The Draft CBME Curriculum for PG Clinical is being Circulated for Comments and Suggestions. The Suggestions are to be sent to RGUHS by mail to dcd.rguhs@gmail.com and copy to be mailed to Chairman BOS PG Clinical ravikdoc@gmail.com

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M.S. OPHTHALMOLOGY CURRICULUM

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1. Preamble

The purpose of PG education is to create competent ophthalmic surgeons with appropriate expertise who would provide high quality health care and advance the cause of science through research & training.
As a licensed medical doctor, the ophthalmologist's ethical and legal responsibilities include the care of individual and populations suffering from disorders of the eye and visual system. Such care requires not only core competencies for an ophthalmic physician but also a set of specialized cognitive capabilities and an array of technical skills. Specialist training is designed to provide a structured program of learning that facilitates the acquisition of knowledge, understanding, skills, and attitudes to a level appropriate for an ophthalmic specialist who has been fully prepared to begin his/her career as an independent consultant in ophthalmology..
The purpose of this document is to provide teachers and learners illustrative guidelines to achieve defined outcomes through learning and assessment. This document was prepared by various subject-content specialists. The Reconciliation Board of the Academic Committee has attempted to render uniformity without compromise to purpose and content of the document. Compromise in purity of syntax has been made in order to preserve the purpose and content. This has necessitated retention of "domains of learning" under the heading "competencies".

Program goals

A candidate upon successfully qualifying in the Ophthalmology residency examination should be able to:

a. Offer to the community, the current quality of "standard of care" in ophthalmic diagnosis, as well as therapeutics, medical or surgical, in most of the common situations encountered at the level of health services
b. Periodically self-assess his or her performance and keep abreast with ongoing advances in the field and apply the same in his/her practice
c. Be aware of his/her own limitations to the application of the specialty *in situ*ations which warrant referral to more qualified centers or individuals
d. Apply research and epidemiological methods during his/her practice. The candidate should be able to present or publish work done by him/her
e. Contribute as an individual/group toward the fulfillment of national objectives with regard to prevention of blindness
f. Effectively communicate with patients or relatives so as to educate them sufficiently and give them the full benefit of informed consent to treatment and ensure compliance.

18. OPHTHALMOLOGY SPECIFIC PROGRAM OBJECTIVES

The clinical post graduate training programmes are intended at developing in a student a blend of qualities that of a clinical specialist, a teacher and a researcher. These programmes are organized such that a post graduate student should possess the following qualities, knowledge and skills:

a. The student should possess basic knowledge of the structure, function and development of the human body as related to ophthalmology, of the factors which may disturb these mechanisms and the disorders of structure and function which may result thereafter.

b. The student should be able to practice and handle most day-to-day problems independently in ophthalmology. The student should recognize the limitations of his/her own clinical knowledge and know when to seek further help.

c. The student should understand the effects of environment on health and be familiar with the epidemiology of at least the more common diseases in the field of ophthalmology.

d. The student should be able to integrate the preventive methods with the curative and rehabilitative measures in the comprehensive management of the disease.

e. The student should be familiar with common eye problems occurring in rural areas and be able to deal with them effectively.

f. The student should also be made aware of Mobile Ophthalmic Unit and its working and components.

g. The student should be familiar with the current developments in Ophthalmic Sciences.

h. The student should be able to plan educational programmes in Ophthalmology in association with senior colleagues and be familiar with the modern methods of teaching and evaluation.

i. The student should be able to identify a problem for research, plan a rational approach to its solution, execute it and critically evaluate his/her data in the light of existing knowledge.

j. The student should reach the conclusions by logical deduction and should be able to assess evidence both as to its reliability and its relevance.

k. The student should have basic knowledge of medico-legal aspects of medicine.

l. The student should be familiar with patient counseling and proper consent taking.

19. Course contents:

A. Basic Sciences:

1. Orbital and ocularanatomy
    a. Grossanatomy
    b. Histology
    c. Embryology
2. OcularPhysiology
3. OcularPathology
4. OcularBiochemistry

    General biochemistry, biochemistry applicable to ocular function

5. OcularMicrobiology

    General Microbiology, specific microbiology applicable to the eye

6. Immunology with particular reference to ocularimmunology
7. Genetics in ophthalmology

B. Optics

a. Basic physics ofoptics
b. Applied ophthalmicoptics
c. Applied optics including opticaldevices
d. Disorders ofRefraction

C. Clinical Ophthalmology

a. Disorders of thelids
b. Disorders of the lacrimalsystem
c. Disorders of theConjunctiva
d. Disorders of theSclera
e. Disorders of theCornea
f. Disorders of the UvealTract
g. Disorders of theLens
h. Disorders of theRetina
i. Disorders of the Optic Nerve and VisualPathway
j. Disorders of theOrbit
k. Glaucoma
l. Neuro-ophthalmology
m. Paediatric ophthalmology
n. Ocular involvement in systemicdisease
o. Immune oculardisorders

p. Strabismus andAmblyopia

q. Ocularoncology

r. Disorders of genetics

D. Ophthalmic OT techniques

E. Contact Lenses

F. Low Vision Rehabilitation

G. Community Ophthalmology

H. Ethics and Professionalism in Ophthalmology

I. Medico legal aspects in ophthalmology

J. Research methodology in ophthalmology

K. Recent Advances in Ophthalmology

- Designing a modern ophthalmic operation theatre
- Video assisted surgeries
- 3D printing in ophthalmology
- Robotic surgeries
- Newer lasers
- Newer surgical techniques
- Newer equipments

20. COMPETENCIES

6a. Introduction to competencies

This will be dealt with under the following headings:

- Theoretical knowledge (Cognitive domain)
- Attitudes including communication skills (Affective domain)
- Practical and clinical skills (Psychomotor domain)
- Ophthalmic Superspeciality
- Other Skills

At the end of the M.S. Ophthalmology programme, the post graduate student should be able to:

I. Cognitive domain

1. **Basic Sciences**
2. **Optics and Refraction**
3. **Clinical Ophthalmology**

Given adequate opportunity to work on the basis of graded responsibilities in outpatients, inpatient and operation theatres on a rational basis in the clinical sections from the day of entry to the completion of the training programme, the students should be able to

a. Acquire understanding of and develop inquisitiveness to investigate to establish cause and effect of the disease.

b. Acquire scientific and rational approach to the diagnosis of ophthalmic cases presented.

c. To manage and treat all types of ophthalmic cases.

d. To competently handle all ophthalmic medical and surgical emergencies.

With relation to

i. Disorders of Refraction

i. Disorders of the Lids

ii. Disorders of the Lacrimal System

iii. Disorders of the Conjunctiva

iv. Disorders of the Sclera

v. Disorders of the Cornea

vi. Disorders of the Uveal Tract and Inflammation

vii. Disorders of the Lens

viii. Disorders of the Vitreo Retina

ix. Disorders of the Optic Nerve & Visual Pathway

x. Disorders of the Orbit

xi. Glaucoma

xii. Disorders of Neuro ophthalmology

xiii. Disorders of Paediatric ophthalmology

xiv. Systemic ophthalmology (Ocular involvement in systemic disease)disorders.

xv. Immune ocular disorders

xvi. Strabismus & Amblyopia

xvii. Ocular Oncology

xviii. Disorders of Genetics

II. Affective Domain:

1. Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.

2. Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.

3. Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

III. Psychomotor domain

At the end of the course, the student should acquire following clinical skills:

1. **Essential Diagnostic skills and Laser skills**
2. **Essential surgical skills**

Operations:

a. The PG is provided with an opportunity to perform operations both extra-ocular and intra-ocular with the assistance of the senior post graduate students and/or under the direct supervision of a faculty member. The student is provided with an opportunity to learn special

and complex operations by assisting the senior post graduate student or the faculty in operations of cases of the specialty and be responsible for the post- operative care of these cases.

b. In first phase, the post graduate student is given training in preparations of cases for operation, pre-medication and regional anaesthetic blocks. In the next phase, the post graduate student assists the operating surgeon during the operations. In the third phase, the post graduate student operates independently assisted by senior post graduate student or a faculty member. She/he is required to be proficient in some operations and show familiarity with others
c. Competently handle and execute safely all routine surgical procedures on lens, glaucoma, lid, sac, adnexa, retina, and muscle anomalies
d. Be familiar with microsurgery and special surgical technique

IV. Ophthalmic superspecialties

Given an opportunity to work on a rotational basis in various special clinics of subspecialties of ophthalmology, if possible, the student should be able to:

i. Examine, diagnose, and demonstrate understanding of management of the problems of neuro-ophthalmology and refer appropriate cases to neurology and neurosurgery
ii. Examine, diagnose, and demonstrate understanding of management of (medical and surgical) complicated problems in the field of (a) lens, (b) glaucoma, (c) cornea, (d) retina, (e) pediatric ophthalmology, (f) oculoplasty, (g) uvea, and (i) genetic problems in ophthalmology
iii. Demonstrate understanding of the manufacture and competence in prescription and dispensing of contact lenses (CLs) and ocular prosthesis.

V. Other Required Skills

1. Presentation

    a. Ability to present one's work effectively at various scientific forums particularly free papers in scientific conferences within allotted framework of time

2. Organization

    a. Ability to organize meetings, seminars and symposia

    b. Ability to get along with colleagues and work as a team with the other members of the department.

    c. Ability to interact with and work as a team with other disciplines that may exist in the same hospital.

3. Communication skills

    a. Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, patients' families, and professional associates
    b. Create and sustain a therapeutic and ethically sound relationship with patients
    c. Use effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills
    d. Work effectively with others as a member or leader of a health-care team or other professional groups.

4. Record keeping

    a. The ability to maintain records as scientifically as possible

    b. Knowledge of computer software is helpful

5. Teaching

    a. The ability to pass on skills acquired to one's juniors, theoretical, procedural and surgical

6b. Abbreviations

- SAQ- Short answer questions
- MCQ- Multiple choice questions
- DOPS- Direct observations of procedural skills
- WPBA- Work place based assessment
- Mini-CEX- Mini Clinical Evaluation exercise
- OSCE- Objective structured clinical examination

6c. Basic sciences

Basic Sciences Competencies			
Sl. No	**Competencies**	**Level of competency** K- Knows KH-Knows How S- Shows P- Performs	**Assessment**
1	Attain understanding of the structure and function of the eye and itsparts in health and disease.	K	Essay, MCQ
2	Attain understanding and application of knowledge of the structure and function of the parts of Central Nervous System and other parts of thebody with influence or control on the structure and function of the eye.	K	Essay, SAQ
3	Attain understanding of and develop competence in executing common general laboratory procedures of Pathology, Biochemistry and microbiology employed in diagnosis and research in Ophthalmology	KH, S, P	Demonstration, WPBA, DOPS

4	Be able to Interpret the diagnosis in correlation with the clinical data androutine materials received in such case	KH, P	Mini CEX
5	To demonstrate the knowledge of the pharmacological (including toxic) aspects of drugs used in ophthalmic practice and drugs commonly used in general diseases affecting the eyes	KH	Essay, SAQ, MCQ
6	Describe Immunology with particular reference to ocular immunology	K	Essay, SAQ, MCQ
7	Describe the Pattern of inheritance and Genetic Variation of ocular disorders. And apply the knowledge of Gene testing, genetic counselling and gene therapy in cases required.	K, KH	SAQ, MCQ, Viva Voce.

Anatomy, Physiology, Biochemistry, Pathology, Microbiology, Pharmacology, Immunology, Genetics

6d. Optics and Refraction

Optics and Refraction Competencies			
Sl No	**Competencies**	**Level of competency** K-Knows KH-Knows How S- Shows P- Performs	**Assessment**

1	Describe the principles and concepts of Physical optics and apply them in the clinical practice. 1. Properties of light a. Electromagnetic spectrum b. Wave theory c. Photon-particle theory 2. Diffraction 3. Interference and coherence 4. Resolution 5. Polarization 6. Scattering 7. Transmission and absorption 8. Photometry 9. Lasers 10. Illumination 11. Image quality 12. Brightness and radiance 13. Light propagation – Optical media and refractive index.	K,KH	Essay,SAQ,Viva Voce.
2	Describe the principles and concepts of Geometric optics and apply them in the clinical practice. 1. Reflection 2. Refraction 3. Spherical Lenses 4. Astigmatic Lenses(Sphero-cylinder lenses,Cross-cylinders-Jackson cross-cylinder,Maddoxrod,Toriclenses,Conoid of Sturm) 5. Prisms 6. Notation of lenses(Spectacleprescribing,Transposition) 7. Identification of unknown lenses(Neutralization,Focimeter,Geneva lens measure) 8. Aberrations of lenses(Correction of aberrations, Duochrome test) 9. Lens materials	K,KH	Essay,SAQ,Viva Voce.

3	Describe the principles and concepts of clinical optics of eye and apply them in the clinical practice. 1. Optics of the eye 2. Transmittance of light by the optic media 3. Schematic and reduced eye 4. Pupillary response and its effect on the resolution of the optical system (Styles–Crawford effect) 5. Visual acuity a. Distance- and near-acuity measurement b. Minimal (visible, perceptible, separable, legible) c. Vernier acuity 6. Contrast sensitivity 7. Catoptric images 8. Emmetropia 9. Accommodation 10. Purkinje shift 11. Pinhole	KH,SH,P	Essay, SAQ, Viva Voce.
4	Describe the principle and concepts of instruments and tests in clinical refraction.	KH,SH,P	DOPS,WPBA
5	Identify the principles and indications for retinoscopy**,** Demonstrate the technique of retinoscopy and perform an integrated refraction based upon retinoscopic results. 1. Retinoscopy 2. Subjective refraction 3. Measurement of BVD 4. Muscle balance tests 5. Accommodative power 6. Measurement of interpupillary distance (IPD) 7. Decentration of lenses and prismatic effect 8. Best form lens 9. Prescribing multifocal lenses	KH,SH,P	DOPS,WPBA

	10. Prescribing for children 11. Cycloplegic refraction.		
6	Acquire competence in assessment of refractive errors and prescription of Spectacles and Contact lenses for all types of refraction problems 1. Ametropia a. Myopia b. Hypermetropia (hyperopia) c. Astigmatism d. Anisometropia e. Aniseikonia (Knapp's rule) f. Aphakia g. Optical parameters affecting retinal image size 2. Refractive errors a. Prevalence b. Inheritance c. Changes with age 3. Correction of ametropia a. Spectacle lenses b. CLs c. IOLs d. Principles of refractive surgery 4. Accommodative problems a. Insufficiency-Presbyopia	KH,SH,P	Essay,SAQ,Viva Voce, Mini CEX,CaseDiscussion,WPBA

	b. Excess c. AC/A ratio		
7	Acquire basic knowledge of manufacture and fitting of glasses and competence of judging the accuracy and defects of the dispensed glasses	KH,SH	DOPS,WPBA

6e. Cornea, Conjunctiva & Sclera

Cornea,Conjuctiva& Sclera Competencies			
Sl.No.	**Competency**	**Level of competency** **K- Knows**	**Assessment**

		KH- Knows how SH- Shows how P- Performs	
(1)	**ANATOMY**		
1	Describe the basic anatomy, embryology, physiology, pathology, microbiology, immunology, genetics, epidemiology, and pharmacology of the cornea, conjunctiva, sclera	KH	Theory/written assessment MCQ
2	Describe congenital abnormalities of the cornea, sclera, and globe (e.g., Peter's anomaly, microphthalmos, birth trauma, and buphthalmos)	KH	Theory/written assessment MCQ
3	Describe the more complex congenital abnormalities of the cornea, sclera, and globe (e.g., hamartomas and choristomas)	KH	Theory/written assessment MCQ
(2)	**CORNEA**		
1	Describe characteristic corneal and conjunctival degenerations (e.g., pterygium, pinguecula, senile plaques of the sclera, keratoconus)	KH	Theory/written assessment MCQ
2	Recognize the common corneal dystrophies and degenerations (e.g., map-dot-fingerprint dystrophy, Meesmann dystrophy, Reis-Bucklers dystrophy, Francois syndrome, Schnyder's crystalline dystrophy, congenital hereditary stromal dystrophy, lattice dystrophy, granular dystrophy, macular dystrophy, congenital hereditary endothelial dystrophy, Fuchs' dystrophy, posterior polymorphous dystrophy, Salzmann's degeneration)	KH	Theory/written assessment MCQ Clinical testing by supervision With logbook
3	Recognize the common corneal inflammations and infections (e.g., herpes simplex, herpes zoster, syphilis, interstitial keratitis	KH	Clinical testing by supervision With logbook
4	Understand the fundamentals of corneal optics and refraction (e.g., keratoconus)	KH	Theory/written assessment MCQ Clinical testing by supervision With logbook
5	Know eye banking procedures, donor selection, corneal storage	KH, S	Demonstration
6	Perform basic nonlaser refractive surgery techniques (e.g., relaxing keratotomy)	KH	Theory/written assessment

			MCQ Clinical testing by supervision With logbook
7	Describe, recognize, evaluate, and treat peripheral corneal thinning (e.g., inflammatory, degenerative, Dellen related, infectious, immunologic)	KH, S	Clinical testing by supervision With logbook
8	Recognize and treat less common corneal or conjunctival presentations of degenerations (e.g., inflamed, atypical, or recurrent pterygium, band keratopathy)	KH	Theory/written assessment MCQ Clinical testing by supervision With logbook
9	Describe the differential diagnosis, evaluation, and management of Thygeson's superficial 24unctuate keratopathy	KH	Theory/written assessment MCQ Clinical testing by supervision With logbook
10	Understand more complex corneal optics and refraction (e.g., irregular astigmatism)	KH, S	Clinical testing by supervision With logbook
11	Describe more complex ocular microbiology and describe the differential diagnosis of more complicated corneal and conjunctival infections (e.g., complex, mixed, or atypical bacterial, fungal, Acanthamoeba, viral, or parasitic keratitis)	KH	Theory/written assessment MCQ Seminar
12	Describe differential diagnosis, evaluation, and treatment of interstitial keratitis (e.g., syphilis, viral diseases, non-infectious, immunologic, inflammation)	KH, S	Theory/written assessment MCQ Clinical testing by supervision With logbook

13	Perform more advanced techniques, including keratometry, keratoscopy, endothelial cell count and evaluation, specular microscopy, and pachymetry Perform more complex lid laceration repair	KH, S	Theory/written assessment MCQ Demonstration
14	Perform stromal micro puncture	P	Clinical testing by supervision With logbook
15	Perform application of corneal glue	P	Clinical testing by supervision With logbook
16	Assist in more complex corneal surgery (e.g., penetrating keratoplasty and phototherapeutic keratectomy)	KH, P	Theory/written assessment MCQ Clinical testing by supervision With logbook
17	Recognize and treat corneal lacerations (perforating and nonperforating)	KH, S	Clinical testing by supervision With logbook
18	Describe and treat corneal and conjunctival FBs	KH, P	Clinical testing by supervision With logbook
19	Diagnose and treat severe corneal exposure (e.g., lubrication, temporary tarsorrhaphy)	KH, P	Clinical testing by supervision With logbook
20	Perform and interpret the most advanced corneal techniques (e.g., pachymetry, endothelial microscopy, computerized corneal topography)	KH, S	Theory/written assessment MCQ

			Seminar Clinical testing by supervision With logbook
21	Understand and perform specialized and complicated CL fitting (e.g., postkeratoplasty)	KH, S	Theory/written assessment MCQ Demonstration
22	Perform more complex corneal surgery (e.g., penetrating or lamellar keratoplasty, keratorefractive procedures, and phototherapeutic keratectomy)	KH	Theory/written assessment MCQ Clinical testing by supervision With logbook
23	Recognize and treat recurrent corneal erosions	KH, S	Theory/written assessment MCQ
24	Recognize and treat complex corneal lacerations (e.g., lacerations extending beyond the limbus)	KH	Clinical testing by supervision With logbook
25	Diagnose and treat the most severe corneal exposure cases (e.g., conjunctival flap)	KH	Clinical testing by supervision With logbook
26	Understand ocular surface transplantation, including conjunctival autograft/flap, amniotic membrane transplantation, and limbal stem cell transplantation	KH	Clinical testing by supervision With logbook
27	Understand the surgical indications (e.g., Fuchs' dystrophy, aphakic/pseudophakic bullous keratopathy), surgical techniques, and recognition and management of postoperative complications (especially immunologically mediated rejection) of corneal transplantation (e.g.,	KH	Theory/written assessment MCQ

	penetrating, lamellar)		Seminar
28	Evalaute and manage a patient with Dry eyes.	KH.P	Theory/written assessment MCQ Seminar
29	Describe the clinical features, pathology, evaluation, and treatment of ocular cicatricial pemphigoid	KH	Theory/written assessment MCQ
30	Recognize, evaluate, and treat the ocular complications of severe diseases, such as chronic exposure keratopathy, contact dermatitis, and Stevens–Johnson syndrome	KH, S	Theory/written assessment MCQ Clinical testing by supervision With logbook
31	Describe the epidemiology, clinical features, pathology, evaluation, and treatment of peripheral corneal thinning or ulceration (e.g., Terrien's marginal degeneration, Mooren's ulcer, rheumatoid arthritis related corneal melt).	KH, S	Theory/written assessment MCQ Clinical testing by supervision With logbook
32	Describe the features, diagnose and treat (or refer) Vitamin A deficiency (e.g., Bitot's spot, dry eye, slowed dark adaptation) and neurotrophic corneal diseases	KH	Theory/written assessment MCQ
33	Perform techniques of sampling for viral, bacterial, fungal, and protozoal ocular infections (e.g., corneal scraping and appropriate culture techniques)	KH, P	Theory/written assessment MCQ

34	Perform and interpret simple stains of the cornea and conjunctiva (e.g., culture techniques, culture media, Gram stain, Giemsa stain, calcofluor –white, acid fast)	KH, P	Theory/written assessment MCQ
35	Manage corneal epithelial defects (e.g., pressure patching and bandage CLs)	P	Theory/written assessment MCQ Demonstration
36	Recognize corneal lacerations (perforating and nonperforating), pterygium that may require surgery, and corneal and conjunctival FBs	KH, S	Theory/written assessment MCQ Clinical testing by supervision With logbook
37	Diagnose and treat corneal exposure (e.g., lubrication, temporary tarsorrhaphy)	KH, P	Theory/written assessment MCQ
38	Perform manual superficial or lamellar keratectomy	KH	Clinical testing by supervision With logbook
39	Perform more complex corneal laceration repair (e.g., stellate –perforating laceration)	KH	Clinical testing by supervision With logbook
40	Assist lamellar corneal procedures	KH, P	Theory/written assessment MCQ
41	Assist collagen cross linking. Describe the most complex and less common congenital abnormalities of the cornea, sclera, and	KH, S	Theory/written assessment

	globe (e.g., cornea plana, keratoglobus)		MCQ
42	Recognize common and uncommon corneal and conjunctival neoplasms, dystrophies, and degenerations (e.g., lattice dystrophy)	KH	Theory/written assessment MCQ
43	Understand the most complex corneal optics and refraction (e.g., postkeratoplasty	KH, S	Theory/written assessment MCQ
44	Perform an isolated corneal laceration repair (e.g., linear laceration not extending to limbus)	KH, S	Clinical testing by supervision With logbook
45	Describe the etiologies and treatment of superficial punctuate keratitis (e.g., dry eye, Thygeson's superficial punctuate keratopathy), blepharitis, toxicity, ultraviolet photokeratopathy, contact lens [CL] related)	KH	Theory/written assessment MCQ
46	Describe the symptoms and signs, testing and evaluation for, and treatment of exposure keratopathy and dry eye (e.g., Schirmer test)	KH, S	Theory/written assessment MCQ Demonstration
47	Administer topical anaesthesia, as well as special topical stains of the cornea (e.g., fluorescein dye and rose Bengal	KH, P	Theory/written assessment MCQ Demonstration
(3)	CONJUCTIVA		
1	Recognize the basic presentations of ocular allergy (e.g., phlyctenules, seasonal hay fever, vernal conjunctivitis, allergic and atopic conjunctivitis, giant papillary conjunctivitis)	KH	Clinical testing by supervision With logbook
2	Recognize common conjunctival neoplasms (e.g., benign, malignant tumours)	KH	Clinical testing by supervision With logbook

3	Describe the epidemiology, differential diagnosis, evaluation, and management of Bitot's spots	KH	Theory/written assessment MCQ
4	Describe more complex differential diagnosis of the "red eye" (e.g., autoimmune and inflammatory disorders causing scleritis, episcleritis, conjunctivitis, orbital cellulitis)	KH	Theory/written assessment MCQ
5	Recognize and treat large, recurrent, or atypical pterygium that may require surgery	KH, P	Clinical testing by supervision With logbook
6	Recognize, evaluate, and treat chronic conjunctivitis (e.g., Chlamydia, trachoma, molluscum contagiosum, Parinaud's oculoglandular syndrome, ocular rosacea)	KH, S	Theory/written assessment MCQ
7	Describe the basic differential diagnosis of acute and chronic conjunctivitis or "red eye" (e.g., scleritis, episcleritis, conjunctivitis, orbital cellulitis, and gonococcal and chlamydial conjunctivitis)	KH	Theory/written assessment MCQ
8	Perform more complex pterygium excision, including conjunctival grafting	P	Clinical testing by supervision With logbook
9	Describe the most complex differential diagnosis of the "red eye" (e.g., pemphigoid, pemphigus, Stevens–Johnson syndrome)	KH	Theory/written assessment MCQ
10	Perform other complex conjunctival surgery (e.g., autograft, stem cell transplant)	KH	Theory/written assessment MCQ
11	Manage and treat more complex neoplasms of the conjunctiva (e.g., carcinoma, melanoma).	KH	Theory/written assessment MCQ

			Seminar Clinical testing by supervision With logbook
12	Perform removal of a conjunctival or corneal FB (e.g., rust ring)	P	Demonstration
13	Perform primary pterygium excision	P	Clinical testing by supervision With logbook
14	Describe less common and rare ocular infections and describe the differential diagnosis of the most complicated corneal and conjunctival infections (e.g., amoebas, leishmaniasis, nematodes)	KH	Theory/written assessment MCQ
15	Perform a thin conjunctival flap (e.g., Gunderson flap)	P	Clinical testing by supervision With logbook
4)	**Sclera**		
1	Evalaute and manage a patient with Episcleritis and Scleritis	KH,P	Theory/written assessment MCQ ,Clinical testing by supervision With logbook
2	Describe the etiopathogenesis and management of Staphylomas	KH	Theory/written assessment MCQ
3	Evaluate and Manage a patient of scleral melt	KH, S	Clinical testing by supervision With logbook

(5)	**ANTERIOR SEGMENT**		
1	Describe the differential diagnosis and the external manifestations of more complex anterior segment inflammation (e.g., acute and chronic iritis with and without systemic disease)	KH	Theory/written assessment MCQ
2	Recognize and treat FB, animal, and plant substance injuries	KH, S	Theory/written assessment MCQ Clinical testing by supervision With logbook
3	Recognize and treat more complex hyphemas (e.g., surgical indications)	KH, S	Clinical testing by supervision With logbook
4	Describe the basic mechanisms of traumatic and toxic injury to the anterior segment (e.g., alkali burn, lid laceration, orbital fracture)	KH	Theory/written assessment MCQ
5	Understand the mechanisms of ocular immunology and recognize the external manifestations of anterior segment inflammation (e.g., red eye associated with acute and chronic iritis)	KH	Theory/written assessment MCQ
6	Recognize and describe the treatment for a chemical burn (e.g., types of agents, medical therapy)	KH, S	Theory/written assessment MCQ
7	Recognize and describe the etiologies of hyphema and microhyphema	KH	Theory/written assessment MCQ
8	Recognize the anterior segment manifestations of systemic diseases (e.g., Wilson's disease) and	KH	Theory/written

	pharmacologic effects (e.g., amiodarone vortex keratopathy)		assessment MCQ
9	Recognize, list the differential diagnosis, and evaluate aniridia and other developmental anterior segment abnormalities (e.g., Axenfeld–Rieger and Peter's anomalies and related syndromes)	KH	Theory/written assessment MCQ
10	Recognize and treat pyogenic granuloma.	KH, S	Clinical testing by supervision With logbook
11	Perform external examination (illuminated and magnified) and slit lamp biomicroscopy, including drawing of anterior segment findings	KH, P	Theory/written assessment MCQ Demonstration
12	Treat hyphema and microhyphema (e.g., the complications of increased intraocular pressure and rebleeding).	KH, S	Clinical testing by supervision With logbook
13	Diagnose and treat the most complex traumatic and toxic injuries to the anterior segment (e.g., total lid avulsion, severe alkali burn)	KH, S	Clinical testing by supervision With logbook
14	Describe the differential diagnosis and the external manifestations of the most complex or uncommon anterior segment inflammations (e.g., syphilitic keratouveitis)	KH, S	Theory/written assessment MCQ

6f. Contact Lenses

Contact lenses and its application Competencies

Sl.No.	Competency	Level of competency KH- Knows How S- Shows P- Performs	Assessment
1	Perform a basic CL history and examination and be aware of additional basic tests and questions that are required for CL patients with more complex needs 3 4.	P	Theory/written assessment MCQ
2	Perform the techniques of retinoscopy, refraction, and over refraction in the routine CL patient	P	Clinical testing by supervision With logbook Demonstration
3	Describe the optics of the soft CL (SCL) and hard CL (e.g., rigid gas permeable [RGP] CL), base curve changes, the lacrimal lens, and the optic zone	KH	Theory/written assessment MCQ
4	Describe conversion of a spectacle prescription (Rx) to a CL Rx, including method of converting from plus to minus cylinder	KH, S	Theory/written assessment MCQ Seminar
5	Describe basic CL design, using appropriate terminology	KH	Theory/written assessment MCQ
6	Describe techniques for and perform basic CL fitting	KH, P	Theory/written assessment MCQ Seminar
7	Describe selection of CL candidates with noncomplex needs	KH	Theory/written assessment MCQ
8	Use auxiliary CL instruments and tests (e.g., trial set, fluoresce in testing)	KH, S	Theory/written assessment MCQ Demonstration

9	Perform CL verification for vision correction, fit, and comfort	KH, S	Theory/written assessment MCQ Demonstration
10	Describe contraindications for CL use	KH	Theory/written assessment MCQ
11	Describe fundamentals of ophthalmic optics in CL management (e.g., CL choices, techniques for fitting individuals)	KH, S	Theory/written assessment MCQ
12	List the indications for CLs in noncomplex cases and Describe CL choices and techniques for fitting individuals with noncomplex CL needs.	KH	Theory/written assessment MCQ
13	Perform techniques to verify and inspect CLs	P	Theory/written assessment MCQ Demonstration
14	Utilize appropriate teaching skills to instruct patients in the safe insertion, removal, and care of CLs	KH, S	Demonstration
15	Technical skills 1. Perform advanced retinoscopy techniques in a CL patient	KH, P	Theory/written assessment MCQ Demonstration
16	2. Perform advanced refraction techniques in a CL patient, including diagnostic fitting	KH, P	Theory/written assessment MCQ Demonstration
17	Perform techniques to verify and inspect CLs	KH, P	Theory/written assessment MCQ Demonstration

18	Utilize appropriate teaching skills to instruct patients in the safe insertion, removal, and care of CLs	KH, S	Demonstration
19	Perform a more advanced CL history and examination, employing additional tests and questions appropriate for patients with more complex CL needs (e.g., keratoconus, difficult CL fittings)	KH, P	Clinical testing by supervision With logbook
20	Describe the more advanced optics of the SCLs and hard CLs (e.g., RGP CL), base curve changes, the lacrimal lens, and the optic zone)	KH, S	Clinical testing by supervision With logbook
21	Describe more advanced CL design (e.g., special lenses and special CL shapes or materials	KH	Theory/written assessment MCQ
22	Describe and perform more advanced CL fitting (e.g., postkeratoplasty)	KH, P	Theory/written assessment MCQ Demonstration
23	Use auxiliary CL instruments in patients with more complex needs (e.g., postsurgical topography)	KH, S	Theory/written assessment MCQ Demonstration
24	Perform CL verification for vision, fit, and comfort in therapeutic CL cases	KH, S	Theory/written assessment MCQ Demonstration
25	Describe more advanced concepts of ophthalmic optics in CL and indications for more advanced CL(e.g., therapeutic lenses)	KH, S	Theory/written assessment MCQ Seminar
26	Perform more advanced retinoscopy and refraction techniques in a CL patient including diagnostic fitting 3.	KH, P	Theory/written assessment MCQ Demonstration

27	Perform advanced techniques to verify and inspect CLs in patients with complex CL needs (e.g., keratoconus, CL in children, active corneal disease)	KH, P	Theory/written assessment MCQ Demonstration
28	Perform appropriate CL selection (e.g., material selection, CL modification)	P	Theory/written assessment MCQ
29	Perform corneal topography to fit CLs	P	Demonstration
30	1. Perform the most advanced techniques in CL history and examination and understand what additional tests and questions are needed during the most complex CL examination (e.g., postkeratoplasty, multiple surgery, post refractive, complex keratoconus fitting, active corneal disease)	KH, P	Theory/written assessment MCQ Demonstration
31	Perform retinoscopy and refraction in the CL patient with the most complex needs (e.g., keratoglobus, keratoconus, following open globe repair [e.g., corneal laceration] or multiple keratoplasty)	KH, P	Theory/written assessment MCQ Demonstration
32	Describe the most advanced optics and applications of SCLs and hard CLs (e.g., piggyback CL)	KH, S	Theory/written assessment MCQ Seminar
33	Describe the most advanced CL design, using appropriate terminology (e.g., special fittings, special lenses for difficult-to-fit patients	KH, S	Theory/written assessment MCQ Seminar
34	Describe indications for and perform the most advanced CL fitting (e.g., post multiple keratoplasty or traumatic corneal repair)	KH	Theory/written assessment MCQ
35	Describe indications for and apply the most complex CL in special circumstances or for candidates presenting increased level of difficulty (e.g., postsurgical patients, children)	KH	Theory/written assessment MCQ

36	Use the auxiliary CL instruments in patients with the most complex needs (e.g., topography, fluorescein testing, diagnostic lenses).	KH, S	Theory/written assessment MCQ Demonstration
37	Describe the differences among CL material choices	KH	Theory/written assessment MCQ
38	Describe methods of modifying a CL to improve comfort, vision, or physiological response	KH	Theory/written assessment MCQ
39	Evaluate and manage CL -induced complications	KH, S	Theory/written assessment MCQ Clinical testing by supervision With logbook
40	Perform and interpret corneal topography in CL fitting	P	Theory/written assessment MCQ Demonstration
41	Perform CL modification in complex cases and Select the appropriate CL in more complex cases	KH, P	Theory/written assessment MCQ

6g. Cataract and Lens

Disorders of the Lens			
Sl. no.	**Competencies: At the end of three years of residence, the post-graduate student should be able to**	**Level of competency** **K- Knows** **KH- Knows how** **SH- Shows how** **P- Performs**	**Assessment**
1.	Elicit detailed and relevant clinical history in a patient with abnormalities of the lens including lens opacities, subluxation/dislocations or abnormalities of lens shape and size	P	Mini-CEX Case-based discussions OSCE
2.	Perform a detailed and relevant ocular examination and record the findings in a patient with abnormalities of the lens including lens opacities, subluxation/dislocations or abnormalities of lens shape and size	P	DOPS
3.	Prescribe optical correction to obtain best-corrected vision in a case of cataract before considering surgery	P	DOPS
4.	Counsel a patient with cataract to choose the appropriate type of intraocular lens (IOL)	P	Mini-CEX

5.	Estimate the IOL power in a case of cataract in an emmetropic eye and in special situations (too long eyes, too short eyes, paediatric eyes, post-LASIK eyes, aphakic eyes, and others)	P	DOPS
6.	Evaluate preoperatively and interpret relevant systemic diseases in a case of cataract or other lens disorders	P	DOPS
7.	Perform and interpret preoperative evaluation for relevant extraocular conditions in a case of cataract (blepharitis, dacryocystitis, dry eyes and others)	P	DOPS
8.	Perform and interpret preoperative evaluation of relevant ocular conditions in a case of cataract (astigmatism, glaucoma, uveitis, retinal disorders and others)	P	DOPS
9.	Perform preoperative systemic evaluation/investigations of syndromic cataracts with associated ocular (as in Peter's syndrome) and systemic abnormalities (as in congenital rubella syndrome)	P	DOPS
10.	Counsel a patient with cataract undergoing surgery about visual prognosis including guarded/poor visual prognosis	P	Mini-CEX
11.	Counsel a patient with cataract regarding different types of cataract surgeries	P	Mini-CEX
12.	Perform various techniques of anesthesia for cataract surgery (e.g., topical, peribulbar, retrobulbar, sub-Tenon's)	P	DOPS

13.	Perform patient preparation for cataract surgery (Small incision cataract surgery and phacoemulsification) including dilatation of pupils, systemic workup, ocular workup, biometry, physician and anesthetist referrals whenever applicable.	P	DOPS
14.	Perform surgical steps of extracapsular cataract extraction- Small Incision Cataract Surgery including wound construction, anterior capsulotomy, use of and removal of viscoelastics, nucleus delivery, cortical cleanup, IOL implantation and wound closure	P	DOPS
15.	Perform surgical steps of extracapsular cataract extraction- Phacoemulsification including wound construction, anterior capsulorrhexis, instillation of and removal of viscoelastics, phacoemulsification techniques (e.g., sculpting, divide and conquer, phaco chop), irrigation and aspiration, cortical cleanup, foldable IOL implantation.	SH/P	DOPS
16.	Perform the surgical steps of IOL implantation including rigid and foldable	P	DOPS
17.	Evaluate a child with cataract and prepare for pediatric cataract surgery including timing of surgery, evaluation, choice of IOL, additional steps like primary posterior capsulotomy and primary anterior vitrectomy and amblyopia management	SH	OSCE Case-based discussion
18.	Perform Nd:YAG laser posterior capsulotomy	SH/P	DOPS OSCE

19.	Evaluate and prepare a case for clear lens extraction	SH	OSCE Case-based discussion
20.	Recognise, evaluate and manage per-operative complications like posterior capsular tears, vitreous prolapse, intravitreal dislocation of cataractous fragments, choroidal effusions, iris prolapse, hyphema, Descemet's membrane detachment, wound-related problems and others	SH	OSCE Case-based discussion
21.	Perform post-operative management of a case of cataract including post-operative general instructions, medications, follow-up, refraction, glass prescription, visual rehabilitation, etc.	P	DOPS OSCE Case-based discussion
22.	Recognise, evaluate and manage per-operative complications (intraocular pressure elevation, corneal edema, wound leak, hyphema, endophthalmitis, cystoid macular edema, retinal detachment, IOL dislocation, posterior capsular opacification, and others)	SH	OSCE Case-based discussion
23.	Recognize and refer or treat postoperative complications of cataract surgery (e.g. endophthalmitis, elevated intraocular pressure, cystoid macular edema, wound leak, uveitis).	SH	OSCE Case-based discussion
24.	Communicate with the patient about per-operative complications and the impact on vision/eye and counsel.	P	Mini-CEX

25.	Evaluate and manage a case for combined surgeries (cataract with glaucoma, keratoplasty, etc)	SH	OSCE Case-based discussion
26.	Evaluate and manage a case of cataract for astigmatic correction through appropriate choice of incisions	SH	OSCE Case-based discussion
27.	Assist a case of cataract surgery by preparing the cataract set, sterilization of instruments, preparation of OT table and laying of instruments including priming of phacoemulsification unit and managing the parameters	P	DOPS OSCE
28.	Perform basic steps of cataract surgery (e.g., incision, wound closure) in the practice laboratory	P	DOPS
29.	Administer and document informed consent for cataract surgery	P	Mini-CEX
30.	Perform the aseptic steps, gloving and gowning, preparation and draping, and other preoperative preparation including donning and doffing in bio-hazardous situations)	P	DOPS Mini-CEX
31.	Perform repositioning, removal, or exchange of IOLs	SH	OSCE Case-based discussion
32.	Assist in the teaching and supervision of junior residents	P	DOPS
33.	Perform tasks as per government and hospital regulations that apply to cataract surgery OT list preparation, OT checklists, case sheet and OT procedure documentation, billing and others.	P	DOPS

6h. Refractive surgery

Refractive surgeries Competencies

Sl.No.	Competency	Level of competency K- Knows KH- Knows how SH- Shows how P- Performs	Assessment
1.	Elicit detailed and relevant clinical history in a patient posted for corneal refractive surgery	P	Mini-CEX Case-based discussions OSCE
2.	Perform a detailed and relevant ocular examination and record the findings in a patient posted for corneal refractive surgery	P	DOPS
3.	Counsel a patient posted for corneal refractive surgery including the choice of procedure, alternative options, indications, contraindications, postoperative care, etc.	P	Mini-CEX
4.	Perform preoperative evaluation, interpret and record the results of investigations in a case posted for corneal refractive surgery.	P	DOPS OSCE Case-based discussion
5.	Perform preoperative ocular evaluation and interpret the investigations in a case of keratoconus posted for collagen cross linkage/ intracorneal ring segments	P	DOPS OSCE Case-based discussion
6.	Perform, interpret and record the findings of relevant investigations in a case posted for corneal refractive surgery including corneal topography, AS-OCT, pachymetry, orbscan, keratometry, aberrometry and others	P	DOPS OSCE Case-based discussion

7.	Perform steps of surgical management of a case posted for refractive surgical techniques, including keratotomy (radial, astigmatic, limbal relaxing incisions), photoablation (photorefractive, phototherapeutic, LASIK), corneal wedge resection, thermokeratoplasty, intracorneal rings, and others.	SH	OSCE Case-based discussion
8.	Perform preoperative assessment and interpret the findings of the investigations in a patient posted for lens-based refractive surgical techniques like phakic intraocular lens (IOL) and clear lens extraction.	P	DOPS
13.	Demonstrate the process of consent and counselling of patients undergoing refractive procedures (corneal and lens-based)	P	Min-CEX
14.	Identify, evaluate and manage intraoperative complications in corneal refractive surgery	SH	OSCE
15.	Identify, evaluate and manage postoperative complications in case of corneal refractive surgery	SH	OSCE
16.	Identify and manage intraoperative complications in lens-based refractive surgery	SH	OSCE
17.	Identify and manage postoperative complications in lens-based refractive surgery	SH	OSCE

6i. Glaucoma

Glaucoma Competencies

Sl No	Competencies	Level of competency KH= Knows How S= Shows P= Performs	Assessment
1	Describe the anatomy of the anterior chamber, angle and ciliary body.	KH	SAQ
2	Describe the anatomy of the optic nerve head (ONH) and Retinal nerve fibre layer(RNFL).	KH	SAQ
3	Describe the mechanism and dynamics of aqueous humour inflow and outflow and factors influencing IOP.	KH	SAQ
4	Describe the pathogenesis of glaucoma	KH	SAQ
5	Describe the apoptotic mechanism of retinal ganglion cell death in glaucoma	KH	SAQ
6	Elicit relevant history and identify the clinical signs and symptoms of glaucoma.	S	Mini-CEX OSCE
7	Perform basic slitlampbiomicroscopy for a glaucoma patient	P	OSCE Mini-CEX
8	Describe tonometry, types, principles, devices available, their strengths & limitations and clinical applications.	KH	Mini-CEX OSCE
9	Perform basic tonometry (Goldmann Applanation tonometer, NCT, Tonopen, Perkin's, Schiotz, RBT) and recognize the pitfalls and artefacts of testing.Know the disinfection and calibration of tonometers.	P	Mini-CEX OSCE
10	Describe the diurnal fluctuation of IOP and Ocular Perfusion Pressure and their application in approach to glaucoma therapy.	KH	SAQ
11	Describe the principles and techniques of gonioscopy, indications, different gonioscopes available.	KH	SAQ
12	Describe the gonioscopic features of normal angle, POAG, PACG, Congenital glaucoma, Secondary glaucomas and other ocular pathologies.	KH	SAQ

13	Perform gonioscopy, identify normal angle structures and describe the gonioscopic features of POAG, PACG, Congenital glaucoma, Secondary glaucomas and other ocular pathologies.	P	Mini-CEX OSCE
14	Perform a stereoscopic examination of the ONH and RNFL and describe the appearance of normal optic nerve head.	P	Mini-CEX OSCE
15	Describe and document the findings of glaucomatous optic nerve and differentiate it from non-glaucomatous optic neuropathies.	KH/S	SAQ Mini-CEX
16	Describe the fundamental principles of static and kinetic perimetry	KH	SAQ
17	Choose the appropriate testing strategy of Static perimetry based on the stage of glaucoma. Counsel a patient for static perimetry and perform static perimetry in glaucoma patients.	P	OSCE
18	Describe the most common types of visual field defects in glaucoma	KH	SAQ
19	Interpret visual field results for Goldmann kinetic perimetry and Humphrey or Octopus standard automated perimetry.	P	OSCE DOPS
20	Demonstrate a knowledge of newer and advanced static perimetry techniques.	KH/S	SAQ
21	Describe the effects of corneal biomechanics on IOP	KH	SAQ
22	Perform corneal pachymetry and apply the findings of CCT to IOP interpretation.	P	OSCE
23	Describe the epidemiology and genetics of congenital glaucoma,infantile and developmental glaucomas, POAG and PACG,	KH	SAQ
24	Describe the pathogenesis, features, evaluation, treatment and referral of congenital and developmental glaucoma.	KH	Essay/SAQ Case
25	Describe the pathogenesis, risk factors, natural course, types, features, prognosis and management of POAG.	KH	Essay/SAQ Case
26	Describe the risk factors, pathogenesis, classification, features and management of PACG	KH	Essay/SAQ Case

27	Describe the pathogenesis, features, evaluation and management of Secondary glaucomas (e.g., angle recession, inflammatory, steroid-induced, pigmentary, pseudoexfoliative,neovascular, postoperative, malignant, lens induced glaucomas; plateau iris; glaucomatocyclitic crisis; iridocorneal endothelial syndromes; aqueous misdirection)	KH	Essay/SAQ Case
28	Describe the slit lamp findings of Secondary glaucomas (e.g., angle recession, inflammatory, steroid-induced, pigmentary, pseudoexfoliative,neovascular, postoperative, malignant, lens induced glaucomas; plateau iris; glaucomatocyclitic crisis; iridocorneal endothelial syndromes; aqueous misdirection)	KH	DOPS OSCE
29	Describe the results of landmark clinical trials in glaucoma(OHTS,CNTGS,CIGTS,GLT,AGIS,EGPS, EMGT, NTGS,TVT) and apply their conclusions to routine clinical practice.	KH	SAQ
30	Describe basic principles and tools to analyze the ONH and RNFL such as OCT, HRT and GDX.	KH	SAQ
31	Interpret OCT, HRT and GDX scans	P	OSCE
32	Describe the tools and techniques of anterior segment imaging such as anterior segment OCT and UBM	KH	SAQ
33	Describe the concept of target IOP and its application in glaucoma management	KH/S	SAQ Case
34	Describe the various drugs available for medical management of glaucoma- mechanism of action, indications, contraindications, dosage,schedule, adverse effects, fixed drug combinations	KH	SAQ
35	Describe the principles of medical management of glaucoma	KH	SAQ
36	Describe the drawbacks of medical management of glaucoma, compliance and adherence to therapy	KH	SAQ
37	Outline the newer drugs used in glaucoma management and neuroprotection	KH	SAQ

38	Describe the interactions between systemic drugs and glaucoma medications	KH	SAQ
39	Select appropriate drugs and be able to customize or modify medical treatment for open angle, secondary, and angle-closure glaucomas	P	Case
40	Describe the principles, indications, techniques(laser used,wavelength, energy,spot size, duration, number of shots) of commonly used laser procedures in glaucoma (Laser peripheral iridotomy, laser trabeculoplasty, iridoplasty, suture lysis, cyclophotocoagulation)	KH	SAQ
41	Perform laser peripheral iridotomy for angle closure glaucoma	P	DOPS
42	Perform argon and selective laser trabeculoplasty for open-angle glaucoma	P	DOPS
43	Describe the indications, techniques, complications of surgical therapies of glaucoma including trabeculectomy (with and without antimetabolites), combined cataract surgery and trabeculectomy, surgical peripheral iridectomy, glaucoma drainage devices, cyclodestructive procedures.	KH	SAQ
44	Describe use of antimetabolites and antiangiogenic agents and potential complications from their use	KH	SAQ
45	Recognize glaucoma surgical complications, their etiologies, and options for treatment	S/KH	SAQ OSCE
46	Assist with trabeculectomy and glaucoma drainage device surgery	P	DOPS
47	Perform routine trabeculectomy (with/without antimetabolites)	P	DOPS
48	Describe new nonpenetrating glaucoma surgery techniques: principles, techniques, advantages, limitations, and complications	KH	SAQ
49	Describe new microsurgical devices (eg, EX-PRESS, iStent, gold shunt, Trabectome) used in glaucoma surgery	KH	SAQ

50	Test for leaking filtering bleb using the Seidel method.	P	Mini-CEX
51	Recognize ocular emergencies of acute angle closure, and blebitis/endophthalmitis.	S	Mini-CEX OSCE Case
52	Perform paracentesis to lower acute IOP.	P	DOPS
53	Perform cyclophotocoagulation and cyclocryotherapy for advanced glaucoma	P	DOPS
54	Perform postoperative procedures to facilitate the success of filtering blebs (bleb massage, laser suture lysis, releasable suture, antimetabolites)	P/KH	DOPS
55	Recognize and treat the postoperative complications of filtering surgery	KH/P	Mini-CEX OSCE
56	Identify,evaluate and treat surgically if necessary a postoperative shallow anterior chamber.	P/S	Case DOPS
57	Identify ocular hypotony and describe the causes, clinical features and treatment.	S/KH	SAQ Mini-CEX
58	Describe the principles involved in determining glaucoma progression both clinically and perimetrically	KH	SAQ OSCE
59	Describe the steps in evaluating primary open-angle glaucoma, angle-closure glaucoma and glaucoma suspects.	KH/S	Case
60	Describe the role of intraocular pressure (IOP) in the development and progression of glaucoma	KH	SAQ
61	Describe the risk factors other than IOP for primary open-angle glaucoma.	KH	SAQ
62	Describe the subtypes of angle-closure glaucoma (eg, pupillary block, plateau iris, lens-related angle-closure, and malignant glaucoma)	KH	SAQ

6j. Neuro-Ophthalmology

Neuro-Ophthalmology Competencies

Sl No	Competencies	Level of competency KH-Knows How S- Shows P- Performs	Assessment
1	Elicit a detailed and focused history in a patient presenting with neuroophthalmic symptoms including loss of vision, transient blurring of vision, unexplained loss of vision, diplopia, ptosis, proptosis or enophthalmos, ansicoria, facial weakness, facial spasm, oribital pain, headache and nystagmus	P	Mini-CEX OSCE
2	Perform a detailed and relevant examination in a patient with suspected neuroopthalmic disorder including BCVA, color vision, confrontation field of vision, contrast sensitivity, photo stress test, pupillary evaluation, fundoscopy, assess extraocular motility to detect and differentiate incomitant squint from comitant squint	P	Mini-CEX OSCE
3	Perform and interpret a detailed neurological examination including Higher mental function, cranial nerves, motor and sensory systems and cerebellar and vestibular function.	P	Mini-CEX OSCE
4	Perform and interpret Ice test and Tensilon test when indicated	P	DOPS
5	Select and perform appropriate investigations including automated perimetry to detect neurological visual field loss, B-scan ultrasonography to evaluate retinochoroidal complex, optic disc and retrobulbar optic nerve, Optical coherence tomography to evaluate retina and optic disc in a patient with suspected neuroophthalmic disease	P	Mini-CEX OSCE

6	Appropriately select and obtain visual evoked potential (VEP), electro-oculogram (EOG), electro-retinogram (ERG) and electro-myogram (EMG)and interpret the results	KH & S	OSCE
7	Obtain appropriate blood tests including haematology, biochemical, microbiology and Immunology and interpret the results	P	OSCE
8	Obtain appropriate orbital and neurological imaging including computed tomography, CT angiography, MRI, MRA, MRV and Carotid doppler and interpret the findings	P	OSCE/ Spotters
9	Identify the indications for and interpretation of results from a lumbar puncture	P	DOPS
10	Develop an understanding of the anatomy of the visual pathway, pupillary pathway, supranuclear gaze pathway, ocular motor nerves and their applied aspects in the various disorders that affect them. .	KH	Essay/SAQ
11	Develop an understanding of the physiology, pathology and microbiological aspects of neuroophthalmology	KH	Essay/SAQ
12	Develop and demonstrate a clinical approach to and generate differential diagnosis of common neuro-ophthalmologic complaints, including decrease in visual acuity (painful/painless), diplopia, dysconjugate gaze, pupillary abnormalities, visual field defects, proptosis, papilledema, nystagmus, retinal pigmentary changes, coloboma, cherry red spot, retinopathy, and retinal hemorrhage.	S	Mini-CEX OSCE
13	Demonstrate an understanding of pathophysiology, diagnostic approach, management and complications of optic nerve disorders including optic neuritis, papilledema, optic atrophy, anterior ischemic optic neuropathy, traumatic optic neuropathy and hereditary optic nerve disorders.	S	Mini-CEX OSCE

14	Demonstrate an understanding of pathophysiology, diagnostic approach, management and complications of Idiopathic intracranial hypertension, optic chiasmal lesions including pituitary gland tumors, intracranial vascular and neoplastic lesions involving the visual pathway	S	Case Viva Essay SAQ
15	Demonstrate an understanding of pathophysiology, diagnostic approach, management and complications of disorders ocular motor nerves (3^{rd}, 4^{th} and 6^{th} nerves) and other cranial nerves related to the eyes (5^{th} and 7^{th} nerves).	KH	Mini-CEX OSCE Essay Long case
16	Demonstrate an understanding of pathophysiology, diagnostic approach and management of nystagmus.	KH	Essay
17	Understand the indications, complications of and appropriately initiate systemic steroids to treat neuro-ophthalmic disorders. Initiate appropriate measures to prevent complications of steroid therapy.	S	Mini-CEX
18	Understand the indications and appropriately initiate other medical treatment options to treat neuro-ophthalmic disorders	S	Mini-CEX
19	Knowledge of Neurological disorders with neuro-ophthalmic manifestations including multiple sclerosis, neuromyelitis optic, cerebrovascular disease with involvement of visual pathway, CNS tumors, infections and autoimmune diseases. Manage such patients who present primarily with ophthalmic manifestations by obtaining appropriate referral /consultation and order investigations	KH	Essay SAQ

20	Understand the indications, surgical steps and appropriately counsel the patients for surgical interventions for neuro-ophthalmic disorders including optic nerve sheath fenestration, temporal artery biopsy, CSF shunting procedures and strabismus surgeries.	KH	Essay SAQ
21	Provide follow-up care to patients who have received medical and surgical treatment for neuro-ophthalmic disorders, including monitoring of efficacy of treatment, deteriorations and complications of treatment	S	Mini-CEX

6k. Orbit and Oculoplasty

Sl No.	COMPETENCY	DOMAIN	ASSESSMENT
		K – KNOWS HOW S- SHOWS P- PERFORMS	
	Eyelid		
1.	Describe basic anatomy and physiology (eg, orbicularis, meibomian glands, Zeis glands, orbital septum, levator muscle, Müller muscle, Whitnall ligament, Lockwood ligament, preaponeurotic fat, scalp, face)	K	Theory/written assessment MCQ Seminar
2.	Describe basic mechanisms and indications for treatment of eyelid trauma (lid margin sparing, lid margin involving, canaliculus involving)	K	Theory/written assessment MCQ Seminar
3.	Describe mechanisms and indications for treatment of ptosis, perform the basic office examination techniques for the most common eyelid abnormalities (eg, margin reflex distance, palpebral fissure height, levator function, lagophthalmos, lid crease, lid laxity assessment, brow height, dermatochalasis, eversion, double eversion).	K	Theory/written assessment MCQ Seminar
4.	Describe mechanisms and indications for treatment of upper and lower eyelid retraction	K	Theory/written assessment MCQ Seminar
5.	Describe mechanisms and indications for treatment of entropion	K	Theory/written assessment MCQ

			Seminar
6.	Describe mechanisms and indications for treatment of ectropion	K	Theory/written assessment MCQ Seminar
7.	Identify floppy eyelid syndrome and its systemic associations	K	Theory/written assessment MCQ Seminar
8.	Identify blepharospasm and hemifacial spasm and describe the treatment	K	Theory/written assessment MCQ Seminar
9.	Perform minor lid and conjunctival procedures (eg, repair of small eyelid laceration including marginal, removal of benign eyelid lesions, chalazion curettage or excision, conjunctival biopsy), Identify and treat trichiasis (eg, epilation, cryotherapy, surgical therapy)	K,S,P	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook Demonstration
10.	Describe indications for and perform a temporary tarsorrhaphy	K,S,P	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook Demonstration

11.	Describe indications for and perform everting sutures (Quickert sutures)	K,S,P	Theory/written assessment MCQ Seminar
12.	Describe indications for and perform a lateral canthotomy/cantholysis	K,S,P	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook Demonstration
13.	Describe the mechanisms of and indications for eyelid reconstruction	K	Theory/written assessment MCQ Seminar
	Described the genetics (where known), clinical features, evaluation, and treatment of congenital eyelid deformities (eg, coloboma, distichiasis, epicanthus, telecanthus, blepharophimosis, ankyloblepharon, epiblepharon, euryblepharon, cryptophthalmia, Goldenhar syndrome, Treacher-Collins syndrome, Waardenburg syndrome).	K	Theory/written assessment MCQ Seminar
14.	Describe clinical features, evaluation, syndromic association and management of congenital ptosis (eg, simple, blepharophimosis-ptosis-epicanthus inversus syndrome [BPES], jaw wink, congenital fibrosis)	K	Theory/written assessment MCQ Seminar
15.	Describe the genetics (when applicable), clinical features, evaluation, and treatment of acquired myogenic ptosis (eg, oculopharyngeal muscular dystrophy, mitochondrial	K	Theory/written assessment MCQ

	myopathies, myotonic dystrophy, myasthenia gravis).		Seminar
16.	Describe the mechanisms and indications for treatment of more advanced eyelid trauma (eg, chemical burns, thermal burns, canthal avulsions, eyelid avulsions)	K	Theory/written assessment MCQ Seminar
17.	Describe indications for and complications of, and perform more complicated eyelid surgery (eg, upper blepharoplasty, lower lid tightening)	K,S,P	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook Demonstration
18.	Identify histopathological features of common eyelid conditions	K,S,P	Theory/written assessment MCQ Seminar
19.	Describe the etiology, evaluation, and medical and surgical treatment of Benign, pre-malignant, or malignant eyelid tumors (eg, papilloma, seborrheic keratosis, epidermal inclusion cyst, molluscumcontagiosum, verruca vulgaris, keratoacanthoma, actinic keratosis, basal cell carcinoma, squamous cell carcinoma, sebaceous cell carcinoma, melanoma)	K	Theory/written assessment MCQ Seminar
	Lacrimal		
1.	Describe basic anatomy and physiology (eg, puncta, canaliculi, lacrimal sac, nasolacrimal duct, endonasal	K	Theory/written assessment

	anatomy, lacrimal glands)lacrimal pump theories		MCQ Seminar
2.	Describe mechanisms and indications for treatment of congenital and acquired nasolacrimal duct obstruction,complicated cases of nasolacrimal duct obstruction, canaliculitis, dacryocystitis, and acute and chronic dacryoadenitis	K	Theory/written assessment MCQ Seminar
3.	Recite the differential diagnosis of lacrimal gland mass (eg, inflammatory, neoplastic, congenital, infectious)	K	Theory/written assessment MCQ Seminar
4.	Describe indications for and perform the basic office examination techniques for the most common lacrimal abnormalities (eg, Schirmer test, dye disappearance test, punctal position, punctal dilation, canalicular probing, lacrimal probing and irrigation)more advanced lacrimal assessment (eg, interpretation of dye testing, canalicular probing in trauma).(eg, lacrimal drainage testing [irrigation, Jones Dye Tests 1 and 2], lacrimal probing, lacrimal intubation, incision and drainage of lacrimal sac abscess)	K	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook Demonstration
5.	Describe indications for and perform an incision and drainage of the lacrimal sac, management of and treat lacrimal system abnormalities, including surgeries (eg, lacrimal probing, dacryocystectomy, dacryocystorhinostomy).	K,S,P	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook Demonstration
6.	Identify indications for and interpret lacrimal imaging (eg, scintigraphy, cystography)	K,S,P	Theory/written assessment

			MCQ Seminar
7.	Describe the etiology, evaluation, and medical and surgical treatment of the following lacrimal diseases: a. Punctal stenosis b. Canalicular stenosis c. Common canalicular stenosis	K	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook Demonstration
	Orbital		
1.	Describe basic anatomy (eg, orbital bones, orbital foramina, paranasal sinuses, annulus of Zinn, arterial and venous vascular supply, nerves, extraocular muscles)	K	Theory/written assessment MCQ Seminar
2.	Identify normal orbital and relevant nasal and paranasal sinus anatomy on imaging studies (eg, computed tomography, magnetic resonance imaging) and Identify common orbital pathology (eg, orbital fractures, orbital tumors) on imaging studies (eg, magnetic resonance imaging, computed tomography, ultrasound)	K	Theory/written assessment MCQ Seminar
3.	Describe basic mechanisms and indications for treatment of common orbital trauma (eg, medial wall and floor fractures, retrobulbarhemorrhage)advanced orbital trauma (eg, zygomaticomaxillary complex fractures, naso-orbital ethmoid fractures, Le Fort fractures).	K	Theory/written assessment MCQ Seminar
4.	Recite the differential diagnosis of common orbital tumors in children and adults	K	Theory/written assessment MCQ

			Seminar
5.	Describe indications for and perform the basic office examination techniques for the most common orbital abnormalities (eg, Hertel measurement, inspection, palpation, auscultation)	K	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook Demonstration
6.	Identify indications for and perform the basic anophthalmic socket assessment (eg, types of implants, implant movement, socket health, socket surface, socket volume, fornices, prosthesis type and fit).	K,S,P	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook Demonstration
7.	Describe the clinical features, evaluation, and management of congenital orbital deformities (eg, anophthalmia, microphthalmia, hypotelorism, hypertelorism versus telecanthus)	K	Theory/written assessment MCQ Seminar
8.	Describe the genetics, clinical features, evaluation, and management of common craniosynostoses and other congenital malformations (eg, Crouzon syndrome, Apert syndrome)	K	Theory/written assessment MCQ Seminar
9.	Identify, evaluate, and treat thyroid ophthalmopathy (eg, epidemiology, symptoms and signs, associated systemic diseases, orbital imaging, differential diagnosis, surgical, medical, and radiation indications, side effects of	K	Theory/written assessment MCQ Seminar

	treatment)		Clinical testing by supervision With logbook
10.	Identify, evaluate, and treat orbital cellulitis, nonspecific orbital inflammation (eg, symptoms and signs, orbital imaging, differential diagnosis, biopsy indications, choice of treatments)	K,S,P	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook
11.	Describe indications for and complications of, and perform enucleation and evisceration	K,S,P	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook Demonstration
12.	Describe the etiology, evaluation, and medical and surgical treatment of the following orbital diseases: a. Orbital trauma i. All orbital fractures ii. Retrobulbar haemorrhage iii. Orbital foreign bodies b. Orbital neoplasms i. All benign ii. All malignant	K	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook

	c. Orbital inflammation i. Infectious 1. Bacterial 2. Fungal 3. Mycoplasma ii. Noninfectious 1. Thyroid eye disease 2. Sarcoidosis 3. Wegener granulomatosis 4. Nonspecific orbital inflammation		
13.	Describe indications for and complications of basic orbital skills and procedures, including: a. Anterior orbitotomy for tumor biopsy/excision ,different orbital approaches and incisions b. Orbital floor fracture repair	K,S,P	Theory/written assessment MCQ Seminar Clinical testing by supervision With logbook Demonstration

6l. Paediatric Ophthalmology and Strabismus

Paediatric ophthalmology and Strabismus competencies			
Sl.No.	**Competency**	**Level of competency** KH-knows how P- performs S-shows	**Assessment**
1.	Describe basic examination techniques for strabismus (eg, ductions and versions, cover and uncover testing, alternate cover testing, prism cover testing).	P	Mini-CEX OSCE
2	Describe basic visual development and visual assessment of the child (eg, central, steady, maintained fixation), including any one matching card, resolution and recognition acuity, and crowding using standard vision testing (eg: tumbling E eye chart, Allen cards, Landolt "C" Broken Ring vision chart).	P	Mini-CEX OSCE
3.	Describe the basic anatomy and physiology of strabismus: a. Innervation of extraocular muscles b. Primary, secondary, and tertiary actions c. Laws governing the muscle actions d. Comitant and incomitant deviations e. Overaction and underaction f. Restrictive and paretic saccades g. Vergence h. Pursuit movements	KH	Essay/SAQ

4.	Describe basic sensory adaptations for binocular vision, including: Normal and anomalous retinal correspondence,Suppression,Horopter,Panum area,Fusion, Stereopsis. Describe basics of binocular sensory testing (eg, Titmus stereo testing, Randot stereo testing, Worth 4-dot test, Bagolini lenses).	KH	Essay/SAQ
5.	Describe and recognize pseudostrabismus.	KH	Mini-CEX
6.	Describe the different causes of amblyopia, including: Deprivation,Ametropic,Strabismic,Anisometropic,Organic.	KH	Essay/SAQ
7.	Describe various forms of esotropia, such as: Congenital,Comitant and incomitant, Accommodative and nonaccommodative,Decompensated,Sensory, Neurogenic,Myogenic,Restrictive,Nystagmus and esotropia,Accomodative spasm,Microtropia,Consecutive	KH	Essay/SAQ
8.	Describe various forms of exotropia, such as: Congenital,Comitant and incomitant, Decompensated,Sensory,Neurogenic,Myogenic,Restrictive,Basic divergence excess,Exophoria,Convergence insufficiency	KH	Essay/SAQ

9.	Describe the nonsurgical treatment of strabismus and amblyopia, such as: a. Patching b. Atropine penalization c. Fresnel and grind-in prism therapy d. Convergence exercises	S	DOPS
10.	Describe different forms of childhood nystagmus. Describe and recognize the different forms of childhood nystagmus (eg, infantile nystagmus syndrome [INS], fixation maldevelopment nystagmus syndrome [FMNS], spasmus nutans syndrome [SNS]), and appropriate work up for different time of onset and age groups.	P	Mini-CEX
11.	Describe features, classification, and treatment indications for retinopathy of prematurity. Describe and recognize ROP (eg, stages, treatment indications).	KH	Mini-CEX
12.	Describe etiologies and types of paediatric cataract with consideration of: a. Age of onset b. When do you treat and types of treatment c. Postoperative rehabilitation	KH	Essay/SAQ
13.	Describe and recognize ocular findings in child abuse (eg, retinal hemorrhages) and appropriately refer to authorities.	KH	MINI CEX

14.	Describe basic evaluation of decreased vision in infants and children, such as: Delayed maturation of vision/cerebral visual impairment,Leber congenital amaurosis,Other hereditary retinal disorders,Congenitalglaucoma,Congenital rubella syndrome,Retinopathy of prematurity (ROP),Various ocular anomalies	KH	Essay/SAQ
15.	Describe the symptoms, associations, findings, and treatment of childhood glaucoma.	KH	Essay/SAQ
16.	Summarize ocular embryology development (ie, lens development, fetal vasculature, anterior segment development, closure of embryonic fissure).	KH	Essay/SAQ
17.	Describe common causes of conjunctivitis in infants and children in terms of symptoms, diagnosis, and treatment.	P	DOPS
18.	Assess subluxated and dislocated lenses and know the systemic associations (eg, Marfan syndrome, homocystinuria, Weill-Marchesani syndrome).	KH	MINI CEX
19.	Describe management of epiphora in children, including congenital nasolacrimal duct obstruction.	KH	Mini-CEX

20.	Describe refractive errors and spectacle correction in childhood (recognizing that it is arguably the most common cause of preventable visual impairment in children worldwide),Describe accommodation and dosage and use of mydriatics in children,Describe indications and uses of contact lenses in childhood.	P	DOPS
21.	Describe normal visual development milestones. Describe basic and more advanced visual development and visual assessment of the pediatric ophthalmology patient (eg, blink to light or threat, measures of fixation and following behavior, objective measures of visual acuity) using the optokinetic nystagmus (OKN) drum to assess fixation and electrophysiological techniques such as sweep visual evoked potential (VEP) evaluation.	P	DOPS
22.	Describe the basic principles of genetics. Evaluate a child with congenital blindness, including VEP and interpretation of an electroretinogram (ERG).	KH	Essay/SAQ
23.	Describe basic and more advanced strabismus examination techniques (eg, combined vertical and horizontal prism cover testing, double Maddox rod testing	KH	Mini-CEX
24.	Describe common hereditary or congenital ocular motility or lid syndromes (eg, Duane syndrome, Marcus Gunn jaw-winking syndrome, Brown syndrome).	S	DOPS

25.	Describe and recognize typical features of retinoblastoma (eg, differential diagnosis, evaluation, treatment indications, and types).	KH	Essay/SAQ
26.	Describe cortical visual impairment and periventricular leukomalacia	KH	Essay/SAQ
27.	Describe more advanced anatomy (including pulleys) and physiology of strabismus (eg, torsion, tertiary actions, consecutive deviations). Interpret diplopia charts (eg, Hess charts, Lees chart, Harms screen)	KH	Essay/SAQ
28.	List treatment options and indications of low birth weight children ,and describe long term ocular and systemic problems. Describe etiology, evaluation, and management of congenital infections (eg, TORCHES sequence: TOxoplasmosis, Rubella, Cytomegalovirus, HErpes simplex, Syphilis)	KH	Essay/SAQ
29.	Describe and recognize the common causes of pediatric uveitis with natural history, indicated work up, and treatment.	KH	Essay/SAQ
30.	Describe identifiable congenital ocular anomalies (eg, microphthalmia, persistent fetal vasculature), and describe appropriate work up for etiology, criteria for intervention, and genetic counseling for parents.	P	Mini-CEX

31.	Describe indications for botulinum toxin use in strabismus.	Written examinations, seminar presentation	Cognitive
32.	Diagnose phoria/tropia, perform cover tests. Assess ocular motility using duction and version testing. Apply Herings law and Sherrington law, and apply the most advanced knowledge of strabismus anatomy and physiology (eg, spiral of Tillaux, secondary and tertiary actions, spread of comitance) in evaluation of patients. Perform basic measurement of strabismus (eg, Hirschberg test, Krimsky method, cover testing, prism cover testing, simultaneous prism cover testing, alternate cover testing).	P	DOPS
33.	Perform assessment of vision in the neonate, infant, and child, including: a. Dazzle/menace reflex, preferential fixation tests b. Standard subjective visual acuity tests. c. Induced tropia test. Perform assessment of vision in more difficult strabismus patients (eg, uncooperative child, mentally impaired, nonverbal, or preverbal).	P	DOPS
34.	Perform cycloplegic retinoscopy in children using loose lenses, lens stick, or phoropter, depending on the age of the child and availability of the devices in the clinic. Measure the refractive condition of a patient's eyes using a retinoscope.	P	DOPS

35.	Recognize and apply in a clinical setting the following skills in the ocular motility examination: a. Stereoacuity testing b. Accommodative convergence/accommodation ratio (eg, heterophoria method, gradient method) c. Tests of binocularity and retinal correspondence d. Anterior and posterior segment examination e.Basic and advanced measurement of strabismus f.Perfom measurement of vision using Teller acuity cards	P	DOPS
36.	Assist a primary surgeon in performing extraocular muscle surgery, including: a. Recession b. Resection c. Muscle weakening (eg, tenotomy) and strengthening (eg, tuck) procedures d. Transposition e. Use of adjustable sutures f. Intraoperative forced duction test (FDT)	S	MINI CEX

37.	Perform more advanced strabismus testing, such as Parks-Bielschowsky 3-step test,Lancaster red-green test, Maddox rod testing, double Maddox rod testing, andmeasurement of dissociated vertical deviation (DVD). Perform more advanced measurements of strabismus (eg, use of synoptophore or amblyoscope, when available). Perform forced duction test (FDT) and force generation test (FGT) in the clinic.	P	DOPS
38.	Exercise surgical judgment for the indications and contraindications for strabismus surgery and be able to chalk out a surgical plan .	S	Mini CEX
39.	Perform preoperative extraocular muscle surgery assessment, intraoperative techniques, and describe intraoperative and postoperative complications of strabismus surgery.	P	DOPS
40.	Probe tear ducts to diagnose and treat an obstruction. Medically and, if indicated, surgically manage chalazions. Treat molluscum contagiosum with curettage, if indicated.	P	DOPS

41.	Assess more advanced ocular motility problems (eg, bilateral or multiple cranial neuropathy, myasthenia gravis, thyroid eye disease). Apply Hering law and Sherrington law in more advanced cases (eg, pseudoparesis of the contralateral antagonist, enhancement of ptosis in myasthenia gravis).	S	Mini CEX
42.	Perform the following surgical techniques: a. Muscle weakening (eg, tenotomy) and strengthening (eg, tuck) procedures of rectus muscles b. Inferior oblique weakening procedures c. Use of adjustable sutures	S	Mini CEX
43.	Perform the following strabismus surgeries: a. Recession b. Resection Manage the complications of strabismus surgery (eg, slipped muscle, anterior segment ischemia, overcorrection, undercorrection).	P	DOPS

6m. Uveitis and Ocular inflammation

Uvea and ocular inflammation Competencies			
Sl no	**Competencies**	**Level of competency** **KH- Knows How** **S- Shows** **P- Performs**	**Assessment**
1	Describe and Elicit the basic principles of history taking in patients with uveitis and related diseases in terms of onset, duration, clinical course and correlate the ocular history with possible anatomical diagnosis (eg- floaters with posterior uveitis	KH P	Written assessments Seminars DOPS Case discussions OSCE Mini- CEX OCEX
2	Obtain relevant systemic history of known diseases in detail including investigations done and treatment given, symptoms of recent onset if any and review the medications being taken by the patient	KH	Written assessments Seminars DOPS Case discussions OSCE Mini- CEX OCEX
3	Demonstrate correlation between ocular features and systemic disease if any after history taking so as to proceed in the direction of appropriate diagnosis	S	Theoretical assessments

4	Outline the methodology of examination of uveitis and related diseases covering all related aspects.	KH	Case scenarios Mini CEX OCEX OSCE DOPS
5	List the signs and symptoms of anterior and posterior uveitis in order starting from the common ones to the not so common ones	KH	Written tests
6	Describe the different types of uveitis (acute and chronic/ granulomatous and non-granulomatous, anterior, intermediate and posterior), typical features and their differential diagnosis	KH	Written tests Case presentations Case scenarios
7	Describe the typical features and differential diagnosis of anterior uveitis including infectious, inflammatory, neoplastic, post-surgical, post traumatic and specific entities	KH	Written tests
8	Describe the typical features and differential diagnosis of posterior segment uveitis including toxoplasmosis, sarcoidosis, pars planitis, Vogt Koyanagi Harada disease, post-operative uveitis and various endophthalmitis	KH	Written tests

9	List the less common signs and symptoms of anterior and posterior uveitis	KH	Written tests
10	List the differentiating signs and differential diagnosis of less common forms of uveitis	KH	Written tests
11	Describe, recognize and evaluate uveitis associated with immunocompromised individuals	KH	Written tests Case scenarios Case presentations
12	Evaluate and treat common causes of anterior and posterior uveitis	P	Written tests
13	Describe the indications and contraindications of corticosteroid treatment in uveitis including the various routes of administration. The student should also be able to describe the benefits, risks and appropriate duration of treatment required in different types of uveitidis	KH	Written tests
14	Recognize, evaluate and treat specific etiologies of uveitis like congenital and acquired syphilis, CMV retinitis, Multiple sclerosis	P	Written tests

15	Describe indications and contraindications for immunosuppressive therapy in uveitis, use of antimetabolites, cyclosporine and alkylating agents	KH	Written tests
16	Describe the indications, technique , pre requisites and side effects of intravitreal injections if any given in uveitis	KH	Written tests Case scenarios
17	Perform an examination of anterior segment to detect and evaluate clinical features like pattern of keratic precipitates, iris changes, anterior chamber cells and flare. The student should be able to identify the stage of uveitis, whether acute, chronic or active, quiescent	P	OSCE OCEX Mini-CEX DOPS
18	Perform dilated examination of the posterior segment with slit lamp bio microscopy using contact and non-contact lenses, indirect ophthalmoscopy to evaluate vitreous for flare and cells, retinal and choroidal vasculature and inflammation and optic disc abnormalities	P	DOPS Mini CEX OCEX Video assisted assessments OSCE

19	Describe the indications for ancillary testing in uveitis and perform the same. (Fluorescein testing, B Scan, OCT where indicated, laboratory testing and radiological testing). The student should also be able to reasonably interpret the results of su0ch tests performed	KH P	DOPS Mini CEX
20	Administer steroids for patients with uveitis by various routes including posterior sub tenon's	P	DOPS Video assisted assessments
21	Evaluate and treat the complications of uveitis therapy (like cataract and glaucoma)	S	Case scenarios DOPS
22	Refer to concerned specialists for administration of immunosuppressive therapy and to be able to manage the complications of immunosuppressive therapy	S	Case scenarios DOPS
23	Perform an anterior chamber and vitreous tap for diagnostic purposes and administer intravitreal injections, be it anti VEGFs for inflammation or antibiotics for bacterial	P	DOPS Video based discussions

	endophthalmitis		
24	Explain and counsel the patient about the condition and the need to take oral steroids wherever necessary, with an emphasis on the side effects of the medication	P	DOPS OSCE
25	Explain in detail about the need for intravitreal injections when necessary with an emphasis on the advantages and side effects of the medication	P	DOPS OSCE
26	Explain in detail about the need for long term follow up and treatment in patients with chronic and recurrent uveitis	P	OSCE

6n. Vitreoretinal Diseases

Sl No.	**Competency**	**Level of competency** KH-Knows How S- Shows P- Performs	**Assessment**
1	Describe retinal anatomy and physiology.	KH	**ESSAY**
2.	Know the symptoms suggestive of retinal disorders: a. flashes b. floaters c. abrupt or gradual blurring, distortion and loss of central vision d. abrupt or gradual loss of peripheral vision.	KH	**ESSAY**
3.	Perform slit-lamp biomicroscopy with the Hruby, +78-D, +90-D lenses, three-mirror CL, or other CLs.	P	MINI CEX
4.	To perform Tonometry a. Applanation b. Indentation (Schiotz)	P	MINI CEX

5.	Perform direct ophthalmoscopy: a. Distant direct b. Media assessment c. Use of filters provided d. Examination of normal eye: Red reflex, optic disc, retinal arterioles and venules, retina and choroid. e. Recognition of abnormal fundus features of Direct Ophthalmoscopy: loss of normal red reflex, abnormal colors of red reflex, fundus features of important systemic diseases: Diabetes Mellitus, Systemic hypertension, CRVO, BRVO, CRAO, BRAO	P	MINI CEX
6.	Perform indirect ophthalmoscopy along with: a. Fundus drawing capability b. Use of filters provided Perform indirect ophthalmoscopy with scleral indentation.	P	MINI CEX
7.	To perform Gonioscopy: a. Single mirror gonioscope b. Gonioprism c. Grading of the angle d. Testing for occludability c. Indentation gonioscopy	P	MINI CEX

8.	Describe fundamentals and Interpret basic fluorescein angiography and ICG, apply in clinical practice (e.g., diabetic retinopathy, cystoid macular edema, CNVM etc.).	KH, S	**ESSAY** **OSCE**
9.	Describe the indications for and interpret retinal imaging technology (e.g., ocular coherence tomography, retinal thickness analysis) Interpret basic ocular imaging techniques (e.g., B-scan echography, nerve fiber layer analysis)	KH, S	ESSAY OSCE
10.	Describe the indications for and interpret basic electrophysiological tests (e.g., electroretinogram [ERG], electrooculogram [EOG], visual-evoked potential [VEP], dark adaptation)	KH, S	ESSAY OSCE
11.	Describe the findings of major studies in retinal diseases including the following: a. Diabetic Retinopathy Study (DRS) b. Diabetic Vitrectomy Study (DVS) c. Early Treatment of DRS (ETDRS)	KH	**ESSAY**
12.	Describe retinal vascular diseases. Diagnose, evaluate, and treat	KH, S	**ESSAY** **OSCE**

	the retinal vascular diseases a. Arterial and venous obstructions b. Diabetic retinopathy c. Hypertensive retinopathy d. Peripheral retinal vascular occlusive disease e. Acquired retinal vascular diseases f. Ocular ischemic syndrome g. Sickle cell retinopathy h. Retinal pigment epithelial detachment		
13	Describe principles of retinal detachment, various types of retinal detachment and their evaluation. Describe the techniques for retinal detachment repair (e.g., pneumatic retinopexy, scleral buckling, vitrectomy)	KH	**ESSAY**

14	Describe macular anatomy, function and recognize macular disorders like: a. ARMD b. Choroidal neovascularization c. High myopia d. Macular dystrophies e. epiretinal membrane. f. Macular holes g. Cystoid macular edema h. Central serous choroidopathy (retinopathy) i. Retinal pigment epithelial detachment.	KH, S	**ESSAY** **OSCE**
15.	Describe, recognize, and evaluate hereditary retinal and choroidal diseases (e.g., gyrate atrophy, choroideremia, retinitis pigmentosa, cone dystrophies, Stargardt's disease, Best's disease, congenital stationary night blindness)	KH	**ESSAY**
16.	Describe the fundamentals of, evaluate, and treat (or refer) peripheral retinal diseases and vitreous pathology (e.g., vitreous hemorrhage, PVD, retinal breaks)	KH	**ESSAY**

17.	Describe, evaluate, and treat posterior uveitis syndromes and endophthalmitis.	KH	**ESSAY**
18.	Describe basic principles, indications and complications of laser photocoagulation. Perform basic laser treatment for diabetic retinopathy (e.g., panretinal photocoagulation, macular grid) Perform diabetic focal/grid macular laser treatment Perform laser retinopexy (demarcation) for isolated retinal breaks Evaluate and treat complications of retinal photocoagulation (e.g., vitreous hemorrhage, chorioretinal anastomoses)	KH P P KH	**ESSAY** **MCEX** **MCEX** ESSAY

19.	Describe the basics of surgical vitrectomy (e.g., indications, mechanics, instruments, technique and complications) Assist in a retinal surgery or perform the procedure under supervision. Describe the fundamentals of special vitreoretinal techniques a. Macular hole repair b. Epiretinal membrane peeling c. Complex vitrectomy for proliferative vitreoretinopathy d. Use of heavy liquids and intraocular gases (e.g., perfluorocarbons) Apply in clinical practice the more complex principles of surgical management of diabetic retinopathy (e.g., vitrectomy, membrane release)	KH P KH P	**ESSAY** DOPS ESSAY DOPS
20.	Perform cryotherapy of retinal holes and other pathology	**P**	DOPS
21	Perform scleral buckling	**P**	DOPS

22	Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, patients' families, and professional associates. Residents are expected to: a. Create and sustain a therapeutic and ethically sound relationship with patients b. Use effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills c. Work effectively with others as a member or leader of a health-care team or other professional groups	**KH, S**	**ESSAY**
23	Teaching: The ability to pass on skills acquired to one's juniors which are theoretical, procedural and surgical.	**KH** **S**	ESSAY

6o. Ocular Oncology

Sl No.	COMPETENCY	DOMAIN	ASSESSMENT
	Basic Level Goals	K – KNOWS HOW S- SHOWS P- PERFORMS	
1	Describe the basic categorization of ocular tumors and their clinical features	K	Theory/written assessment MCQ Seminar

	a. Nonneoplastic tumors (eg, hamartomas) b. Neoplastic tumors i. Benign (eg, nevus, hemangioma) ii. Malignant (eg, melanoma, carcinoma, metastasis) c. Traumatic lesions (eg, implantation cysts, hemorrhages) d. Degenerative lesions (eg, disciforms, sclerochoroidal calcification) e. Idiopathic disease (eg, juvenile xanthogranuloma, vasoproliferativetumor) f. Paraneoplastic disease (eg, Bilateral diffuse uveal melanocytic proliferation) g. Iatrogenic disease (eg, radiation-induced disease)		
2	Describe the differential diagnosis of the major tumors	K	Theory/written assessment MCQ Seminar
3	Describe the etiology of ocular tumors, such as: a. Environmental factors (eg, conjunctival squamous cell carcinoma) b. Genetic factors (eg, retinoblastoma) c. Syndromes (eg, von Hippel-Lindau disease) d. Malformations (eg, choroidal osteoma)	K	Theory/written assessment MCQ Seminar

4	Describe relevant genetic abnormalities and techniques: a. Germinal and somatic mutations relevant to oncology (eg, retinoblastoma) b. Important genetic techniques (eg, fluorescence in situ hybridization)	K	Theory/written assessment MCQ Seminar
5	Describe the examinations and tests by which ocular tumors are diagnosed a. Inspection b. Transillumination c. Color photography d. Optical coherence tomography e. Autofluorescence f. Angiography (indocyanine green and fluorescein) g. Ultrasonography h. Magnetic resonance imaging i. Computerized tomography j. Positron emission tomography k. Biopsy i. Aspiration ii. Incisional iii. Excisional iv. Impression cytology l. Systemic investigation according to ocular tumor diagnosis i. History ii. Clinical examination iii. Hematology and biochemistry iv. Radiography v. Ultrasonography vi. Computerized tomography vii. Magnetic resonance imaging viii. Genetic testing	K	Theory/written assessment MCQ Seminar

6	Perform slit-lamp examination, gonioscopy, and indirect ophthalmoscopy to diagnose and localize ocular tumors.	K,P	DOPS Mini CEX Clinical testing by supervision With logbook Demonstration
7	Perform B-scan ultrasonography to detect and measure intraocular tumors.	K,P	DOPS Mini CEX Clinical testing by supervision With logbook Demonstration
8	Perform palpation of cervical lymph nodes	K,P	DOPS Mini CEX Clinical testing by supervision With logbook Demonstration
9	Describe the systemic features of ocular tumors and how these features are detected	K	Theory/written assessment MCQ Seminar
10	Describe the relevance of staging tumors (eg, TNM [Tumor, lymph Nodes, Metastasis] Classification of Malignant Tumors).	K	Theory/written assessment MCQ Seminar
11	Describe the management options for ocular tumors with indications and contraindications for each form of management a. Radiotherapy (eg, brachytherapy, external beam radiotherapy, proton beam) b. Chemotherapy (eg, topical,	K	Theory/written assessment MCQ Seminar

	intraocular, systemic) c. Phototherapy (eg, photocoagulation, photodynamic therapy) d. Cryotherapy (eg, liquid nitrogen, carbon dioxide) e. Surgical resection (eg, local resection, enucleation)		
12	Describe the complications of ocular therapy and their management	K	Theory/written assessment MCQ Seminar
13	Describe basic histopathology of tumors, including immunohistochemistry	K	Theory/written assessment MCQ Seminar
14	Describe the applied surgical anatomy, histology, and physiology of the eye and ocular adnexa with relevance to ocular oncology.	K	Theory/written assessment MCQ Seminar
15	Perform excision of conjunctival tumors, avoiding seeding, or refer to an ocular oncology subspecialist for such surgery if possible	K,P	Clinical testing by supervision With logbook Demonstration
16	Perform sequential examination to assess the tumor over time (eg, atypical nevus)	K,P	Clinical testing by supervision With logbook Demonstration
17	Collaborate with subspecialist in the preoperative care and referral of selected patients with an ocular tumor, avoiding potential pitfalls	K,P	Interdepartmental seminar
18	Provide short-term and long-term postoperative care to patients with	K, S,P	Clinical testing by supervision

	an ocular tumor, collaborating with a subspecialist and other health care workers as appropriate		With logbook Demonstration Interdepartmental seminar
19	Discuss prognosis and various management options with patients and their families in a detailed, ethical, and compassionate manner	K, S,P	Clinical testing by supervision With logbook Demonstration
20	Communicate prognosis with patients, relatives, and health care workers; and adjust patient management accordingly in collaboration, if necessary, with a subspecialist	K, S,P	Clinical testing by supervision With logbook Demonstration
21	Assist patients with selecting the most appropriate management in collaboration, if necessary, with a subspecialist in ocular oncology.	K, S,P	Clinical testing by supervision With logbook Demonstration
22	Provide or organize appropriate psychological support, demonstrating empathy and an adequate awareness of the principles of this aspect of care (eg, giving bad news)	K, S,P	Clinical testing by supervision With logbook Demonstration
23	Collaborate with subspecialists and other health care professionals to provide patient focused care.	K, S,P	Clinical testing by supervision With logbook Demonstration

6p. Systemic ophthalmology & Immune Ocular Disorders.

Systemic ophthalmology & Immune Ocular Disorders Competencies			
Sl no	**Competencies**	**Level of competency** **KH- Knows How** **S- Shows** **P- Performs**	**Assessments**
1	Describe and list the common systemic diseases affecting the eye including infectious and non-infectious etiology	KH	Written tests Essay questions MCQs
2	Obtain a detailed history of the symptomatology in patients with systemic diseases and also to emphasize on the details of the course, duration and treatment of the parent disease	P	DOPS OSCE Written assessments Essays
3	Describe the different signs and symptoms of ocular manifestations of systemic viral infections (herpes, varicella, infectious mononucleosis, CMV, HIV), bacterial infections(Tuberculosis, Syphilis, Leprosy), Malaria, fungal infections like candidiasis, histoplasmosis, cryptococcosis, worm infestations like cysticercosis, toxocariasis and Onchocerciasis	KH	Written tests Essays MCQs
4	List the ocular features of non - infectious inflammatory systemic diseases like collagen vascular disorders (Rheumatoid arthritis, polyarteritis nodosa, ankylosing spondylitis, dermatomyositis, sarcoidosis, systemic lupus erythematosus etc), metabolic disorders, chromosomal and endocrine disorders	KH	Written tests Essays MCQs Case scenarios

5	Describe the ocular metastatic lesions in systemic neoplasms involving blood (leukemia), breast, colon, kidney, lung and others	KH	Written tests Essays MCQs
6	List the ocular manifestations of vitamin deficiencies including A, B and C with special emphasis on vitamin A disease, its differential diagnosis and treatment	KH	Written assessments Essays MCQS
7	Describe the ocular signs and symptoms of autoimmune disorders, including immune related uveitis	KH	Written tests Essays MCQs
8	List the indications of ocular treatment in various systemic diseases, their side effects and their effect on the course of systemic diseases	KH	Written tests Essays MCQs
9	Perform a detailed slit lamp examination of the anterior segment including tear film tests and evaluation of the anterior chamber for evidence of uveitis	P	DOPS OSCE Mini Cex Case presentations
10	Perform a detailed posterior segment examination including anterior vitreous for inflammation and dilated fundus examination to look for optic disc changes, retina for vasculature and infiltrates/lesions and macular abnormalities	P	DOPS OSCE Mini Cex Case presentations
11	Interpret and order relevant systemic investigations wherever necessary like P ANCA, C ANCA, Blood counts, ANA, specific viral markers and antibodies, radiological imaging (X rays, CT Scans, MRI and others)	P	Case scenarios OSCE Case presentations

12	Perform ocular investigations like FFA, OCT and B Scan wherever required and interpret them	P	DOPS Video assisted assessments
13	Treat the various ocular manifestations with different drugs and routes of administration	P	OSCE DOPS Case presentations
14	Counsel the patients about the occurrence of ocular manifestations in systemic disease and the need for the treatment of such conditions	P	DOPS OSCE
15	Counsel the patients for regular follow up in order to note the progression of ocular condition and the adequacy of treatment.	P	DOPS OSCE

6q. Essential diagnostic Skill

Diagnostics tests in Ophthalmology – Competencies			
Sl No	**Competencies**	**Level of Competency** **K - Knows** **KH-Knows How** **S- Shows** **P- Performs**	**Assessment**
1.	Perform and interpret, a detailed clinical examination using various investigative tools including • Slit lamp Examination: Diffuse Examination / Focal Examination /	P	Mini-CEX

	Retrollumination-direct & indirect / Sclerotic scatter / Specular reflection / Staining modalities • Fundus evaluation: Direct & Indirect ophthalmoscopy with fundus Drawing • Slit lamp biomicroscopic examination of Fundus: 3-mirror, 78-D/90-D/60-D Examination • Amsler's grid charting		
2.	Perform Basic Investigations along with their interpretation of • Tonometry: Applanation / Indentation / Non contact tonometry • Gonioscopy- grading of the angle • Tear/ Lacrimal function tests: Staining-fluorescein, Rose Bengal / Schirmer's tests/ Break up time / Syringing / • Dacrocystography • Corneal Evaluation: Corneal scraping and cauterization, Smear preparation and interpretation (Gram's stain/KOH), Media inoculation, Keratometry- performance & interpretation, Corneal topography- if available, Pachymetry • Colour Vision Evaluation: Ishihara pseudoisochromatic plates, Farnsworth Munsell 100hue test • Refraction: Retinoscopy- streak/ Priestley Smith, Use of Jackson's cross-cylinder, Subjective and objective refraction, Prescription of glasses • Diagnosis & Assessment of squint including:	P	DOPS

	Ocular position and motility examination, Synotophore usage, Lees screen usage(if available), Diplopia charting Assessment of strabismus - cover tests/ prism bars/ synoptophore Amblyopic diagnosis and treatment Assessment of convergence, accommodation, stereopsis, suppression • Exophthalmometry: Usage of Hertel's Exophthalmometry- proptosis 0measurement • Contact lenses: Hand-on training wherever possible Fitting and assessment of RGP and soft lenses Subjective verification of over refraction Common complications arising from contact lens use Educating the patient regarding CL usage, and of complications • Low Vision Aids Knowledge of basic optical devices available and relative advantages and disadvantages of each. The basics of fitting, with knowledge of availability & cost		
3.	Perform and interpret the following Essential Ocular imaging and investigative skills including • Fluoroscein in angiography • Ophthalmic ultrasound: A-scan /B-scan • Automated perimetry for glaucoma and neurological lesions	P	DOPS/Mini-CEX

	• OCT and basic knowledge of UBM • ERG, EOG, VER • Specular Microscopy • New modalities of glaucoma investigation • Radiological tests: • X rays – Antero Posterior/ Lateral View, PNS (Water's view) / Optic canal views, Localization of ocular and intra orbital Foreign Bodies • Interpretation of – CT scan / MRI		
4.	Perform independently and provide follow-up care the following laser • Yag Capsulotomy • Laser iridotomy • Focal and panretinal photocoagulation	P	DOPS

6r. Surgical Procedures

Competencies for Surgeries in Ophthalmology			
Sl No	**Competencies**	**Level OfCompetencey** K- Knows KH-Knows How S- Shows P- Performs	**Assessment**
1.	Perform the following minor surgical procedures independently, provide post-op follow-up care, recognize and treat complications that arise • Conjunctival and corneal foreign body removal on the slit lamp	P	DOPS

	• Conjunctival cyst excision • Conjunctival flap/ peritomy • Suture removal- skin / conjunctival/ corneal / corneoscleral • Subconjunctival injection • Posterior Sub-Tenon's injections • Chalazion incision and curettage • Biopsy of small lid tumors • Tarsorrhaphy • Artificial eye fitting		
2.	Perform the following ocular anesthesia independently, identify and treat complications • Retro bulbar anesthesia • Facial nerve blocks- O'Brien / Atkinson/ Van lint & modifications • Frontal nerve blocks • Infra orbital nerve blocks • Blocks for sac surgery	P	DOPS
3.	Perform independently / under supervision / assist and deal with complications arising from the following surgeries • Lid Surgery o Tasorrhaphy o Ectropion & entropion (simple procedures) o Lid repair following trauma – including lid margin tears o Epilation, electroepilation • Destructive procedures	P	DOPS/OSCAR

	○ Evisceration with or without implant ○ Enucleation with or without implant ○ Enucleation for eye donation ○ Cyclocryotherapy • Sac surgery ○ Dacryocystectomy ○ Dacryocystorhinostomy ○ Probing for congenital obstruction of nasolacrimal duct • Pterygium excision with modifications, conjunctival autograft and amniotic membrane transplant • Repair of corneal / corneo – scleral perforations • Strabismus surgery • Recession and resection procedures on the horizontal recti • Orbital surgery • Incision and drainage via anterior orbitotomy for abscess		
4.	Perform independently / under supervision / assist and deal with complications arising from the following microsurgical procedures • Cataract surgery ○ Standard ECCE with or without IOL implantation ○ Small incision ECCE with or without IOL implantation ○ Secondary AC or PC IOL	P	OSCAR

	implantation o Phacoemulsification- under guidance / assisted		
5.	Perform independently / under supervision / assist and deal with complications arising from the following surgeries • Vitreous Surgery Intra-vitreal and intra-cameral (anterior chamber) injection techniques and dosages, particularly for endopthalmitis management. The student should know the basis of open sky vitrectomy (anterior segment) in the management of cataract surgery complications.	S	DOPS
6.	Have Knowledge of the steps and complications and preferably assisted in the following microsurgical procedures • Keratoplasty - Therapeutic and optical • Glaucoma surgery • Trabeculectomy- including Pharmacological modulation of trabeculectomy	KH	Essay
7.	Have Knowledge of the steps and complications and preferably assisted in the following retinal surgeries • Retinal Detachment surgery • 3-port vitrectomy with various additional steps like membrane	KH	Essay

	peeling, silicone oil injection and endolaser		

6s. Community Eye Health

Community Ophthalmology Competencies			
Sl No	**Competencies**	**Level of competency** K- Knows KH-Knows How S- Shows P- Performs	**Assessment**
1	Ability to organize institutional screening	KH,P	WPBA,Role play
2	Ability to organize peripheral eye screening camps, school screening camps	KH,P	WPBA,360 Feed back
3	Knowledge and ability to execute guidelines of National Program for Prevention of Blindness, National Rural Health Mission policies and Vision 2020	K,SH	Essay,MCQ,Viva Voce
4	To be aware of national and international agencies involved in the prevention of blindness	K	Essay,MCQ,Viva Voce
5	Calculate Cataract surgical rate and cataract incidence in India	KH,SH,P	SAQ,Viva Voce
6	Awareness and exposure to Master of Public Health programs	K	Essay,MCQ,Viva Voce
7	Impart public health education in campsites	SH,P	WPBA,Role play

8	Understand the Functioning of Eye banking	KH,SH	Essay,MCQ,VivaVoce,WPBA

6t. Low Vision Rehabilitation

Low vision rehabilitation Competencies			
Sl No.	**Competency**	**Level of competency** KH-Knows How S- Shows P- Performs	**Assessment**
1	Describe the definition, types and degrees of Low vision.	KH	SAQ
2	Describe the most common causes of low vision in different age groups.	KH	SAQ
3	Describe the special aspects of vision assessment for children and adults with low vision.	KH/S	SAQ
4	Describe th e tests for determination of visual disability	S/P	SAQ
5	Describe the evaluation of and rationale for licensing automobile drivers who are visually impaired and understand the local licensing regulations.	KH	SAQ
6	Describe the challenges encountered by individuals with vision impairments.	KH	SAQ
7	Describe the effects of low vision on the general health and psychological well-being of the patient.	KH	SAQ
8	Describe the goals of therapy in patients with	KH	SAQ

	low vision		
9	Describe the optics of low vision aids	KH	SAQ
10	Describe the clinical applications and limitations of low vision aids (e.g Closed circuit television, magnification, Braille, Computer with artificial speech etc)	KH	SAQ
11	Describe the significant co-morbidities that can interfere with low vision rehabilitation.	KH	SAQ
12	Describe the vision related quality of life measurements.	KH	SAQ
13	Describe the medical and/or surgical interventions necessary to achieve best possible visual outcomes in patients with low vision.	KH	SAQ
14	Describe the concept of artificial vision and implantation of microchips for the treatment of patients with low vision	KH	SAQ
15	Perform evaluation of visual function in patients with low vision.	P	Mini-CEX
16	Perform visual acuity and visual field assessment in licensing drivers who are visually impaired	P	Mini-CEX
17	Prescribe rehabilitative therapies and optical devices to patients with low vision	P	DOPS
18	Demonstrate low vision devices and educate patients on the uses and limitations of these devices.	P	DOPS
19	Prescribe the visual field enhancing techniques for patients with hemianopic field loss.	P	DOPS
20	Inform patients with low vision of the rehabilitative resources available in the region and provide contact details.	S/P	DOPS

6u. Ethics and Professionalism in Ophthalmology

Ethics and professionalism Competencies			
Professionalism			
Sl.No.	**Competencies: At the end of three years of residence, the post-graduate student should be able to**	**Level of competency** **K- Knows** **KH- Knows how** **SH- Shows how** **P- Performs**	**Assessment**
1.	Demonstrate the personal etiquettes expected of a healthcare professional with respect to time management.	P	DOPS Viva voce
2.	Demonstrate the personal etiquettes expected of a healthcare professional with respect to personal care and hygiene	P	DOPS Viva voce
3.	Demonstrate the personal etiquettes expected of a healthcare professional with respect to social and gender boundaries and behaviors	P	Case scenario Mini-CEX DOPS OSCE
4.	Demonstrate respect for colleagues on issues that breach respect (gossiping, pointing faults, contradicting)	SH	DOPS Mini-CEX OSCE
5.	Demonstrate respect for patient privacy and confidentiality	P	Case scenario Mini-CEX DOPS OSCE

6.	Demonstrate good communication skills such as maintaining an open posture, making eye contact and paying attention	P	DOPS Mini-CEX Case scenario OSCE
7.	Demonstrate an understanding of collaboration and teamwork	SH/P	DOP Critical appraisal of movie
8.	Demonstrate an understanding of patient safety at the core of healthcare quality	SH/P	DOPS Reflective narrative
9.	Demonstrate complete and comprehensive documentation in a case sheet from admission records to discharge.	SH/P	DOPS
10	Conduct an audit of ophthalmic services and prepare a report	SH/P	Mini-CEX

Ethics			
Sl.No.	**Competencies: At the end of three years of residence, the post-graduate student should be able to**	**Level of competency** **K- Knows** **KH- Knows how** **SH- Shows how** **P- Performs**	**Assessment**
1.	Demonstrate how an effective informed consent process in ophthalmic healthcare is carried out (including routine ophthalmic surgery, destructive ophthalmic procedures, etc)	P	DOPS Mini-CEX Standardized patient (or role play)
2.	Demonstrate respect for autonomy of the patient and avoidance of paternalism in the context of ophthalmology healthcare	P	DOPS Standardized patient (or role play)
3.	Demonstrate the application of care in the context of ophthalmic healthcare (show empathy to patient who is aged, progressively blind and requires support)	P	DOPS Mini-CEX Standardized patient (or role play)
4.	Demonstrate methods of fair allocation of donor eyes in an eye bank.	SH	Mini-CEX

5.	Demonstrate maintenance of privacy and confidentiality of patients in the context of case sheet documentation and reporting of HIV positive status	SH	Mini-CEX
6.	Demonstrate truth-telling and breaking of bad news in the context of healthcare (as in diagnosis of ocular cancers, intraoperative complications, poor visual prognosis, destructive surgeries like enucleation/evisceration, etc)	SH	Mini-CEX
7.	Report a medical error to the concerned authority in the context of healthcare (wrong medication, wrong eye, wrong patient, wrong drug, wrong dosage, etc)	SH	Mini-CEX
8.	Demonstrate the process of shared clinical decision-making in the context of ophthalmologic healthcare (referral, second opinion, patient involvement, etc)	SH	Mini-CEX
9.	Demonstrate an ethical medical profession-industry relationship in the context of prescription of medicines, accepting of gifts and disclosure of conflict of interest	SH	Mini-CEX
10.	Demonstrate informed consent in health care (surgery, laser	P	DOPS

	procedures, diagnostic procedures, eye donation, etc)		
11.	Demonstrate informed consent in health care in difficult situations (children, mentally-challenged, pregnant women,terminally ill)	P	DOPS
12.	Demonstrate methods to avoid stigma and discrimination in the context of HIV infection, disabilities, gender and LGBTQ, socioeconomic vulnerabilities, and in the context of COVID-19 infection	SH	Mini-CEX
13.	Demonstrate the steps in counseling for an HIV patient in an ophthalmic care setting	SH	Mini-CEX DOPS
14.	Demonstrate the steps in genetic counseling in an ophthalmic care setting	SH	Mini-CEX DOPS
Research Ethics			
1.	Develop a research participant information sheet in simple language (English version) for an adult patient undergoing an ophthalmologic clinical trial	P	DOPS

2.	Develop an informed consent document in simple language (English version) for an adult patient undergoing an ophthalmologic clinical trial	P	DOPS
3.	Demonstrate responsible conduct of research by conducting the dissertation project with honesty, responsibility, accountability and transparency	P	Dissertation review and audit by the guide or external agency
4.	Report an adverse event to the concerned authority (Guide, ethics committee) in the context of research.	SH	Dissertation review and audit by the guide or external agency
5.	Demonstrate ethical choice of authorship during publication in accordance with the guidelines as laid down by the International Council of Medical Journal Editors (ICMJE)	SH	Mini-CEX
6.	Prepare manuscript for publication avoiding any form of plagiarism	P	DOPS Continuous assessment
7.	Demonstrate methods adopted during dissertation to protect privacy of research participants and confidentiality of data (in the enrollment process, during the informed consent process, during data collection and during publication proces)	P	DOPS Continuous assessment

6v. Medico legal aspects in ophthalmology

Medicolegal aspects Competencies			
Sl No	**Competencies**	**Level of competency** KH-Knows How S- Shows P- Performs	**Assessment**
1.	Understand the Medicolegal role of an ophthalmologist a) As a third party expert b) As an expert who has treated the case c) As a doctor facing Legal Proceeding against him/her.	KH	Essay questions, MCQs, Case discussions, Viva Voce.
2.	Define Transplantation of Human organ Act. Describe the legal aspects of Eye Donation, Keratoplasty and eye bank under Transplantation of Human organ Act 1994(Recent amendment 2014) and The Bombay corneal Grafting Act,1957	KH	Essay questions, MCQs, Case discussions, Viva Voce.
3.	Desribe the types of legal proceedings such as legal notice, summons, warrant, police statement, cognizable offence, complaint, judicial proceeding.	KH	Essay questions, MCQs, Case discussions, Viva Voce.
4.	Explain the Liabilities of Doctor arising under Law and the enactments under which Civil and Criminal cases for medical negligence of the doctors can be filed	KH	Essay questions, MCQs, Case discussions, Viva Voce.
5.	Describe the IPC Various sections relevant for the Medical profession.	KH	Essay questions, MCQs, Case discussions, Viva Voce.

6.	Define The Consumer Protection Act 1986 (No. 68 of 1986) with Amendments of 1991, 1993 and 2002, 2019. A)Describe Medical Negligence, act of omission, act of commission B) Analyse the type of Hospitals under CPA preview. C) List the primary responsibilities of Hospital If not carried out amounts to negligence	KH	Essay questions, MCQs, Case discussions, Viva Voce.
7.	Analyse the Pecuniary Jurisdiction of Consumer Forum(As per Amendments of 2002)	KH	Essay questions, MCQs, Case discussions, Viva Voce.
8.	Describe the Procedural sequences of complaints lodge by Patients with various bodies.	KH	Essay questions, MCQs, Case discussions, Viva Voce.
9.	Analyse which ophthalmic complications are not negligence, what acts of an ophthalmologists are liable ,when is a manufacturer of products liable for negligence in Case Laws of State and National Commission of CPA	KH	Essay questions, MCQs, Case discussions, Viva Voce.
10	Describe "Prevention Of Violence And Damage To Property Act", also known as the "Medical Protection Act (MPA)".	KH	Essay questions, MCQs, Case discussions, Viva Voce.
11	Demonstrate proficiency about when to inform police	P	Log Book ,WPBA, Role play, Case discussion. Essay questions, Viva Voce.

12	Perform Documentation of all the clinical events and record keeping of all required medical records for the predetermined duration.	P	Log Book ,WPBA, Role play, Case discussion. Essay questions, Viva Voce.
13	Analyse the necessity of indemnity insurance of doctors and get one self insured	KH P	Log Book ,WPBA, Role play, Case discussion. Essay questions, Viva Voce.
14	Demonstrate proficiency in taking Various types of Consent relevant to the clinical circumstances	P	Log Book ,WPBA, Role play, Case discussion. Essay questions, Viva Voce.

6w. Research methodology in ophthalmology

Research Methodology Competencies			
Sl.No.	**Competencies**	**Level of competency** KH-Knows How S- Shows P- Performs	**Assessment**
1	Should be able to understand evidence-based medicine and research methodology And Ethics in research	KH	Group discussion and theory
2	Able to perform Proper literature search And Framing a research question	P	Demonstration and group discussion
3	Describe Various study designs and Qualitative research/epidemiological studies/development of tools for quality of life and studies related to social issues	K	Seminars ,MCQs
4	Describe Concept of population, concept of sample, sample size calculation	K	Theory questions Demonstration and group discussion,
5	Understanding of Basics of statistics a. Types of data b. Central tendency and spread of data c. Understanding *P* value d. Standard error of mean (SEM) and confidence interval	K	Seminars ,MCQs

6	Describe Hypothesis testing a. Concept of null hypothesis and alternate hypothesis b. Type I error c. Type II error d. Power of study e. Various statistical tests	KH	Seminars ,MCQs
7	Understanding various terminologies a. Risk ratio b. Odds ratio c. Sensitivity d. Specificity e. Positive predictive value f. Negative predictive value g. Receiver operator curve (ROC) h. Area under ROC i. Risk reduction j. Absolute risk reduction k. Number needed to treat l. Number needed to harm	K	Seminars/symposia ,MCQs
8	Protocol writing 12. Scientific writing 13. How to read and review a paper (critical appraisal).	P	Demonstration and group discussion

7. Year – wise structured training schedule

First year :

1. **Theoretical knowledge**
    a. Basic sciences should be addressed during this period
    b. It is useful to have an internal examination of the basic sciences at the end of the first year, which will decide appearance at the final examination.
    c. Clinical ophthalmology.
2. **Clinical examination and diagnostics**
    a. The basics of history taking, order and correct methods of examination and recording have to be learnt during this time.
    b. Clinical and surgical decision making is encouraged under supervision.
3. **Diagnostics**
    a. All basic procedures should as far as possible be done and the student should be fairly conversant with most of the basic techniques.
4. **Surgery**
    a. Extra ocular surgery including
        i. Destructive procedures must have been done independently with or without assistance
        ii. Local Anaesthesia (retrobulbar and peribulbar blocks)
        iii. Subconjunctival injections
        iv. Assisting for squint surgery
        v. Assisting for lid surgery. Tarsorrhaphy should be performed independently as also the simpler oculoplastic procedures.
        vi. Chalazion and Pterygium surgery.
        vii. Lid and corneal foreign body removal, suture removal on the slit lamp etc.
        viii. At the end of the first year, the student should have participated as assistant in most of the intra ocular procedures as an assistant.

        ix. Cataract surgery :
            1. Cataract surgery should be approached in stages, emphasis to be given on microscopic surgery.
            2. At the end of the first year, the student should be able to do standard extracapsular cataract extraction at least under guidance.

Second year :

1. **Theoretical Knowledge**:
    a. Here stress will be laid on clinical ophthalmology
2. **Clinical examination and diagnostics**
    a. The student is encouraged to take diagnostic investigational and therapeutic decisions on his / own. He / she should be able to manage most of the common problems that arise without guidance. However, the degree of freedom allowed in decision making is left to the confidence of the teacher in the student's abilities. It is to be encouraged. May require guidance for more complex cases.
3. **Diagnostics**
    a. The student should be conversant and at ease with most of basic and advanced diagnostic procedures.
4. **Surgical skills**
    a. At the end of the second year , the student should capable of operating, without assistance, but under supervision, all varieties of cataract except congenital cataract. He / she should also know the management of cataract induced complications and cataract surgical complications (management of vitreous loss).
    b. He/she should have performed the basic anti-glaucoma procedures such as trabeculectomy either with assistance or under supervision
    c. Extra ocular surgery such as squint surgery could be performed with assistance.
    d. In addition, lacrimal sac surgery such as dacryocystectomy and dacryocystorhinostomy should be possible with assistance or under supervision.
    e. In addition, the Master's candidate should ideally have assisted in the other surgery such as retinal surgery, vitrectomy, orbit surgery, advanced oculoplastic surgery etc.
5. **Conferences and workshops**
    a. The candidate should have attended one or two regional workshops and one national conference if possible. Presentation of a free paper at these venues is to be encouraged.

Third year :

1. **Theoretical knowledge**:
    a. Should be thorough with basic clinical ophthalmology with extensive and intensive reading
2. **Clinical examination and diagnostics**

a. Should be conversant with all aspects of clinical examination and decision making. Independent decision making and investigational and management freedom should be given at this stage for the more usual situations. However, complex cases could be discussed with consultant and degree of freedom of decision making is left to the consultant's discretion.

3. Surgical skills

a. Routine skills are honed during this period.
b. Cataract surgery should be done independently without supervision or assistance.
c. Antiglaucoma surgery may be done.
d. Can assist other procedures such as Retinal surgery, orbit surgery etc. The choice of doing the surgery with assistance and supervision should be left to the discretion of the consultant.

4. Conferences and workshops

a. The candidate by this time should have attended at least one national conference. He / she should be given time off to attend regional workshops and conferences particularly those dealing with the state of art.

8. Teaching and Learning Methods

Theoretical teaching

The theoretical knowledge is imparted to the candidate through distinct courses of lecture demonstrations, seminars, symposia, and inter- and intra-departmental meetings. The students are exposed to recent advances through discussions in journal clubs and participation in Continuing medical education (CME) programmes and symposia. Knowledge in applied, basic, paraclinical, and clinical sciences may be imparted by the members of the staff in respective disciplines or by clinicians themselves by conducting didactic courses (lectures and demonstrations).

a) Lectures to candidates should be in the form of instructional courses at the beginning of the academic term. These would include topics such as dark room techniques, fundus fluorescein angiography, evaluation of perimetry, squint evaluation and management, slit lamp examination with accessories such as gonioscopy etc.
b) Lectures could also be arranged round the year on subspecialty topics.
c) During the course, the candidates should have one lecture / one seminar on National programs (eg. National Programme for Control of Blindness, Trachoma program etc.), International assistance schemes for execution of national program (DAN-PCB , Lion's International, Christoffel-Blunden Mission etc).

Clinical training

1. Group discussion

The junior residents may present the symposium to their senior PGs where it is fully discussed before finally being discussed in front of the faculty or senior eye specialists. A free and fair discussion is encouraged.

2. Clinical case discussion

a. Bedside discussion on the rounds and outpatient teaching take their toll with patient management. Therefore, in addition to these, clinical case discussions should form part of a department's schedule at a fixed time every week. This could range from 1 to 2 hours (h) and could be held at least once a week. The choice and manner of presentation and discussion vary widely and are left to the discretion of the department. Every effort should be made to include as wide a variety of cases as possible over 3 years with multiple repetitions. Problem-oriented approach is better as it aids in decision-making skills

b. In addition to bedside teaching rounds, at least 5 hours (h) of formal teaching per week is necessary

c. Consultant case presentation is another approach which should be encouraged as it aids in solving complex problems and also is a forum for discussion of interesting cases

d. Case discussions on the patient's records written by the student are to be encouraged as it helps exercise the student's diagnostic and decision-making skills. It also helps the consultant in critical evaluation of the student's progress academically

e. Case presentation at other in-hospital multidisciplinary forums

3. Seminars

Seminars should be conducted at least once weekly. The duration should be at least 1 hour. The topics selected should be repeated once in 3 years so as to cover as wide a range of topics as possible.

Seminars could be individual presentations or a continuum (large topic) with many residents participating.

4. Journal clubs

Journals are reviewed in particular covering all articles in that subject over a 6-month period

Residents are expected to show their understanding of the aspects covered in the article and clarify any of the points raised in the article, offer criticisms, and evaluate the article in the light of known literature

5. Video Presentations

Once in a month presentations and discussions of various surgical videos

6. Outpatients

For the first 6 months of the training program, residents may be attached to a faculty member to be able to pick up methods of history taking and ocular examination in ophthalmic practice. During this period, the resident may also be oriented to the common ophthalmic problems. After 6 months, the clinical resident may work independently, where he/she receives new and old cases including refractions and prescribes for them. The residents are attached to a senior resident and a faculty member whom they can consult in case of difficulty

7. Wards

Each resident may be allotted beds in the inpatient section depending upon the total bed capacity and the number of the PGs. The whole concept is to provide the resident increasing opportunity to work with increasing responsibility according to their seniority. Detailed history and case records are to be maintained by the resident. Relevance of beds and admissions in ophthalmology has really gone down as most of the surgical and special investigative procedures are being performed on an outpatient basis. Most of the teaching has to be imparted in outpatients department and special clinics

8. Specialty clinics

The student must rotate in the following subspecialty clinics:

a. Anterior segment and cataract

b. Glaucoma

c. Orbit and oculoplasty

d. Pediatric ophthalmology and strabismus

e. Retina and uvea

f. Cornea and CL

g. Low vision

h. Neuro-ophthalmology

9. Wet lab Skills training

Residents to practice the surgical steps adequate number of times inwetlab before operating on Pateints

10.Surgical Training

Residents to observe the faculty operate through the Observer Scope of Microscope, assist the faculty and later perform the surgeries under guidance.

Surgical audit of cases operated by Residents with the help of the video recording to be done once in a month

11. Practicals in ocular histopathology/ocular microbiology:

The residents may be provided with fully stained slides of the ocular tissues and of microbiological specimens along with relevant clinical data and discuss the diagnosis and differential diagnosis on the basis of the information provided

The residents should perform Grams stain and KoH mounting of the specimens

12.Dissertation & Research meetings:

Departmental meetings should be held to overview research work done, particularly satisfactory conduct and progress of dissertation topics. These could be conducted once in 3 months either as an additional activity or in lieu of a journal club.

13. Teaching skills:

The post graduate students shall be required to participate in the teaching and training programme of undergraduate students and interns

One or two theory classes for undergraduates could be attended and one or two theory classes could be taken for undergraduates for selected topics.

Undergraduate clinical teaching is another teaching skill that the student should pick up during the course. At least five to six undergraduate clinical classes should be taken by the final year student (MS) before his/her course is over. This may be supervised by a consultant if necessary.

14. Orientation program:

All postgraduates from all specialties should have an introductory program in the institution where they are informed about candidate responsibilities, working systems, library usage, lab protocols etc.

Specific orientation regarding the departmental working could be made as an introductory talk in the department concerned.

15. Maintenance of logbook

To be signed by the faculty in charge

16. Attend accredited scientific meetings(CME, symposium, and conferences)

a. Should have attended two conferences/CMEs/Workshops during his tenure as a postgraduate

b. A post graduate student of a postgraduate degree course in broad specialties would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the post graduate degree examination

17. **Additional sessions**on basic sciences, biostatistics, research methodology, teaching methodology, hospital waste management, health economics, and medical ethics and legal issues related to ophthalmology practice are suggested

18. E- learning activities

During the training program, patient safety is of paramount importance; therefore, skills are to be learnt initially on the models, later to be performed under supervision followed by performing independently; for this purpose, provision of surgical skills laboratories in medical colleges is mandatory.

9. Rotation and Posting in other Departments

1. In institutions where subspecialities are not being usually performed, (eg. VR surgery, orbit surgery etc.), students could be deputed for a month or so in institutions in which these specialities are highly developed.
2. For an MS student, optional rotation postings to allied departments would include

   Plastic Surgery

   Neurology / Neurosurgery

   Intensive Care

   ENT

   Pathology

   Microbiology

   Biochemistry

However, posting to these allied specialities would depend upon the head of department's discretion. The total duration of posting should not exceed 4 months.

10. Monitoring of teaching and learning activities

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Chapter 16

The learning out comes to be assessed should included: (i) Personal Attitudes, (ii) Acquisition of Knowledge, (iii) Clinical and operative skills, (iv) Teaching skills (v) Dissertation (vi) Work diary / Log Book (vii) Periodic tests and (viii) Records

i) **Personal Attitudes.** The essential items are:

- Caring attitudes
- Initiative
- Organisational ability
- Potential to cope with stressful situations and undertake responsibility
- Trust worthiness and reliability
- To understand and communicate intelligibly with patients and others
- To behave in a manner which establishes professional relationships with patients and colleagues
- Ability to work in team
- A critical enquiring approach to the acquisition of knowledge

The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

ii) **Acquisition of Knowledge** : The methods used comprise of `Log Book' which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.

Journal Review Meeting (Journal Club): The ability to do literature search, in depth study, presentation skills, and use of audio- visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see Model Checklist, Chapter 16)

Seminars / Symposia: The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio- visual aids are to be assessed using a checklist (see Model Checklist, Chapter 16)

Clinico-pathological conferences :This should be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.

iii) **Clinical skills**

Day to Day work : Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills (see Model Checklist, Chapter 16)

Clinical meetings : Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see Model Checklist, Chapter 16)

Clinical and Procedural skills : The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (see Model Checklist, Chapter 16)

(iv) **Teaching skills :** Candidates should be encouraged to teach undergraduate medical students and paramedical students, if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students (see Model Checklist, Chapter 16)

(v) **Dissertation in the Department :**Periodic presentations are to be made in the department. Initially the topic selected is to be presented before submission to the University for registration, again before finalisation for critical evaluation and another before final submission of the completed work (see Model Checklist, Chapter 16)

(vi) **Work diary / Log Book**- Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate. The work diary shall be scrutinised and certified by the Head of the Department and Head of the Institution, and presented in the university practical/clinical examination.

(vii) **Periodic tests:**The departments may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may include written papers, practicals / clinicals and viva voce.

(viii) **Records:** Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

11. Log book

- ❖ The log book is a record of the important activities of the candidates during his training, Internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate.
- ❖ The work details shall be entered periodically under the supervision of faculty and kept in the department
- ❖ A student can take a Xerox copy of the log book after all entries are made, after completions of the course for his / her future references
- ❖ The candidate has to fill the Bio-Data sheet after the closure of admissions are announced by Rajiv Gandhi University of Health Sciences, Bangalore, Karnataka.

Format for the log book for the different activities is given in the website

Copies may be made and used by the institutions.

Procedure for defaulters: Every department should have a committee to review such situations. The defaulting candidate is counselled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right.

12. ASSESSMENT

Assessment should be comprehensive and objective, assessing the competencies stated in the course. The assessment is both formative and summate. Formative is spread over the entire duration of the programme and the summative is as per university examination pattern.

13. FORMATIVE ASSESSMENT**i.e, during the training**

Formative assessment should be continual and should assess medicalknowledge, patient care, procedural & academic skills, interpersonal skills, professionalism, self directed learning and ability to practice in the system.

The formative assessment is continuous as well as end-of-term. The former is being based on the feedback from the senior residents and the consultants concerned. All the consultants of the unit in which resident is working will give marks based on performance. These marks will be summated over a period of tenure. **End-of-term assessment is held at the end of each semester (up to the 5th semester). Formative assessment will not count towards pass/fail at the end of the program, but will provide feedback to the candidate.**

Internal assessment: The performance of the Postgraduate student during the training period should be monitored throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student. Marks should be allotted out of 100 as followed.

Sr. No.	Items	Marks
1	Personal Attributes	20
2	Clinical Work	20
3	Academic activities	20
4	End of term theory examination	20
5	End of term practical examination	20

1. Personal attributes

a.Behaviorand Emotional Stability: Dependable, disciplined, dedicated, stable in

emergency situations, shows positive approach.
b. Motivation and Initiative: Takes on responsibility, innovative, enterprising, does not shirk duties or leave any work pending.
c. Honesty and Integrity: Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.
d. Interpersonal Skills and Leadership Quality: Has compassionate attitude towards patients and attendants, gets on well with colleagues and paramedical staff, is respectful to seniors, has good communication skills.
2. Clinical work
a. Availability: Punctual, available continuously on duty, responds promptly on calls and takes proper permission for leave.
b. Diligence: Dedicated, hardworking, does not shirk duties, leaves no work pending, does not sit idle, competent in clinical case work up and management
c. Academic ability: Intelligent, shows sound knowledge and skills, participates adequately in academic activities, and performs well in oral presentation and departmental tests.
d. Clinical Performance: Proficient in clinical presentations and case discussion during rounds and OPD work up. Preparing Documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management) Skill of performing bed side procedures and handling emergencies.
3. Academic Activity
Performance during presentation at journal club/ seminar/ case discussion/inter department meeting and other academic sessions. Proficiency in skills as mentioned in job responsibilities.
4. End of term theory examination conducted at end of 1st, 2nd year and after 2 years 9 months.(three months before the final examination)
5. End of term practical/oral examinations after 2 years 9months. .(three months before the final examination)

GeneralPrinciples

Internal Assessment should be frequent, cover all domains of learning and used to provide feedback to improve learning; it should also cover professionalism and communication skills. The Internal Assessment should be conducted in theory and clinical examination.

a. Marks for personal attributes and clinical work should be given annually by all the faculty under whom the resident was posted during the year. Average of the three years should be put as the final marks out of 20.

b. Marks for academic activity should be given by the all faculty who have attended the session presented by the resident.

c. The internal assessment should be presented to the board of examiners for due consideration at the time of final examinations.

Quarterly assessment during the MS training should be based on following educational activities:

1. **Journal based / recent advanceslearning**
2. **Patient based /Laboratory or Skill basedlearning**
3. **Self directed learning andteaching**
4. **Departmental and interdepartmental learningactivity**
5. **External and Outreach Activities /CMEs**

The student to be assessed periodically as per categories listed in postgraduate student appraisal form

Postgraduate Students Appraisal Form Pre / Para /Clinical Disciplines

NameoftheDepartment/Unit :

NameofthePGStudent :

PeriodofTraining : FROM……TO……

Sr. No.	PARTICULARS	Not Satisfactory	Satisfactory	More Than Satisfactory	Remarks
		1 2 3	4 5 6	7 8 9	
1.	Journalbased/recent Advances learning				
2.	Patient based /Laboratory or Skill based learning				
3.	Self directed learning and teaching				
4.	Departmental and interdepartmental learning activity				
5.	External and Outreach Activities / CMEs				
6.	Thesis/Researchwork				
7.	Log Book Maintenance				

Publications Yes/No

Remarks* _____

_____

_____

_____

***REMARKS:Anysignificantpositiveor negativeattributesof a postgraduatestudenttobe mentioned.Forscorelessthan4 Inanycategory,remediationmustbesuggested.Individualfeedbacktopostgraduatestudent isstronglyrecommended.**

SIGNATURE OF ASSESSEE SIGNATUREOFCONSULTANTSIGNATURE OF HOD

14. SUMMATIVE ASSESSMENT

The Post Graduate examination shall be in three parts:

1. Thesis:

Every post graduate student shall carry out work on an assigned research project under the guidance of a recognised Post Graduate Teacher, the result of which shall be written up and submitted in the form of a Thesis. Work for writing the Thesis is aimed at contributing to the development of a spirit of enquiry, besides exposing the post graduate student to the techniques of research, critical analysis, acquaintance with the latest advances in medical science and the manner of identifying and consulting available literature.

Thesis shall be submitted at least six months before the Theory and Clinical / Practical examination. The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, who shall not be the examiners for Theory and Clinical examination. A post graduate student shall be allowed to appear for the Theory and Practical/Clinical examination only after the acceptance of the Thesis by the examiners.

2. Theory Examination:

The examinations shall be organisedon the basis of 'Grading'or 'Marking system' to evaluate and to certify post graduate student's level of knowledge, skill and competence at the end of the training. Obtaining a minimum of 50% marks in 'Theory' as well as 'Practical' separately shall be mandatory for passing examination as a whole. The examination for M.D./ MS shall be held at the end of 3rd academic year. An academic term shall mean six month's training period.

There shall be four theory papers.

Theory Examinations (Total = 400Marks)

Paper	Title	Pattern of Question	Marks
Paper 1	Basic Sciences Anatomy of the eye & orbit Ocular physiology Ophthalmic pathology Microbiology & Immunology	10 questions, each will carry equal 10 marks	100

	Biochemistry relevant to ophthalmology Ocular Pharmacology Geometric and ophthalmic optics		
Paper 2	Disorders of Refraction Concomitant Strabismus and Amblyopia Disorders of the Sclera Disorders of the Uvea Immune ocular disorders Disorders of the Cornea Disorders of the Conjunctiva Injuries of eye and orbit Recent advances	10 questions, each will carry equal 10 marks	100
Paper 3	Disorders of the Orbit Disorders of the Lids Disorders of the Lacrimal system Neuroophthalmology Paediatric ophthalmology Recent advances	10 questions, each will carry equal 10 marks	100
Paper 4	Glaucoma Systemic ophthalmology Disorders of the Retina Disorders of the Lens Community ophthalmology Surgical Ophthalmology Recent advances	10 questions, each will carry equal 10 marks	100

Note: The distribution of chapters / topics shown against the papers are suggestive only.

3. Clinical Examination :200 marks

Clinical/Practical and oral/viva voce examination Clinical

1 Long case
2 Short cases with different problems
2 Fundus Cases
2 Refraction cases

1. Long case :
    a. Duration: 45 minutes – 1 hour
    b. Marks : 50 marks
    c. Type of case:
        i. Neuro ophthalmology
        ii. Proptosis
        iii. Sclerokeratouveitis
        iv. Uveitis with complications
        v. Lens induced complications
        vi. Glaucoma

2. Short cases:
    a. Two short cases of 25 marks each.
    b. Duration: 10 minutes – 15 minutes
3. Fundus cases:
    a. Two fundus cases
    b. Duration: 10 minutes – 15 minutes each
    c. Marks: 25 marks each
    d. Type of cases:
        i. Rhegmatogenous retinal detachment
        ii. Diabetic retinopathy, background & proliferative
        iii. Vasculitis
        iv. Tractional RD
        v. Hypertensive retinopathy and combinations of the same with DR
        vi. Mass lesions

vii. High myopia with degeneration
viii. Coloboma choroids, simple or with detachment
ix. Posterior uveitis, retinitis etc.
x. Pigmentary Retinopathy

4. Refraction:
   a. Two refraction cases of 25 marks each.

4. Viva voce: 100 marks

a) Students will be examined by all the examiners together about students comprehension of the components of course contents, analytical approach and interpretation of data. This section will carry 80 marks. The examination will include the following:

i. Community ophthalmology
ii. Conjunctiva,Cornea, Lens
iii. Uvea and Glaucoma
iv. Neuro-ophthalmology & Systemic disorders
v. Orbit &oculoplasties
vi. Retina etc.
vii. Surgical instruments
viii. Pathology gross specimens
ix. Pathology slides
x. Microbiology slides
xi. Radiology
xii. Perimetry
xiii. Miscellaneous
xiv. Drugs, X-rays, USG/OCT/CT/MRI Scans, etc.
xv. Visual fields and other ophthalmic diagnostic charts
xvi. Log book

b)Pedagogy Exercise: (20 Marks)
A topic be given to each candidate before the clinical examination. Each will make a presentation on the topic for 8 to 10 minutes.

c)During the viva-voce discussion on dissertation may be held. No marks are assigned as it would have been evaluated separately.

Maximum marks

Theory	Practical	Viva	Grand Total
400	200	100	700

15. Recommended Reading

Books (Latest edition)

1. Ophthalmic Surgery: Principles and Techniques. Blackwell Science. AlbertDM.
2. Principles and Practice of Ophthalmology. Albert DM, Jakobiec. W BSaunders
3. Principles & Practice of Ophthalmology. GholamAPaymen
4. The Current American Academy of Ophthalmology Basic and Clinical Science Course (13volumes)
5. Duke Elder's Practice of Refraction. Abrams D. ChurchillLivingstone.
6. Text book of Ophthalmology. Yanoff and Duker
7. Retina. Stephen J Ryan:
8. Ophthalmic Ultrasound: Sandra Byrne and RonaldGreen.
9. Cornea: Fundamentals, Diagnosis, and Management. Krachmer JH, Mannis MJ, Holland EJ. MosbyElsevier.
10. Ophthalmology: YanoffN,DukerJS.MosbyElsevier.
11. Review of Ophthalmology. Friedman NJ, Kaiser PK, TrattlerWB. ElseviewSaunders,Philadelphia.
12. Corneal Transplantation. Vajpayee RB. Jaypee Brothers Medical Publishers (P) Ltd, NewDelhi.
13. Fundamentals of Clinical Ophthalmology Series. Coster D. Cornea. Blackwell PublishingLimited.
14. The Contact Lens Manual. A practical guide to fitting. GassonA, Morris A J. Butterworth HeinemannElsevier.

15. Steinert’s cataractsurgery.
16. Shields Text bookofglaucoma
17. Smith and Nozik :Uvea
18. Rootman’s diseases of theorbit
19. Eyelid, conjunctival and orbital tumors. An atlas and textbook. Shields JA, Shields CL. Philadelphia: Lippincott Williams &Wilkins.
20. Intraocular tumors. An atlas and textbook. Shields JA, ShieldsCL.
21. Pediatric Ophthalmology. Taylor and Hoyt: SaundersLtd.
22. Management of Strabismus and Amblyopia. Pratt-Johnson and Tilson: ThiemeVerlag.
23. Handbook of Pediatric Eye and Systemic disease. Wright, Spiegel and Thompson.
24. BinocularVision and Ocular Motility. Theory and Management of Strabismus. Von NoordenGK. Mosby.
25. Surgical Management of Strabismus.Helveston:
26. Strabismus: A Decision Making Approach. Von NoordenandHelveston:
27. Thyroid Eye Diseases. Char DR. Williams and Wilkins,Baltimore.
28. A Manual of Systematic Eyelid Surgery.Collin JRO (ed). ChurchillLivingstone, Edinburgh.
29. Refractive Surgery. AgarwalA, AgarwalA, Jacob Soosan.Jaypee.
30. LASIK Complications, Prevention and management. Gimbel HV, Penno EEA. SlackInc.
31. Management of Complications of Refractive Surgery. AlioJL, Azar DT. Springer.
32. Quality of Vision: Essential Optics for the Cataract and Refractive Surgeon. Holladay JT. SlackInc.
33. Ocular Pharmacology:Havener
34. Anatomy: Wolff 's Anatomy of the Eye andOrbit
35. Physiology: Adler’s Physiology of theEye
36. Textbook of Ophthalmology (2 volumes). Easty DL, Sparrow JM.Oxford Oxford MedicalPublications.
37. The Eye. Basic Sciences in Practice. Forrester JV, Dick AD, McMenamin PG, Lee WR. W BSaunders.

38. A Stereoscopic Atlas of Macular Diseases: Diagnosis and Treatment. Gass JDM.
39. Neuroophthalmology. Glaser JS. LipincottWilliams&Wilkins..
40. Clinical Ophthalmic Pathology. Harry J, MissonG.Butterworth/Heinemann.
41. Inherited Retinal Diseases. A Diagnostic Guide. Jimenez Sierra JM, Ogden TE, Van BoemelGB.Mosby.
42. Clinical Ophthalmology. Kanski JJ. Butterworth/Heinemann.
43. ABC of Resuscitation. Colquhoun, M. C., Evans, T. R., Handley, A. J. BMJ PublishingGroup.
44. Walsh and Hoyt's Clinical Neuroophthalmology (5 volumes). Miller NR, Newman NJ, Williams andWilkins.
45. The human eye. Oyster CW Sinauer Associates. Sunderland.Massachusetts
46. Paediatric Ophthalmology. Taylor D. BlackwellScience.
47. Decision Making in Ophthalmology. Van Heuven WAJ, ZwannJ.Mosby.
48. Parsons' Diseases of the eye. SihotaandTandon.
49. Wills Eye Manual
50. International Council of Ophthalmology Residency Curriculum available at http://www.icoph.org/

Journals

03-05 international Journals and 02 national (all indexed) journals

1. Indian Journal of Ophthalmology
2. British Journal of Ophthalmology
3. American Journal of Ophthalmology
4. Journal of cataract of refractive surgery
5. Cornea
6. European Journal of Ophthalmology
7. Asia pacific Journal of Ophthalmology

8. Survey of Ophthalmology
9. ActaOphthalmologica
10. JAMA Ophthalmology
11. Retina: the Journal of Retinal and Vitreous Diseases
12. BMC Ophthalmology
13. Middle east African journal of ophthalmology
14. Current eye research
15. Journal of Paediatric Ophthalmology and strabismus

Useful organization websites

1. American Academy of Ophthalmology (AAO): https://www.aao.org and the AAO's Education Resource Center: https://www.aao.org/education/index.cfm
2. American Board of Ophthalmology: https://www.abop.org
3. Digital Journal of Ophthalmology: http://www.djo.harvard.edu
4. Eye Search: https://www.eyesearch.com
5. Eye Atlas-Online Atlas of Ophthalmology: http://www.eyeatlas.com
6. Eye Cancer Network: https://eyecancer.com
7. Eye Library. Org: http://www.eyelibrary.org
8. Eye Text. Net: http://www.eyetext.net
9. Accreditation Council for Graduate Medical Education: http://www.acgme.org
10. Images of Eye Diseases: https://www.redatlas.org
11. ICO: http://www.icoph.org (has links for Basic and Clinical Assessments, i.e., testing and examinations; e-mail address: assess@icoph.org)
12. Ophthalmic resource searches (i.e., search for “eye resources on the Internet” or search by ophthalmic keywords): http://www.google.com
13. New York Eye and Ear Infirmary: Digital Atlas of Ophthalmology: http://www.nyee.edu/page_deliv.html?page_no = 50
14. Royal College of Ophthalmologists: http://www.rcophth.ac.uk
15. Royal Australian and New Zealand College of Ophthalmology: http://www.ranzco.edu
16. Wilmer Ophthalmological Institute: http://www.wilmereyeinstitute.net

Selected ophthalmology journal websites

1. ActaOphthalmologicaScandinavica: http://www.blackwellpublishing.com/journals/aos
2. American Journal of Ophthalmology: http://www.ajo.com
3. AAO: https://www.aao.org
4. Several subspecialty journals are available through: http://www.ophsource.org
5. Archives of Ophthalmology: http://www.archophthalmol.com
6. British Journal of Ophthalmoloqy: http://bio.bmi.com .
7. Canadian Journal of Ophthalmology: https://www.canadianiournalofophthalmoloqv.ca
8. Clinical and Experimental Ophthalmology: https://onlinelibrary.wiley com/journal
9. Current Opinion in Ophthalmology: http://www.co-ophthalmology.com
10. European Journal of Ophthalmology: http://www.eur-j-ophthalmol.com/ejo
11. Eye: http://www.nature.com/eye
12. Graefe's Archive for Clinical and Experimental Ophthalmology: http://www.springerlink.com
13. Indian Journal of Ophthalmology (IJO): http://www.ijo.in
14. International Ophthalmology Clinics: http://www.internat-ophthalmology.com
15. Investigative Ophthalmology and Visual Science: http://www.iovs.org
16. Japanese Journal of Ophthalmology: http://www.springerlink.com
17. Ophthalmologica: http://www.karger.com
18. Transactions of the American Ophthalmological Society: http://www.aosonline.org
19. Lippincott Williams and Wilkins: http://www.lwwonline.com

16. Annexures- Format of model check lists

Check List -I. MODEL CHECK-LIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS

Name of the Student: Name of the Faculty/Observer: Date:

Sl. No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Article chosen was					
2.	Extent of understanding of scope & objectives of the paper by the candidate					
3.	Whether cross references have been consulted					
4.	Whether other relevant publications consulted					
5.	Ability to respond to questions on the paper / subject					
6.	Audio-Visual aids used					

7.	Ability to defend the paper					
8.	Clarity of presentation					
9.	Any other observation					
	Total Score					

Check List - II. MODEL CHECK-LIST FOR EVALUATION OF SEMINAR

PRESENTATIONS

Name of the Student: Name of the Faculty/Observer: Date:

Sl. No.	**Items for observation during presentation**	**Poor 0**	**Below Average 1**	**Average 2**	**Good 3**	**Very Good 4**
1.	Whether other relevant publications consulted					
2.	Whether cross references have been consulted					

3.	Completeness of Preparation					
4.	Clarity of Presentation					
5.	Understanding of subject					
6.	Ability to answer questions					
7.	Time scheduling					
8.	Appropriate use of Audio-Visual aids					
9.	Overall Performance					
10.	Any other observation					
	Total Score					

Check List - III

MODEL CHECK LIST FOR EVALUATION OF CLINICAL WORK IN WARD / OPD

(To be completed once a month by respective Unit Heads including posting in other departments)

Name of the Student: Name of the Unit Head: Date:

Sl. No.	**Points to be considered:**	**Poor 0**	**Below Average 1**	**Average 2**	**Good 3**	**Very Good 4**
1.	Regularity of attendance					
2.	Punctuality					
3.	Interaction with colleagues and supportive staff					
4.	Maintenance of case records					
5.	Presentation of cases during rounds					
6.	Investigations work up					

7.	Bedside manners					
8.	Rapport with patients					
9.	Counseling patient's relatives for blood donation or Postmortem and Case follow up.					
10.	Over all quality of Ward work					
	Total Score					

Check List – IV

EVALUATION FORM FOR CLINICAL PRESENTATION

Name of the Student: Name of the Faculty: Date:

Sl. No.	**Points to be considered**	**Poor 0**	**Below Average 1**	**Average 2**	**Above Average 3**	**Very Good 4**
1.	Completeness of history					

2.	Whether all relevant points elicited					
3.	Clarity of Presentation					
4.	Logical order					
5.	Mentioned all positive and negative points of importance					
6.	Accuracy of general physical examination					
7.	Whether all physical signs elicited correctly					
8.	Whether any major signs missed or misinterpreted					
9.	Diagnosis: Whether it follows follows logically from history and findings					
10	Investigations required ▪ Complete list					
	▪ Relevant order					

	▪ Interpretation of investigations					
11.	Ability to react to questioning Whether it follows logically from history and findings					
12.	Ability to defend diagnosis					
13.	Ability to justify differential diagnosis					
14.	Others					
	Grand Total					

Check List - V

MODEL CHECK LIST FOR EVALUATION OF TEACHING SKILL PRACTICE

Sl. No.		**Strong Point**	**Weak Point**
1.	Communication of the purpose of the talk		
2.	Evokes audience interest in the subject		
3.	The introduction		
4.	The sequence of ideas		
5.	The use of practical examples and/or illustrations		
6.	Speaking style (enjoyable, monotonous, etc., specify)		
7.	Attempts audience participation		

8.	Summary of the main points at the end		
9.	Asks questions		
10.	Answers questions asked by the audience		
11.	Rapport of speaker with his audience		
12.	Effectiveness of the talk		
13.	Uses AV aids appropriately		

Check list VI

MODEL CHECK LIST FOR DISSERTATION PRESENTATION

Name: Faculty/observer: Date:

Sl. No.	Points to be considered divine	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Interest shown in selecting a topic					
2.	Appropriate review of literature					
3.	Discussion with guide & other faculty					
4.	Quality of protocol					
5.	Preparation of proforma					

Checklist-VII

CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE / CO-GUIDE

Name of the Student: Name of the Faculty/Observer: Date:

Sl No.	**Items for observation during presentation**	**Poor 0**	**Below Average 1**	**Average 2**	**Good 3**	**Very Good 4**
1.	Periodic consultation with guide/co-guide					
2.	Regular collection of case material					
3.	Depth of analysis / discussion					
4.	Departmental presentation of findings					
5.	Quality of final output					
6.	Others					
	Total Score					

Model Overall Assessment Sheet

Name of the College:

Academic Year:

Sl. No	Faculty Member & Others	Name of Student and Mean Score									
		A	B	C	D	E	F	G	H	I	J
1											
2											
3											
4											
5											
Total Score											

Note: Use separate sheet for each year.

17. REFERENCES

1. ICO Residency Curriculum
   http://www.icoph.org/dynamic/attachments/curriculum_documents/pdf_doc/updated-ico-residency-curriculum.pdf

2. NMC
   Guidelines for competency based postgraduate training programme for ms in ophthalmology
   https://www.nmc.org.in/wp-content/uploads/2019/09/MS-Ophthamology.pdf

3. IJO
   Grover Ashok Kumar, HonavarSantosh G, Azad Rajvardhan, VermaLalit.
   A national curriculum for ophthalmology residency training.Year : 2018 | Volume: 66 | Issue Number: 6 | Page: 752-783
   https://www.ijo.in/article.asp?issn=0301-4738;year=2018;volume=66;issue=6;spage=752;epage=783;aulast=Grover

4. RGUHS
   MS Ophthalmology Curriculum 2000
   https://www.rguhs.ac.in/courses_rguhs.html#1