the blood circulation process in human body with a diagram. Write the layers of heart muscles.	15	CO3	*K2



**ARKA JAIN**  
**University**  
Jharkhand



[29-11-2025]

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

Program	Bachelor of Optometry		Session	Odd, 2025-26
Subject Name	Research Methodology & Biostatistics		Year	Nov, 2025
Semester	V			*
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; <b>don't Write on the 1st Page Backside</b></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 in the Cancellation of the Papers.</u></li> </ul>			
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 xii) – 12 Marks**

Q. N	QUESTIONS	Marks	COs	KL
1				
i	Define Research	01	CO2	K2
ii	Mention any two research Problems	01	CO2	K2
iii	What is data?	01	CO1	K1
iv	Define Random Sampling	01	CO2	K2
v	Define Morality	01	CO2	K2
vi	What is Primary Data?	01	CO1	K3
vii	State any two examples of Research tool	01	CO3	K3
viii	Define Stratified Sampling	01	CO2	K2
ix	Define Mean.	01	CO2	K2
x	State any two examples of diagrammatic representation of Data	01	CO3	K3
xi	Define Correlation	01	CO3	K2
xii	Define Mode.	01	CO3	K2

**Section B (Answer any FOUR out of SIX) – 28 Marks**  
(Each question Carry 07 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Describe Measures of Morality.	07	CO1	K4
3	How will you determine the sample size for any research?	07	CO1	K3
4	Describe measures of dispersion.	07	CO1	K3
5	Describe the importance of Ethical issue in Research.	07	CO1	K3
6	How will you identify the research Problems?	07	CO1	K3
7	Describe different types of Data with example.	07	CO1	K4

**Section C (Answer any TWO out of FOUR) – 30 Marks**  
(Each question Carry 15 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	Define Sampling & also describe different types of Sampling method.	15	CO1	K4
9	Describe in detail about Measures of central tendency.	15	CO1	K5
10	Describe in detail about different points to be conceded while developing Research Proposal.	15	CO1	K6
11	Describe in details about different Research Designs	15	CO1	K5

Course Outcomes	CO1	Data collection and statistical application
	CO2	Procure knowledge of different research methodologies and appropriate research design to conduct research projects
	CO3	Will be trained to interpret the strength of statistical arguments made by researchers
	CO4	To weigh statistical and clinical evidence in assessing a scientific hypothesis
	CO5	To read a scientific article effectively, review it and utilize the finding as evidence-based practice

**GRAPHICAL REPRESENTATION**

