



Irish College of Ophthalmologists

Postgraduate Ophthalmology Examinations in Ireland



Irish College of
Ophthalmologists
Eye Doctors of Ireland
Protecting your Vision

Irish College of Ophthalmologists

121 St Stephen's Green, Dublin 2, Telephone: 01 402 2777



www.eyedoctors.ie



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The RCSI is the awarding body for Postgraduate Ophthalmology Qualifications in Ireland

Regulations for the MRCSI/FRCSI (Ophthalmology) Examinations

****Important notice**

The final sitting of the MRCSI (Ophth) Part 1 examination will be held in January 2015, after which it will be discontinued. Following this, candidates will be required to pass the FRCOphth Part 1 examination in order to proceed to the MRCSI (Ophth) part 2 examination, which will continue in its current form. The MRCSI (Ophth) Part 2 examination is not affected by this change. Candidates should visit the Royal College of Ophthalmologists' website for information on the FRCOphth Part 1 examination.

Introduction

The MRCSI (Ophth) and FRCSI (Ophth) are internationally recognised examinations that assess competence in clinical ophthalmology and the relevant basic sciences. They focus on the assessment of the key components of clinical competence; knowledge, clinical skills, communication, clinical reasoning ability and professionalism. Candidates are required to demonstrate competence in all of these areas to achieve success in the examinations.

The MRCSI examination is aimed at trainees in their first three years of ophthalmic training, Basic Specialist Training. The standard of the MRCSI examination is commensurate with the degree of competence in clinical ophthalmology and relevant basic sciences required to perform the duties of a junior registrar/specialist registrar. Therefore, to pass this examination, candidates will need to demonstrate a breadth of knowledge and clinical skill that enables them to work with a degree of clinical independence in all areas of ophthalmology but under the supervision of a senior clinician/consultant ophthalmologist.

The FRCSI examination is a test of competence to practice as an independent specialist (consultant) in ophthalmic surgery and is aimed at trainees who are coming to the end of their Higher Specialist Training (HST). The MRCSI is an entry requirement for the FRCSI and candidates for the FRCSI must be in their final year of HST in Ireland. The award of FRCSI (Ophth) requires both success in the FRCSI examination and the documented and satisfactory completion of HST in Ireland.

The examination

The examination is in four parts:

Part 1 MRCSI – applied basic science and theoretical optics (*see important notice above*)

Part 2 MRCSI written examination – clinical ophthalmology, clinical optics and refraction, and ophthalmic pathology

Part 2 MRCSI clinical examination – clinical ophthalmology, clinical optics and refraction, and ophthalmic pathology. This is held on a separate date to the Part 2 written examination.

Fellowship (FRCSI) examination – an assessment of clinical ophthalmology and generic issues pertinent to an independent specialist in ophthalmic surgery

Eligibility to take the examinations

Candidates must hold a medical qualification from a medical school or university whose degree is recognised by the Irish Medical Council or General Medical Council as being acceptable for Full or Temporary/Limited registration in Ireland or the United Kingdom. Candidates must also have completed a satisfactory pre-registration year or equivalent internship, which provides eligibility to work under Full or Temporary/Limited Registration in Ireland or the United Kingdom.

Exemptions

Candidates who have passed FRCOphth Part 1 are eligible to proceed to MRCSI (Ophth) Part 2. Either the MRCSI (Ophth) Part 1 or the FRCOphth Part 1 must be passed in order to proceed to the MRCSI (Ophth) Part 2. **No other examinations will be accepted for progression to the MRCSI (Ophth) Part 2 examination.**

Examination calendar

The Part 1 MRCSI and Part 2 Written MRCSI examinations are held twice a year in Dublin in January and September. The Part 2 Clinical MRCSI examination is held in Dublin twice per year in March/April and September/October. The Fellowship examination, FRCSI, is held in Dublin once or twice per year, depending on need. Specific dates for these examinations are posted on the RCSI website under postgraduate examinations. **The final sitting of the MRCSI (Ophth) Part 1 examination will be held in January 2015, after which it will be discontinued. Following this, candidates will be required to pass the FRCOphth Part 1 examination in order to proceed to the MRCSI (Ophth) part 2 examination, which will continue in its current form.**

Limit on attempts

There are no limits on the number of attempts that candidates may have at any part of the MRCSI or FRCSI examinations. The Part 2 written examination must be passed within five years of success in the Part 1 MRCSI. However, if more than five years have lapsed since passing Part 1, that part can be re-taken. The Part 2 clinical examination must be passed within two years of success in the Part 2 written examination. However, if more than two years have lapsed since passing Part 2 written, that part can be re-taken.

Withdrawal from the Examination

Any candidate wishing to cancel his application either before or after the closing date will forfeit their fee in **FULL**.

Applications for consideration or a refund on medical grounds must be accompanied by a medical certificate. Applications for consideration of a refund on compassionate grounds should be supported by the consultant or surgical tutor responsible for training. All such applications must be submitted to the examinations department/section of the appropriate College within 14 days of the commencement of the examination.

The Colleges reserve the right, regardless of eligibility to take the examination, to review applications on an individual basis in exceptional circumstances.

Candidates with special needs should advise the appropriate College at the time of application of the nature of their needs and any assistance that they require. Requests should be supported by medical evidence (an educational psychologist's report is required for requests for extra time because of dyslexia). If appropriate, details of extra time or other allowances made by other examining bodies should be given, although the Colleges are not bound to follow these

Results

Results will be posted on the website and sent out in the post by the examinations department/section of the College through which the candidate entered.

Feedback

Candidates will receive a breakdown of their marks for all Parts of the examination. Further feedback on performance in Part 2 of the examination only can be obtained by application to the examinations department/section of the appropriate College. Requests must be made within four weeks of the publication of results.

Appeals Mechanism

Candidates who wish to make an appeal about the conduct of their examination must address it to the examinations department/section of the appropriate College within 30 days of the publication of results. Appeals will be considered which allege maladministration or bias or impropriety of some kind, whether in the conduct or in the determination of the result of the examination. Appeals disputing the academic judgement of the examiners will not be allowed. Details of the appeals process and fees charged may be obtained from the Examinations' Office.

Improper Conduct by Examination Candidates

In the case of improper conduct of an examination candidate as defined below, the College may impose a penalty relating to the candidate's eligibility for the relevant or future examinations. Improper conduct is defined as:

- Dishonestly obtaining or attempting to obtain entry to the examination by making false claims about eligibility for the examination or falsifying any aspects of the entry documentation.

- Obtaining or seeking to obtain unfair advantage during an examination, or inciting other candidates to do the same. Examples of unfair advantage are: having on the person any material that would give advantage in an examination once the examination has commenced (this includes electronic communication devices), communicating or attempting to communicate with another candidate once the examination has commenced, refusing to follow the instructions given by examiners or examinations staff concerning the conduct of and procedure for the examination. This list is not exhaustive.
- Removing or attempting to remove from the examination any confidential material relating to the conduct of the examination.
- Obtaining or attempting to obtain confidential information concerning the examination from an examiner or examination official.
- Passing confidential information on the content of the examination to a third party.

The list given above is not exhaustive.

The College may also on an individual basis decide that a candidate should not be allowed to proceed further with the examination or, having passed the examination, may not be admitted to Membership, according to their own statutes and regulations, in cases where serious misconduct not related to the examination is judged to make the person unfit to become a Member of the College.

Notification of Pregnancy and Deferral

A deferral may be permitted to candidates supplying an appropriate medical report which satisfies the relevant College indicating that:

- the candidate has any pregnancy related problems or illness; and/or
- the candidate's confinement is due shortly before or around the date of the examination; and/or
- the candidate has sufficient discomfort for her to consider that it will have a detrimental affect on her performance.
- In such circumstances, a deferral will be permitted and no further fee will be required.

Any candidate who does not inform the College of her pregnancy and is consequently unable to sit for that examination will not normally be allowed to defer this examination without submission of another fee.

NOTE: These Regulations are under continual review. It is recommended that candidates review the RCSI website to ensure that they have the most up-to-date information. Any changes will be announced on the website.

MRCSI(Ophth) Examinations Committee June 24th 2014

Part 1 MRCSI (Ophth) regulations and guidance notes

****Important notice**

The final sitting of the MRCSI (Ophth) Part 1 examination will be held in January 2015, after which it will be discontinued. Following this, candidates will be required to pass the FRCOphth Part 1 examination in order to proceed to the MRCSI (Ophth) part 2 examination, which will continue in its current form. The MRCSI (Ophth) Part 2 examination is not affected by this change. Candidates should visit the Royal College of Ophthalmologists' website for information on the FRCOphth Part 1 examination.

Eligibility to take the examination

Candidates must hold a medical qualification from a medical school or university whose degree is recognised by the Irish Medical Council or General Medical Council as being acceptable for Full or Temporary/Limited registration in Ireland or the United Kingdom. Candidates must also have completed a satisfactory pre-registration year or equivalent internship, which provides eligibility to work under Full or Temporary/Limited Registration in Ireland or the United Kingdom.

Examination content

This is an examination of applied basic sciences relevant to ophthalmology and theoretical optics. General basic science questions that have relevance to the practice of ophthalmology will also be asked. See below for a detailed examination syllabus.

Format of the examination

There are two multiple choice papers comprising 100 questions each, with a single best answer (type A) style of questions. Each question consists of an initial stem followed by 5 possible answers, identified A, B, C, D and E. Candidates should select one item they believe to be correct. Every other item in that question must be left blank. The duration of each paper is 2.5 hours. There is no negative marking. Some sample questions can be found below.

Standard setting

The pass mark is determined in advance of each examination by the Examinations Committee using the Angoff method of standard setting.

Overall result

Candidates will receive a pass or fail based on their performance against the pass mark determined by the standard setting examination committee. The marks in the two MCQs will be combined to provide an overall score which will determine a "pass" or "fail". Cross compensation between the two papers is allowed. Candidates with an overall fail but who pass one of the MCQ papers will be required to re-take the whole examination.

Limit on attempts

There are no limits to the number of attempts at Part 1 MRCSI.

Timing and venue

The examination is held twice a year at the Royal College of Surgeons in Ireland, 123 St. Stephen's Green, Dublin 2, Ireland. The two MCQ examinations are held on the same day, one in the morning and the other in the afternoon. Further information can be found under postgraduate examination calendar on the RCSI website.

Recommendations

The Part 1 is a test of knowledge of relevant basic science and its application to clinical ophthalmology. There are many excellent texts on the vision sciences available and some are listed in the recommended reading list. Questions will be based on a broad range of topics as detailed in the syllabus below.

NOTE: These Regulations are under continual review. It is recommended that candidates review the RCSI website to ensure that they have the most up-to-date information. Any changes will be announced on the website.

MRCSI (Ophth) Examinations Committee June 24th 2014

Syllabus

Anatomy

Eye
Orbit and adnexae
Cranial cavity
Central nervous system
Gross anatomy of the head and neck and cardiovascular and respiratory systems

Embryology

Embryology of the eye and visual system
Development of the eye and visual system during childhood
Congenital anomalies of the eye and visual system

Cell biology and Biochemistry

Structure of the cell and cell membrane
Production and use of energy by cells
Metabolism of carbohydrates, lipids, proteins and amino acids
Protein synthesis, structure and function of proteins, enzyme mechanisms
Connective tissue and the extracellular matrix
DNA structure and function
Cell signalling
Active oxygen species
Basic laboratory techniques in cell biology such as polymerase chain reaction, in-situ hybridisation, immuno-localisation, ELISA assays, and Western, Northern and Southern blotting
Cell biology and biochemistry of ocular tissues and fluids including cornea, sclera, uveal tract, lens, vitreous, retina, tears, aqueous humour, and vitreous

Physiology

Basic general physiology

Cardiovascular
Respiratory
Haematological
Neurophysiology
Renal
Maintenance of homeostasis
Endocrinology

Ocular and visual physiology

Light detection
Dark adaptation
Electrophysiology of the visual system
Magnocellular and parvocellular pathways
Visual acuity
Visual fields
Contrast sensitivity
Colour vision
Stereopsis
Accommodation
Physiology of eye movement control
Pupillary reflexes
Retinal phototransduction
Physiology of tear production and drainage
Physiology of the cornea, lens, vitreous, retina and choroid
Blood ocular barrier

General pathology

Acute and chronic inflammation
Wound healing
Immunological mechanisms: types of hypersensitivity reaction
Degenerative disorders, ageing and atrophy
Hypertrophy, hyperplasia and metaplasia
Vascular pathology: thromboembolism, ischaemia and infarction, angiogenesis, aneurysms, shock
Neoplasia

Immunology

Cells and tissues of the immune system
Organisation of the immune system
Host defence mechanisms with particular reference to the eye
Host response to injury
Innate immunity, complement and phagocytic cells
Adaptive immunity: MHC antigens, antigen presenting cells; T cell and B cell activation, antibody responses, effector mechanisms in cell mediated and humoral immunity
Autoimmunity and immune tolerance
Allergy, anaphylaxis and hypersensitivity reactions
Immunodeficiency and immunosuppression
Transplantation immunology, particularly with respect to the cornea
Immunology of the eye

Genetics

Clinical genetics: chromosomal abnormalities, patterns of inheritance, genetic basis of eye diseases, genetic counselling, population genetics
Molecular genetics: the genome, DNA analysis, gene therapy

Microbiology

Host defence mechanisms of the eye
Microbial pathogenesis: colonisation, invasion, endotoxins, exotoxins, and virulence
Bacteria: gram staining and classification, Commensal eye flora
Viruses: classification, structure and replication, antiviral agents, laboratory methods of viral detection; viral infections of the eye
Prions
Fungi: classification, host susceptibility factors, antifungal agents
Toxoplasmosis, chlamydia, acanthamoeba, helminthic infections
Sterilization, disinfection and asepsis
Antimicrobial therapies and bacterial resistance

Pharmacology

Pharmacokinetics and pharmacodynamics, particularly in relation to the eye
Drug-receptor interactions
Mechanisms of drug actions
Mechanisms of drug toxicity, including ocular toxicity from systemic drugs and systemic side effects of ocular agents
Methods of drug delivery to the eye
Specific classes of pharmacological agents of relevance to ophthalmology: adrenergics, cholinergics, serotonergics and histaminergics, eicosanoids, corticosteroids, local anaesthetics, analgesics, drugs used to treat glaucoma, immunosuppressive and anti-inflammatory drugs, tear substitutes, botulinum toxin, anti-VEGF therapies

Epidemiology and biostatistics

Descriptive statistics
Statistical tests: parametric vs nonparametric tests, Chi squared test
Statistical inference: p-values, risk ratio, odds ratio
Correlation and regression analysis
Survival analysis
Clinical study design: types of clinical studies, bias, errors, randomisation, power, sample size calculation, confidence intervals, reliability and validity
Definition of blindness, main causes of blindness worldwide
Screening for ocular disease: principles of screening, evaluation of screening programmes, sensitivity and specificity
Evidence based medicine

Theoretical optics

Properties of light: electromagnetic spectrum, wave theory, particle theory, diffraction, interference, resolution, polarisation, scattering, transmission and absorption of electromagnetic radiation by the eye, photometry, lasers, principles of the pinhole
Reflection: laws of reflection, reflection at a plane surface, reflection at curved surfaces
Refraction: laws of refraction, refraction at a plane surface, refraction at curved surfaces, critical angle and total internal reflection
Prisms: definition, notation of prisms, uses in ophthalmology, types of prism

Spherical lenses: cardinal points, thin lens formula, thick lens formula, formation of the image, vergence power, magnification, spherical decentration and prism power, lens form

Astigmatic lenses: cylindrical lenses, Maddox rod, toric lenses, conoid of Sturm, Jackson's cross cylinder Lasers: coherence, laser physics, laser properties, types of ophthalmic laser, tissue effects of laser, photocoagulation, photoablation, photodisruption, drug-enhanced laser absorption, optical coherence tomography

Oxford handbook of Medical Statistics. Peacock J, Peacock P, 2010. ISBN 9780199551286.

Physiology at a glance. Ward J, Linden R. Blackwell Publishing, 2008. ISBN 9781405177238.

Medical biochemistry at a glance. Salway J. Blackwell Publishing 2006. ISBN 9781405113229

Suggested Reading

The following is a list of textbooks that are suitable reading material for the examination. Some of the books require detailed reading, whereas in others only certain sections are directly relevant to the examination. Reference should be made to the examination syllabus in this regard. Titles in bold are of particular importance although questions in the examination will arise from all sections of the syllabus.

The Eye: Basic Sciences and Practice. Forrester JV, Dick AD, McMenemy P, Lee WR. WB Saunders 2003. ISBN: 0702025410.

American Academy of Ophthalmologists. Basic and Clinical Science Course. ISBN: 1-56055-570-X

Volume 1: Update on general medicine

Volume 2. Fundamentals and principles of ophthalmology

Volume 3. Optics, refraction and contact lenses

Clinical Anatomy of the Eye. Snell RS, Lemp MA. Blackwell Scientific Publications 1998. ISBN: 063204344X.

Adler's Physiology of the Eye. Ed. Hart WM. Mosby 2003. ISBN: 0323011365.

Clinical optics. Elkington AR, Frank HJ and Greaney MJ. Blackwell Science. ISBN: 0632049898.

MCQ companion to the Eye. Basic Sciences in Practice. Galloway PH, Forrester JV, Dick AD, Lee WR. WB Saunders 2001. ISBN: 0702025666.

Pathology for Surgeons in Training: An A-Z revision text. Gardner DL and Tweedle DEF. Arnold 2002. ISBN: 0340759046.

Medical Microbiology. Greenwood D, Slack R, Peutherer J. Churchill Livingstone 2002. ISBN 0443070776.

Medical pharmacology at a glance. Neal MJ. Blackwell Publishing 2002. ISBN: 0632052449.

Clinical Ocular Pharmacology. Jaanus SD, Barlett JD. Butterworth-Heinemann 2001. ISBN: 0750670398.

Genetics for Ophthalmologists: The molecular genetic basis of ophthalmic disorders. Black GCM. Remedica Publishing 2002. ISBN: 190134620X.

Biochemistry of the eye. Whitehart R. Butterworth-Heinemann 2003. ISBN: 0750671521.

Immunology at a glance. Playfair JHL, 7th Ed. Blackwell Science. 2009. ISBN 9781405180528.

Sample MCQs for Part 1 MRCSI

Which of the following statements regarding the pre-corneal tear film is true?

- The aqueous layer contains immunoglobulins
- The mucous layer originates from meibomian glands
- The mucous layer increases surface tension of the tear film
- The lipid layer allows the tear film to adhere to the corneal epithelium
- Conjunctival goblet cells do not contribute to the tear film

ANSWER: a

Regarding treponema pallidum, which of the following is true?

- Survives for long periods outside the host
- Is readily visualized by microscopy and gram staining
- The VDRL test returns to normal after successful treatment of syphilis
- The FTA-ABS is a screening test for syphilis and when positive a specific test should be performed to confirm infection
- Is resistant to treatment with penicillin

ANSWER: c

A 32 year old man undergoing a fundus fluorescein angiogram develops wheeze, shortness of breath and a diffuse rash. Which of the following types of hypersensitivity reaction is involved?

- Type 1 (immediate)
- Type 2 (cytotoxic)
- Type 3 (immune complex)
- Type 4 (delayed)
- Mixed

ANSWER: a

Part 2 MRCSI (Ophth) Written Examination regulations and guidance notes

Eligibility to take the examination

Candidates must have passed MRCSI (Ophth) Part 1 or FRCOphth Part 1. The Part 2 written examination must be passed within four years of success in Part 1 MRCSI (Ophth) or Part 1 FRCOphth. However, if more than four years have lapsed since passing Part 1, that part can be re-taken.

For examinations held after January 1st 2014, candidates must have completed 2 years in training posts in ophthalmology before sitting the Part 2 written examination. The Part 2 written examination must be passed in order to proceed to the Part 2 clinical examination. Candidates applying to sit the Part 2 written and clinical examinations in the same semester who fail the written examination and hence are not eligible to sit the clinical examination are entitled to a full refund of the clinical examination fee. Alternatively, they can transfer the fee to a subsequent attempt.

Examination content

This is an examination of clinical ophthalmology, clinical optics and refraction, and ophthalmic pathology. General basic science questions that have relevance to the practice of ophthalmology will also be asked. See below for a detailed examination syllabus.

Format of the examination

The examination comprises one multiple choice question (MCQ) paper and one data objective structured examination (data OSE) paper. The MCQ paper comprises 100 single best answer questions (also known as type A) and 3 hours is allowed. Each question consists of an initial stem followed by 5 possible answers, identified A, B, C, D and E. Candidates should select one item they believe to be correct. Every other item in that question must be left blank. Questions may include printed photographic reproduction of clinical findings including photographs, imaging and graphical data or pathological material relating to the questions concerned. The data OSE paper comprises 10 questions with 10 minutes allowed for each question. In each question, a clinical scenario or investigation is presented followed by a series of questions relating to this. There is no negative marking in either paper. Some samples questions can be found below.

Standard setting

The pass mark is determined in advance of each examination by the Examinations Committee using the Angoff method of standard setting for the MCQ paper and the data OSE.

Overall result

Candidates will receive a pass or fail based on their performance against the pass mark determined by the standard setting examination committee. Both the MCQ and data OSE papers must be passed. Candidates who fail either the MCQ or the data OSE will be required to repeat both parts at their next attempt.

Limit on attempts

There are no limits to the number of attempts at Part 2 MRCSI.

Timing and venue

The examination is held twice a year at the Royal College of Surgeons in Ireland, 123 St. Stephen's Green, Dublin 2. The MCQ examination is held in the morning and the data OSE in the afternoon of the same day. Further information can be found under postgraduate examination calendar on the RCSI website.

Recommendations

Candidates should prepare for the Part 2 MRCSI using the recommended reading list or similar texts and by reading the current medical literature to keep up to date with clinically relevant developments in ophthalmology. Clinical experience in suitable training posts is needed to achieve the standard set in this examination. It is recommended that candidates make every effort to avail of learning opportunities that present themselves whilst performing day to day clinical activities. There is a particular emphasis on clinical knowledge, clinical data analysis and problem-solving in the Part 2 MRCSI written examination.

NOTE: These Regulations are under continual review. It is recommended that candidates review the RCSI website to ensure that they have the most up-to-date information. Any changes will be announced on the website.

MRCSI (Ophth) Examinations Committee June 24th 2014

Syllabus

The examination syllabus is designed to complement the curriculum of Basic Specialist Training (BST) of the Irish College of Ophthalmologists. Further details of this curriculum can be found at <http://www.eyedoctors.ie/trainees/bst.asp>. It is recommended that candidates familiarise themselves with the requirements for completion of BST as described on the ICO website.

Main subjects:

- Generic competencies and professionalism
- Clinical history taking and examination in ophthalmology
- Investigations in ophthalmology
- Principles of ophthalmic surgery
- Clinical optics
- Clinical ophthalmology
 - Cornea & external diseases
 - Cataract & Refractive surgery
 - Oculoplastics, lacrimal and orbital disease
 - Glaucoma
 - Medical Retinal disease
 - Vitreoretinal surgery
 - Uveitis
 - Ocular oncology

Neurophthalmology
Paediatric Ophthalmology & Strabismus
General medicine relevant to ophthalmology
Ophthalmic pathology

Generic competencies and professionalism

Professional standards, ethics and good medical practice
Principles of clinical governance
Clinical audit and patient safety
Communication skills:
 Breaking bad news
 Dealing with distressed patients and/or relatives
 Dealing with complaints
 Communicating with colleagues
Visual impairment
 International definitions
 Psychological and social implications for the patient
Available support resources
Driving and occupational regulations related to visual impairment in Ireland/ United Kingdom
Principles of evidence based medicine
Basic epidemiology and clinical research techniques

Clinical history taking and examination in ophthalmology

Candidates must demonstrate competence in clinical assessment in all areas of ophthalmology and relevant medical specialties.

Investigations in ophthalmology

Keratometry
Corneal topography
Pachymetry
Optical coherence tomography of anterior segment
Specular microscopy
Confocal microscopy
Wavefront analysis
Microbiological investigations
 Diagnostic corneal scrape
 Conjunctival swabs
 Intra-ocular samples; vitreous biopsy, anterior chamber tap
Schirmer's test
Retinal photography
Optical coherence tomography of posterior segment
Fluorescein angiography
Indocyanine green angiography
Scanning laser ophthalmoscopy
Scanning laser polarimetry
A and B scans
Ultrasound biomicroscopy
Doppler ultrasound
Dacryocystography
Plain skull and chest X ray
CT thorax
Orbital and neuro-CT scans
Orbital and neuro-MRI scans
Neuro-angiography
Electroretinography
Electrooculography
Visually evoked potentials
Humphrey and other automated perimeters

Goldmann perimetry
Hess charts
DEXA scans
Urinalysis
Serum biochemistry, haematology, immunology, relevant endocrine blood tests
Investigation of patients with suspected TB, syphilis and other relevant infectious diseases

Principles of ophthalmic surgery

Sterilisation
Surgical instrumentation
Sutures and their uses
Common ophthalmic surgical procedures
Management of trauma to the eye and adnexae

Clinical optics

Notation of lenses: spectacle prescribing, simple transposition, toric transposition
Identification of unknown lenses: neutralisation, focimeter, Geneva lens measure
Aberrations of lenses: correction of aberrations relevant to the eye, Duochrome test
Optics of the eye: transmittance of light by the optic media, schematic and reduced eye, Stiles-Crawford effect, visual acuity, contrast sensitivity, catoptric images, emmetropia, accommodation, Purkinje shift, pinhole
Ametropia: myopia, hypermetropia, astigmatism, anisometropia, aniseikonia, aphakia
Accommodative problems: insufficiency, excess, AC/A ratio
Refractive errors: prevalence, inheritance, changes with age, surgically induced
Correction of ametropia: spectacle lenses, contact lenses, intraocular lenses, principles of refractive surgery
Problems of spectacles in aphakia: effect of spectacles and contact lens correction on accommodation and convergence, effective power of lenses, back vertex distance, spectacle magnification, calculation of intraocular lens power, presbyopia
Low visual aids: high reading addition, magnifying lenses, telescopic aids - Galilean telescope
Clinical refraction; near and distance vision correction, tests of binocularity
Prescribing prisms
Direct and indirect ophthalmoscopes
Retinoscope
Focimeter
Simple magnifying glass (Loupe)
Lensmeter
Automated refractor
Slit-lamp microscope
Applanation tonometry
Keratometer
Specular microscope
Operating microscope
Zoom lens principle
Corneal pachymeter
Lenses used for slit lamp biomicroscopy (panfunduscope, gonioscope Goldmann lens, 90D lens, etc.)
Fundus camera
Lasers
Retinal and optic nerve imaging devices (OCT, SLO, GDx)

Clinical ophthalmology

Cornea and external eye disease

Clinical anatomy

Infections of the conjunctiva

Cicatricial conjunctival disease: Stevens-Johnson syndrome, mucous membrane pemphigoid; other causes

Allergic conjunctival disease; vernal keratoconjunctivitis, atopic keratoconjunctivitis, seasonal allergic conjunctivitis, giant papillary conjunctivitis

Conjunctival malignancies: ocular surface squamous neoplasia, melanocytic neoplasms

Pterygium

Benign lesions of the conjunctiva

Blepharitis and acne rosacea

Scleritis and episcleritis

Corneal infections: bacterial keratitis, herpes simplex keratitis, varicella zoster keratitis, fungal keratitis, acanthamoeba keratitis

Recurrent corneal erosion syndrome

Dry eye syndrome

Autoimmune corneal disease: peripheral ulcerative keratitis and corneal melting disorders, Mooren's ulcer

Keratoconus and other ectasias

Pseudophakic/aphakic bullous keratopathy; other causes of corneal oedema

Corneal dystrophies, degenerations and deposits

Neurotrophic keratopathy

Trauma: penetrating, chemical injury

Congenital corneal abnormalities

Contact lenses

Corneal Transplantation, limbal stem cell transplantation

Eye banking

Cataract and refractive surgery

Clinical anatomy of the lens

Acquired cataract:

Aetiology

Management

 Biometry and planning of refractive outcome

 Intraocular lenses

Pre-operative evaluation

Predicting surgical challenges

Surgical methods, equipment and instrument

Anaesthetic techniques

Complications of cataract surgery and local anaesthesia

Managing coexisting cataract and glaucoma

Cataract surgery combined with penetrating keratoplasty

Lens-induced glaucoma

Phacolytic inflammation

Viscoelastics

Intraocular lenses

Cataract surgery post corneal refractive surgery

Managing refractive surprise after cataract surgery

Ectopia lentis

Nd:YAG laser capsulotomy

Congenital cataract including surgical management options

Optical treatment and prevention of amblyopia

Corneal refractive surgery: arcuate keratotomy, laser (LASIK, LASEK, PRK)

Refractive lens surgery; clear lens extraction, phakic IOLs

Oculoplastics, lacrimal and orbital disease

Clinical anatomy

Eyelid malpositions including ectropion, entropion, ptosis, lagophthalmos, lid retraction

Lash abnormalities; trichiasis, distichiasis

Congenital abnormalities of the lids

Abnormal lid swellings and benign and malignant lid lesions

Blepharospasm

Dermatochalasis

Lid trauma

Facial nerve palsy

Principles of oculoplastic surgical technique

The watering eye

Congenital and acquired abnormalities of the lacrimal system

Lacrimal surgery

Orbital cellulitis

Orbital inflammation including thyroid eye disease

Orbital tumours

Orbital trauma

Congenital abnormalities of the orbit

Vascular lesions of the orbit

Evisceration, enucleation and exenteration

Glaucoma

Relevant clinical anatomy and physiology

Epidemiology and screening

Mechanisms of glaucoma

Optic nerve head assessment

Visual field analysis in glaucoma

Tonometry

Gonioscopy

Paediatric glaucoma

Open angle glaucomas

Ocular hypertension

Angle closure glaucomas

Medical management

Laser therapies

Surgical management including complications

Medical Retinal disease

Clinical anatomy

Vascular retinal disorders:

 Diabetic retinopathy

 Arterial and venous occlusive disease

 Ocular ischaemic syndrome

 Hypertensive retinopathy

 Retinal arterial macroaneurysm

 Retinal Vasculitis

 Coat's disease

 Sickle cell retinopathy

 Eales' disease

 Retinal features of blood disorders, e.g. anaemia, leukaemia, and myeloma

- Retinal vascular anomalies
- Age-related macular degeneration
 - Epidemiology, risk factors, and pathophysiology
 - Management
- Retinal dystrophies
 - Retinitis Pigmentosa
 - Flecked retina syndromes
 - Macular dystrophies
 - Congenital stationary night blindness
 - Choroidal dystrophies and degenerations
 - Hereditary vitreoretinopathies
- Angioid streaks
- Central serous retinopathy
- Cystoid macular oedema
- Degenerative myopia
- Drug-induced retinal disease
- Phototoxicity
- Radiation retinopathy

Vitreoretinal surgery

- Clinical anatomy
- Peripheral retinal lesions
- Retinal breaks
- Retinal detachment
 - Rhegmatogenous
 - Serous retinal
 - Tractional
 - Proliferative vitreoretinopathy
- Macular hole
- Epiretinal membrane
- Vitreous haemorrhage
- Endophthalmitis
- Trauma and IOFB
- Retinoschisis

Uveitis

- Clinical anatomy of the uveal tract
- Congenital abnormalities
- Infectious uveitis
- Non-infectious immune-mediated uveitis
- Uveitis masquerade syndromes
- Systemic disease associated uveitis
- Investigation of the patient with uveitis
- Principles of uveitis management
- Management of cataract and glaucoma in uveitis

Ocular oncology

- Malignant intraocular tumours
 - Retinoblastoma
 - Uveal melanoma
 - Uveal metastases
 - Lymphoma and leukaemia
- Benign intraocular tumours
- Choroidal naevus
- Choroidal haemangioma
- Choroidal osteoma
- Retinal hamartomas
- Retinal vascular tumours
- Investigation and management of intraocular tumours

Neurophthalmology

- Clinical anatomy
- Clinical assessment of ocular motility, diplopia, nystagmus, abnormal eyelid and facial movements, pupils, ptosis, proptosis, cranial nerve function and visual fields
- Ocular motility disorders
- Cranial nerve palsies
- Visual field abnormalities
- Pupil abnormalities
- Nystagmus
- Optic disc abnormalities
- Optic neuropathies
- Visually evoked cortical potentials
- Pituitary and chiasmal disorders
- Intracranial tumours
- Headache and facial pain
- Migraine
- Benign intracranial hypertension
- Cerebrovascular disease
- Optic neuritis and multiple sclerosis
- Myasthenia gravis
- Parkinson's disease
- Psychosomatic disorders and visual function
- Blepharospasm and hemifacial spasm
- Periocular Botulinum toxin injection technique

Paediatric Ophthalmology & Strabismus

- Clinical anatomy of the extraocular muscles
- Physiology of eye movement control
- Binocular function
- Accommodation anomalies
- Assessment of strabismus
 - Cover, cover-uncover test and alternate cover test
 - Assessment of ocular movements
 - Measurement of deviation
 - Assessment of fusion, suppression and stereo-acuity.
 - Knowledge of Hess Chart/Lees Screen, field of BSV and uniocular fields of fixation
- Paediatric strabismus
 - Infantile esotropia
 - Acquired esotropia
 - Intermittent exotropia
 - Congenital superior oblique weakness
 - Duane's syndrome
 - Brown's syndrome
- Adult
 - Forced duction test technique
 - Tests to predict postoperative diplopia
 - Concomitant strabismus in adults
 - Third, fourth and sixth cranial nerve palsy
 - Supranuclear causes of eye movement deficits
 - Strabismus due to Myasthenia, thyroid eye disease and orbital trauma
- Principles of strabismus surgery
- Principles of adjustable surgery techniques
- Botulinum toxin, role in the management of strabismus
- Paediatric refractive errors
- Vision testing in children
- Amblyopia
- Retinopathy of prematurity
- Visual loss secondary to neurological disease in infants and children

Leukocoria
Leber's congenital amaurosis
Albinism
Phakomatoses
Aniridia

General medicine relevant to ophthalmology

Systemic diseases with manifestations relevant to ophthalmology in the following specialities:

Rheumatological disease
Dermatology
Respiratory medicine
Neurology
Endocrinology
Cardiology
Chromosomal disorders

Medical management of the perioperative patient

Medical emergencies:

Candidates are expected to be able to assess patients with the following life threatening emergencies and initiate appropriate treatment prior to the arrival of specialised assistance:

Cardiorespiratory arrest
Shock
Anaphylaxis

Hypoglycaemia

The breathless patient

Ophthalmic Pathology

Benign and malignant lesions of the eyelids

Cornea endothelial dysfunction and corneal dystrophies

Glaucoma

Cataract

Diabetes

Age Related Macular Degeneration

Retinal vascular occlusion

Retinal detachment and proliferative vitreo-retinopathy

Ocular tumours

Tissue sampling for pathological investigation; types of biopsy, fine needle aspiration, transport of specimens

Suggested reading

The following is a list of textbooks that are suitable reading material for the examination. Close reference should be made to the examination syllabus when preparing for examination. This list is not exhaustive and there are many other textbooks which are also suitable for exam preparation. In addition, candidates should be aware of the main findings of key clinical trials in ophthalmology that form the evidence base for our clinical practice.

Clinical Ophthalmology: A systematic Approach. Kanski JJ, Bowling B. Butterworth Heinemann 2011. 8th Ed.

American Academy of Ophthalmologists. Basic and Clinical Science Course Complete Set 2010-11. ISBN: 1-56055-570-X.

Clinical optics. Elkington AR, Frank HJ and Greaney MJ. Blackwell Science. ISBN: 0632049898.

Neuroophthalmology Review Manual. Kline LB, Bajandas FJ. Slack Incorporated 2008. 6th Ed. ISBN 978-1-55642-789-3.

Oxford Handbook of Ophthalmology. Denniston A, Murray P. Oxford university Press. 2nd Ed. 780199552641.

Training in Ophthalmology: The Essential Clinical Curriculum. Sundaram V. Oxford University Press 2009. ISBN 978-0-19-923759-3.

Sample MCQs for Part 2 MRCSI

A 34 year old man presents with a severely painful red right eye of two weeks duration. He has a 3 month history of sinusitis, rhinitis and intermittent epistaxis but has no other past medical history. On examination, the right eye shows severe peripheral ulcerative keratitis, intense episcleral injection and marked tenderness to gentle palpation. Which one of the following investigations is most likely to confirm the aetiology?

- A. Serum rheumatoid factor
- B. Mantoux test
- C. Chest x-ray
- D. VDRL/TPHA
- E. Serum ANCA

ANSWER: E

A 65 year old myopic male with Type II diabetes mellitus suffers a right isolated sixth nerve palsy with diplopia of 8 pd in the primary position. Which of the following distance glasses would you prescribe?

- A. R: -3.00 DS 4 pd BO, L: -2.75 DS 4 pd BO
- B. R -3.00 DS 4 pd BI, L: -2.75 DS 4 pd BI
- C. R: -3.00 DS 8 pd BO, L: -2.75 DS
- D. R: -3.00 DS, L -2.75 DS 8 pd BO
- E. R: -3.00 DS 8 pd BI, L: -2.75 DS

ANSWER: A

With regard to macular holes, which one of the following statements is true?

- A. They are equally common in men and women
- B. Stage 1 macular holes are managed by observation as they commonly resolve spontaneously
- C. The risk of developing a macular hole increases after posterior vitreous detachment
- D. They are complicated by rhegmatogenous retinal detachment in approximately 5% of idiopathic cases
- E. Progression from stage 2 to stage 3 macular hole is characterised by the appearance of a Weiss ring

ANSWER: B

Sample data OSEs for part 2 MRCSI

QUESTION 1

1. Transpose the following prescriptions: (2 marks)

- 6.50/+2.50 X 75
- +2.50/-1.00 X 120
- 4.00/-2.50 X 165 (1 mark)
- +1.50/+1.00 X 30 (1 mark)

2. How much prism is induced if a patient looks through a +6.00 D lens 15 mm below its centre? (2 marks)

- Prentice rule: prism dioptre = hD; Prism dioptre = $1.5 \times 6 = 9$ prism dioptres (base up) (2 marks)

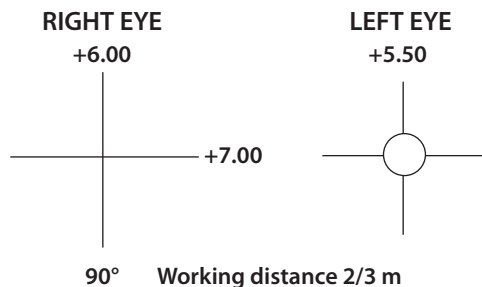
3. A patient holds a -6.00 D lens in front of the left eye such that the optical centre of the lens is 5 mm lateral to the visual axis. What type of phoria is induced by this lens and how large is it? (4 marks)

- Esophoria (2 marks)
- Prism dioptre = $0.5 \times (-6) = 3$ prism dioptres base in (2 marks)

4. What is the mean spherical equivalent of the following prescriptions: (2 marks)

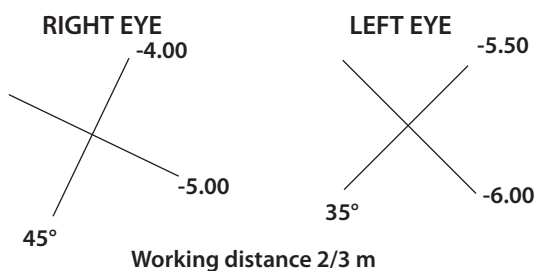
- +3.00/-2.00 X 90
- +4.50/-0.50 X 60
- +2.00 D
- +4.25 D

5. A 3 year old child with an esotropia has the following cycloplegic retinoscopy findings. Write a prescription for glasses for him. (3 marks)



- RE: +4.50/+1.00 X 90° OR +5.50/-1.00 X 180°
LE: +4.00 DS

6. A 10 year old girl with an esotropia has the following cycloplegic retinoscopy findings. Write a prescription for glasses for her. (3 marks)



- RE: -5.50/-1.00 X 45° (OR -6.50/+1.00 X 135°)
- LE: -7.00/-0.50 X 35° (OR -7.50/+0.50 X 125°)

7. A telescope has a +2.00 D objective and a -10.00 D eyepiece. What type of telescope is this? What is the magnification of the image? What is the orientation of the image? (4 marks)

- Galilean Telescope (1 mark)
- Magnification = - eyepiece/objective = $-(-10)/2 = 5X$ (2 marks)
- Erect (1 mark)

QUESTION 2

A 52 year old lady presented with a 2 year history of increasing painless proptosis of her right eye. She had noticed a change in her appearance but had no visual complaints. She had no past ocular or medical history and was in otherwise good general health. Her visual acuity was 6/7.5 OU unaided. Examination revealed non-axial proptosis of 4 mm on the right, inferonasal globe displacement and a 3 mm ptosis.

1. Describe in detail the findings on the CT scan shown in Figure 1. (4 marks)

- Well defined/circumscribed round radiopaque lesion (2 marks)
- Arising from region of lacrimal fossa (1 mark)
- Lack of bone erosion (1 mark)

2. What is the advantage of CT over MRI scanning in the diagnosis of this lesion? (2 marks)

- Shows bone erosion if present (2 marks)

3. What is the most likely cause of this lesion? (2 marks)

- Pleomorphic adenoma of lacrimal gland

4. What is the differential diagnosis of this lesion? (6 marks)

- Dacryops (lacrimal gland ductal cyst) (1 mark)
- Adenoid cystic carcinoma (1 mark)
- Pleomorphic carcinoma/mixed malignant tumour/Ca ex pleomorphic adenoma (1 mark)
- Mucoepidermoid carcinoma or primary adenocarcinoma (1 mark)
- Lymphoma (1 mark)
- dacryoadenitis/pseudotumour confined to lacrimal gland (1 mark)

5. How would you manage this patient and what particular considerations are there? (4 marks)

- Complete intact surgical excision (2 marks)
- Avoid biopsy- risk of tumour seeding and malignant transformation later (2 marks)

6. What is the natural history of this condition if untreated? (2 marks)

- Benign lesion but risk of malignant transformation (2 marks)

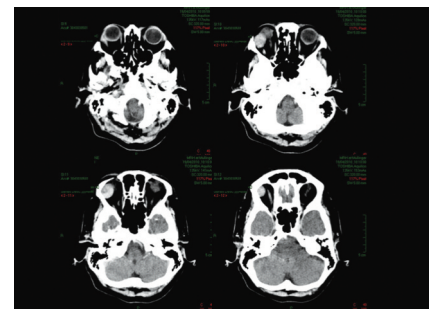


FIGURE 1

Part 2 MRCSI (Ophth) Clinical Examination regulations and guidance notes

Eligibility to take the examination

Candidates must pass the Part 2 written examination before proceeding to the Part 2 clinical examination. The Part 2 clinical examination must be passed within two years of success in the Part 2 written examination. However, if more than two years have lapsed since passing the Part 2 written, that part can be re-taken.

Candidates applying to sit the Part 2 written and clinical examinations in the same semester who fail the written examination and hence are not eligible to sit the clinical examination are entitled to a full refund of the clinical examination fee. Alternatively, they can transfer the fee to a subsequent attempt.

Examination content

This is an examination of clinical ophthalmology, clinical optics and refraction, and ophthalmic pathology. General basic science questions that have relevance to the practice of ophthalmology will also be asked. A detailed examination syllabus is provided below.

Format and marking of the examination

The examination consists of:

1. A clinical component comprising four short case clinical stations and one viva station as follows:
 - Station 1 - Anterior segment (cornea, glaucoma, cataract)
 - Station 2 - Posterior segment (medical retina, surgical retina, uveitis, ocular oncology)
 - Station 3 - Paediatrics, strabismus, oculoplastics and orbital disease
 - Station 4 - Neurology/medicine
 - Station 5 - Clinical/pathology viva
2. A clinical refraction examination lasting 30 minutes.

Clinical component

- The timing of each station is precisely 17 minutes with 3 minutes for changeover between stations. The entire clinical examination takes 1 hour 40 minutes. Timing of the examination is undertaken by the invigilators.
- Two examiners will be present at each station, including two ophthalmologists in stations 1-3, an ophthalmologist and a neurologist/physician in station 4, and an ophthalmologist and an ophthalmic pathologist in station 5.
- The candidate will be asked to assess between two and six clinical cases at each of the four clinical stations.
- The examination will focus on the following core clinical competencies:
 - Communication skills: this may be assessed in any of the stations, for example through history taking, obtaining consent for a proposed procedure, explaining a management plan to the patient or breaking bad news.
 - Interpretation of investigations appropriate to the case(s)

- Knowledge of relevant evidence base medicine and audit
- Clinical examination skills: these will be examined in detail and the ability to perform a competent examination of the patient(s) is a requirement of the examination.
- Professionalism including attitude, ethics and responsibilities
 - Clinical management skills and knowledge
- In the pathology/clinical viva, questions will be based on photographs of pathological preparations, microbiology or other laboratory investigations and clinical photographs. Practical clinical issues will be the focus of the clinical part of the viva station. Likewise, pathology questions will cover the key areas of ophthalmic pathology as described in the syllabus.
- The examiners take it in turns to act as questioning examiner and observing/recording examiner. While one examiner asks the questions, the other takes a note of the questions asked and the candidate's responses.
- All candidates will be asked similar questions in each station.
- Equal marks are awarded for each of the five stations
- Compensation between stations is allowed providing that a minimum of a borderline fail is awarded for each station. If a fail is awarded in any of the five stations it is not possible to achieve an overall pass. If the combined score from all five stations reaches the pass mark an overall pass will be awarded for the clinical component.

Marks are awarded for each station as follows:

- 60 **Very good overall performance:** covering all major aspects; few omissions, good priorities. Very clearly an above average candidate in terms of communication and clinical acumen.
- 55 **Safe Pass:** Good sound overall performance without displaying any clinical attributes out of the ordinary. The candidate was able to demonstrate a satisfactory level of clinical and communication skills throughout the station. There were no errors in critical areas. The candidate was able to prioritise and was 'safe' throughout. In depth understanding was evident in some but not necessarily all areas. The candidate was generally able to interpret the clinical findings he/she elicited to formulate an appropriate management/investigative plan. The responses were well constructed and organised. He/she was able to cover the range of topics to be examined with very little prompting. The examiners judged that the candidate had the knowledge and understanding to pass.
- 50 **Borderline Pass:** Adequate performance. The candidate was able to demonstrate the minimum acceptable level of clinical and communication skills in all critical aspects and in most other areas. In depth knowledge and skill was not, however, demonstrated. Appropriate examination techniques were applied in most areas and

the interpretation of clinical signs adequate. No significant errors were made and responses were organised. He/she was generally able to cover the range of cases to be examined with little prompting or hints. The examiners judged that the candidate had the skill level and understanding to pass, despite requiring some support to demonstrate this in some cases.

45 **Borderline Fail:** Poor performance. The candidate was able to demonstrate the minimum acceptable level of clinical and communication skills in some areas but not in others. The candidate's approach to the patient was appropriate but there were significant gaps in his/her understanding and application of clinical examination techniques. As a result some significant errors were made. While perhaps one case in the station was handled well, with others there was failure to elicit and interpret clinical findings that candidates were expected to get. The candidate's examination techniques were poorly organised and he/she usually required some prompting. Some answers were slow and unconvincing. Examiner intervention was frequently required to ensure that a sufficient number of cases was covered in the station.

40 **Fail:** Clinical acumen and communication skills are very poor. The minimum standard required is not attained. The candidate did not demonstrate a satisfactory level of clinical skills over the majority of cases examined. The candidate's approach to the patient was inappropriate (limited or no introduction, poor patient courtesy and respect) and/or patient handling was rough with obvious patient discomfort and little attention paid to the patient's non-verbal signs. The candidate made critical errors and was unable to prioritise. The candidate needed frequent prompting and hints. The responses were not organised and because of deficiencies in examination technique the candidate was unable to elicit appropriate clinical signs and could not cover the range of cases to be examined.

Refraction component

This component of the examination assesses competence in refraction and practical clinical optics. Extensive practice and experience in clinical refraction is required to pass this component. Candidates should also ensure they receive adequate tuition and supervision in practical refraction from a senior trainee, consultant or optometrist prior to the examination. As for the clinical component of the examination, the refraction examination is strictly timed.

The refraction component of examination is 30 minutes long and is supervised by two ophthalmologists. *In the first 20 minutes* of the examination the candidate will be asked to perform the following on a patient:

- Take a brief relevant history
- Assess visual acuity for distance and near
- Perform retinoscopy and an accurate subjective refraction and *provide an appropriate spectacle prescription* for distance and near
- Assess the patient's binocular cooperation and understand the practical implications of the findings

In the remaining 10 minutes of the refraction component the candidate may be asked to perform and demonstrate knowledge of any of the following (if not already assessed):

- Focimetry (manual or automated)
- Duochrome/+1 blur test/Binocular balance
- Lens neutralisation
- Maddox rod
- Near addition
- Cycloplegic refraction
- Measurement of interpupillary distance
- Prescribing prisms
- Visual acuity testing of a child

The candidate will receive a pass or a fail for the refraction component. The ability to provide an accurate spectacle prescription within the allotted time is required to pass this component.

Overall result

Both the clinical component and refraction component must be passed to achieve an overall pass in the part 2 clinical examination. Candidates failing either the clinical component or the clinical refraction will be required to re-sit that component alone at subsequent attempts.

Limit on attempts

There are no limits to the number of attempts at Part 2 MRCSI clinical examination.

Timing and venue

The examination is held twice annually at the Royal Victoria Eye and Ear Hospital, Dublin 2. Further information can be found under postgraduate examination calendar on the RCSI website.

Further guidance

Clinical experience in suitable training posts is needed to achieve the standard set in this examination. The standard of the examination is commensurate with the degree of clinical competence required to perform the duties of a junior registrar/specialist registrar. Therefore, to pass this examination, candidates will need to demonstrate the knowledge and clinical and communication skills that enables them to work with a degree of clinical independence in all areas of ophthalmology but under the supervision of a senior clinician/consultant ophthalmologist. It is recommended that candidates make every effort to avail of learning opportunities that present themselves whilst performing day to day clinical activities.

In the clinical component there is a particular emphasis on communication skills, clinical examination techniques, the ability to formulate an appropriate differential diagnosis based on the clinical findings, and the ability to propose a suitable management plan based on current best practice for each case examined. Candidates are rewarded for thoroughness and efficiency in their clinical skills so these should be very well practiced under the supervision of senior trainees and consultants before the examination. All equipment that is required for the examination is provided. However, it is recommended that candidates bring their own equipment

such as pin hole occluder, fixation targets, targets for confrontation field testing, pen torch, etc if they wish to avoid being unfamiliar with the equipment provided. The trial lenses and trial frames used in the refraction component are standard and should be familiar to all candidates.

During the examination it is important that you understand what the examiner is asking you to do. Therefore, do not hesitate to ask the examiners to repeat the instructions if they are not clear.

You need to be clear and precise in your replies, making sure that the answers are given in a logical manner. If you feel that you have done badly in any of the questions, you should not dwell on this but concentrate on answering the next question well. A weaker performance on one question may be counterbalanced by a stronger performance elsewhere. Examiners are there to assess your knowledge and understanding on essential issues. The degree of difficulty of the questions will vary during the examination.

Since patients will be helping us with this examination, it is vital that you are as courteous and kind as possible to these patients. Failure to introduce yourself and to respect these patients will be unacceptable to the examiners. You must also be aware that many patients are nervous about participating in this examination and may be concerned that they may say something which will fail you. They also, therefore, are frequently anxious. They have taken time to come and help us and to help you, so please be courteous to them. Most patients ask afterwards how successful you have been and are genuinely concerned that you do well.

Good hand hygiene is vital. Aqueous gel or hand washing facilities will be available and must be used between all patients.

NOTE: These Regulations are under continual review. It is recommended that candidates review the RCSI website to ensure that they have the most up-to-date information. Any changes will be announced on the website.

MRCOI (Ophth) Examinations Committee June 24th 2014

Syllabus

Main subjects:

- Generic competencies and professionalism
- Clinical history taking and examination in ophthalmology
- Investigations in ophthalmology
- Principles of ophthalmic surgery
- Clinical optics
- Clinical ophthalmology
 - Cornea & external diseases
 - Cataract & Refractive surgery
 - Oculoplastics, lacrimal and orbital disease

- Glaucoma
- Medical Retinal disease
- Vitreoretinal surgery
- Uveitis
- Ocular oncology
- Neurophthalmology
- Paediatric Ophthalmology & Strabismus
- General medicine relevant to ophthalmology
- Ophthalmic pathology

Generic competencies and professionalism

- Professional standards, ethics and good medical practice
- Principles of clinical governance
- Clinical audit and patient safety
- Communication skills:
 - Breaking bad news
 - Dealing with distressed patients and/or relatives
 - Dealing with complaints
 - Communicating with colleagues
- Visual impairment
 - International definitions
 - Psychological and social implications for the patient
- Available support resources
- Driving and occupational regulations related to visual impairment in Ireland/ United Kingdom
- Principles of evidence based medicine
- Basic epidemiology and clinical research techniques

Clinical history taking and examination in ophthalmology

Candidates must demonstrate competence in clinical assessment in all areas of ophthalmology and relevant medical specialties.

Investigations in ophthalmology

- Keratometry
- Corneal topography
- Pachymetry
- Optical coherence tomography of anterior segment
- Specular microscopy
- Confocal microscopy
- Wavefront analysis
- Microbiological investigations
 - Diagnostic corneal scrape
 - Conjunctival swabs
 - Intra-ocular samples; vitreous biopsy, anterior chamber tap
- Schirmer's test
- Retinal photography
- Optical coherence tomography of posterior segment
- Fluorescein angiography
- Indocyanine green angiography
- Scanning laser ophthalmoscopy
- Scanning laser polarimetry
- A and B scans
- Ultrasound biomicroscopy
- Doppler ultrasound
- Dacryocystography
- Plain skull and chest X ray
- CT thorax
- Orbital and neuro-CT scans
- Orbital and neuro-MRI scans

Neuro-angiography
 Electroretinography
 Electrooculography
 Visually evoked potentials
 Humphrey and other automated perimeters
 Goldmann perimetry
 Hess charts
 DEXA scans
 Urinalysis
 Serum biochemistry, haematology, immunology, relevant endocrine blood tests
 Investigation of patients with suspected TB, syphilis and other relevant infectious diseases

Principles of ophthalmic surgery

Sterilisation
 Surgical instrumentation
 Sutures and their uses
 Common ophthalmic surgical procedures
 Management of trauma to the eye and adnexae

Clinical optics

Notation of lenses: spectacle prescribing, simple transposition, toric transposition
 Identification of unknown lenses: neutralisation, focimeter, Geneva lens measure
 Aberrations of lenses: correction of aberrations relevant to the eye, Duochrome test
 Optics of the eye: transmittance of light by the optic media, schematic and reduced eye, Stiles-Crawford effect, visual acuity, contrast sensitivity, catoptric images, emmetropia, accommodation, Purkinje shift, pinhole
 Ametropia: myopia, hypermetropia, astigmatism, anisometropia, aniseikonia, aphakia
 Accommodative problems: insufficiency, excess, AC/A ratio
 Refractive errors: prevalence, inheritance, changes with age, surgically induced
 Correction of ametropia: spectacle lenses, contact lenses, intraocular lenses, principles of refractive surgery
 Problems of spectacles in aphakia: effect of spectacles and contact lens correction on accommodation and convergence, effective power of lenses, back vertex distance, spectacle magnification, calculation of intraocular lens power, presbyopia
 Low visual aids: high reading addition, magnifying lenses, telescopic aids - Galilean telescope
 Clinical refraction; near and distance vision correction, tests of binocularity
 Prescribing prisms
 Direct and indirect ophthalmoscopes
 Retinoscope
 Focimeter
 Simple magnifying glass (Loupe)
 Lensmeter
 Automated refractor
 Slit-lamp microscope
 Applanation tonometry
 Keratometer
 Specular microscope
 Operating microscope
 Zoom lens principle
 Corneal pachymeter

Lenses used for slit lamp biomicroscopy (panfunduscope, gonioscope Goldmann lens, 90D lens, etc.)
 Fundus camera
 Lasers
 Retinal and optic nerve imaging devices (OCT, SLO, GDx)

Clinical ophthalmology

Cornea and external eye disease

Clinical anatomy
 Infections of the conjunctiva
 Cicatricial conjunctival disease: Stevens-Johnson syndrome, mucous membrane pemphigoid; other causes
 Allergic conjunctival disease; vernal keratoconjunctivitis, atopic keratoconjunctivitis, seasonal allergic conjunctivitis, giant papillary conjunctivitis
 Conjunctival malignancies: ocular surface squamous neoplasia, melanocytic neoplasms
 Pterygium
 Benign lesions of the conjunctiva
 Blepharitis and acne rosacea
 Scleritis and episcleritis
 Corneal infections: bacterial keratitis, herpes simplex keratitis, varicella zoster keratitis, fungal keratitis, acanthamoeba keratitis
 Recurrent corneal erosion syndrome
 Dry eye syndrome
 Autoimmune corneal disease: peripheral ulcerative keratitis and corneal melting disorders, Mooren's ulcer
 Keratoconus and other ectasias
 Pseudophakic/aphakic bullous keratopathy; other causes of corneal oedema
 Corneal dystrophies, degenerations and deposits
 Neurotrophic keratopathy
 Trauma: penetrating, chemical injury
 Congenital corneal abnormalities
 Contact lenses
 Corneal Transplantation, limbal stem cell transplantation
 Eye banking

Cataract and refractive surgery

Clinical anatomy of the lens
 Acquired cataract:
 Aetiology
 Management
 Biometry and planning of refractive outcome
 Intraocular lenses
 Pre-operative evaluation
 Predicting surgical challenges
 Surgical methods, equipment and instrument
 Anaesthetic techniques
 Complications of cataract surgery and local anaesthesia
 Managing coexisting cataract and glaucoma
 Cataract surgery combined with penetrating keratoplasty
 Lens-induced glaucoma
 Phacolytic inflammation
 Viscoelastics
 Intraocular lenses

Cataract surgery post corneal refractive surgery
Managing refractive surprise after cataract surgery
Ectopia lentis
Nd:YAG laser capsulotomy

Congenital cataract including surgical management options
Optical treatment and prevention of amblyopia

Corneal refractive surgery: arcuate keratotomy, laser (LASIK, LASEK, PRK)
Refractive lens surgery; clear lens extraction, phakic IOLs

Oculoplastics, lacrimal and orbital disease

Clinical anatomy

Eyelid malpositions including ectropion, entropion, ptosis, lagophthalmos, lid retraction
Lash abnormalities; trichiasis, distichiasis
Congenital abnormalities of the lids
Abnormal lid swellings and benign and malignant lid lesions
Blepharospasm
Dermatochalasis
Lid trauma
Facial nerve palsy
Principles of oculoplastic surgical technique

The watering eye
Congenital and acquired abnormalities of the lacrimal system
Lacrimal surgery

Orbital cellulitis
Orbital inflammation including thyroid eye disease
Orbital tumours
Orbital trauma
Congenital abnormalities of the orbit
Vascular lesions of the orbit
Evisceration, enucleation and exenteration

Glaucoma

Relevant clinical anatomy and physiology
Epidemiology and screening
Mechanisms of glaucoma
Optic nerve head assessment
Visual field analysis in glaucoma
Tonometry
Gonioscopy
Paediatric glaucoma
Open angle glaucomas
Ocular hypertension
Angle closure glaucomas
Medical management
Laser therapies
Surgical management including complications

Medical Retinal disease

Clinical anatomy

Vascular retinal disorders:
Diabetic retinopathy
Arterial and venous occlusive disease
Ocular ischaemic syndrome
Hypertensive retinopathy

Retinal arterial macroaneurysm
Retinal Vasculitis
Coat's disease
Sickle cell retinopathy
Eales' disease
Retinal features of blood disorders, e.g. anaemia, leukaemia, and myeloma
Retinal vascular anomalies
Age-related macular degeneration
Epidemiology, risk factors, and pathophysiology
Management
Retinal dystrophies
Retinitis Pigmentosa
Flecked retina syndromes
Macular dystrophies
Congenital stationary night blindness
Choroidal dystrophies and degenerations
Hereditary vitreoretinopathies
Angioid streaks
Central serous retinopathy
Cystoid macular oedema
Degenerative myopia
Drug-induced retinal disease
Phototoxicity
Radiation retinopathy

Vitreoretinal surgery

Clinical anatomy

Peripheral retinal lesions
Retinal breaks
Retinal detachment
Rhegmatogenous
Serous retinal
Tractional
Proliferative vitreoretinopathy
Macular hole
Epiretinal membrane
Vitreous haemorrhage
Endophthalmitis
Trauma and IOFB
Retinoschisis

Uveitis

Clinical anatomy of the uveal tract

Congenital abnormalities
Infectious uveitis
Non-infectious immune-mediated uveitis
Uveitis masquerade syndromes
Systemic disease associated uveitis
Investigation of the patient with uveitis
Principles of uveitis management
Management of cataract and glaucoma in uveitis

Ocular oncology

Malignant intraocular tumours
Retinoblastoma
Uveal melanoma
Uveal metastases
Lymphoma and leukaemia
Benign intraocular tumours

- Choroidal naevus
- Choroidal haemangioma
- Choroidal osteoma
- Retinal hamartomas
- Retinal vascular tumours
- Investigation and management of intraocular tumours

Neurophthalmology

- Clinical anatomy
- Clinical assessment of ocular motility, diplopia, nystagmus, abnormal eyelid and facial movements, pupils, ptosis, proptosis, cranial nerve function and visual fields
- Ocular motility disorders
- Cranial nerve palsies
- Visual field abnormalities
- Pupil abnormalities
- Nystagmus
- Optic disc abnormalities
- Optic neuropathies
- Visually evoked cortical potentials
- Pituitary and chiasmal disorders
- Intracranial tumours
- Headache and facial pain
- Migraine
- Benign intracranial hypertension
- Cerebrovascular disease
- Optic neuritis and multiple sclerosis
- Myasthenia gravis
- Parkinson's disease
- Psychosomatic disorders and visual function
- Blepharospasm and hemifacial spasm
- Periocular Botulinum toxin injection technique

Paediatric Ophthalmology & Strabismus

- Clinical anatomy of the extraocular muscles
- Physiology of eye movement control
- Binocular function
- Accommodation anomalies
- Assessment of strabismus
 - Cover, cover-uncover test and alternate cover test
 - Assessment of ocular movements
 - Measurement of deviation
 - Assessment of fusion, suppression and stereo-acuity.
 - Knowledge of Hess Chart/Lees Screen, field of BSV and uniocular fields of fixation
- Paediatric strabismus
 - Infantile esotropia
 - Acquired esotropia
 - Intermittent exotropia
 - Congenital superior oblique weakness
 - Duane's syndrome
 - Brown's syndrome
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 - Forced duction test technique
 - Tests to predict postoperative diplopia
 - Concomitant strabismus in adults
 - Third, fourth and sixth cranial nerve palsy
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- Principles of strabismus surgery
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- Botulinum toxin, role in the management of strabismus
- Paediatric refractive errors
- Vision testing in children
- Amblyopia
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- Visual loss secondary to neurological disease in infants and children
- Leukocoria
- Leber's congenital amaurosis
- Albinism
- Phakomatoses
- Aniridia

General medicine relevant to ophthalmology

- Systemic diseases with manifestations relevant to ophthalmology in the following specialities:
 - Rheumatological disease
 - Dermatology
 - Respiratory medicine
 - Neurology
 - Endocrinology
 - Cardiology
 - Chromosomal disorders
- Medical management of the perioperative patient
- Medical emergencies:
 - Candidates are expected to be able to assess patients with the following life threatening emergencies and initiate appropriate treatment prior to the arrival of specialised assistance:
 - Cardiorespiratory arrest
 - Shock
 - Anaphylaxis
 - Hypoglycaemia
 - The breathless patient

Ophthalmic Pathology

- Benign and malignant lesions of the eyelids
- Cornea endothelial dysfunction and corneal dystrophies
- Glaucoma
- Cataract
- Diabetes
- Age Related Macular Degeneration
- Retinal vascular occlusion
- Retinal detachment and proliferative vitreo-retinopathy
- Ocular tumours
- Tissue sampling for pathological investigation; types of biopsy, fine needle aspiration, transport of specimens

FRCSI (Ophth) regulations and guidance notes

Recent changes to FRCSI (Ophth)

The new FRCSI (Ophth) has replaced the Fellowship Exit Assessment for Higher Specialist Training (HST) in ophthalmology in Ireland. Trainees who entered Higher Specialist Training in Ireland *after* January 1st 2010 will take the new fellowship examination in year 4 or 5 of their specialist registrar training. Trainees who commenced Higher Specialist Training in Ireland *before* January 2010 will continue to prepare for the old "exit" assessment of the RCSI, in which a portfolio of clinical cases, publications and audits will be assessed in a viva examination in the last year of specialist registrar training.

Eligibility to take the examination

This examination is exclusive to higher specialist trainees in Ireland. To be eligible to sit the FRCSI examination you must hold MRCSI or equivalent and be in year 4 or 5 of HST.

Examination content and standard

The examination syllabus, as detailed below, is identical to that of the Part 2 written and Part 2 clinical examinations. The candidate will need to demonstrate that he/she is *competent to practice independently as a general ophthalmic surgeon* by possessing the requisite knowledge, clinical skills, communication skills, clinical reasoning ability and professional values. The standard expected will be that of a general ophthalmic surgeon without a specific subspecialty interest.

Examination format

The examination will take the form of a one-hour viva examination with set questions that cover the breadth of clinical ophthalmology and ophthalmic surgery. A minimum of three examiners will conduct the examination. The examiners will take turns asking the questions and recording the answers. The expected answers to the set questions will be approved by the FRCSI (Ophth) examinations committee. More information regarding the fellowship examination format and standard setting will follow, including sample questions.

Recommendations

It is most effective to prepare for the FRCSI through experience-based learning, regular reading of the literature and up to date textbooks, and attendance at post-graduate training courses and meetings *over the entire duration of higher specialist training*. It is recommended that higher specialist trainees aim to achieve the required standard to pass this examination at the end of each subspecialty attachment in the areas covered during that subspecialty attachment. Therefore continually preparing for this examination throughout HST cannot be recommended highly enough.

Overall result

Candidates will receive a pass or a fail in this examination.

Limit on attempts

There are no limits to the number of attempts at the FRCSI examination.

Timing and venue

The examination will be held twice annually at the Royal College of Surgeons in Ireland, 123 St Stephen's Green, Dublin 2. Further details will be posted under postgraduate examination calendar on the RCSI website.

NOTE: These Regulations are under continual review. It is recommended that candidates review the RCSI website to ensure that they have the most up-to-date information. Any changes will be announced on the website.

MRCSI(Ophth) Examinations Committee June 24th 2014

Syllabus

Main subjects:

- Generic competencies and professionalism
- Clinical history taking and examination in ophthalmology
- Investigations in ophthalmology
- Principles of ophthalmic surgery
- Clinical optics
- Clinical ophthalmology
 - Cornea & external diseases
 - Cataract & Refractive surgery
 - Oculoplastics, lacrimal and orbital disease
 - Glaucoma
 - Medical Retinal disease
 - Vitreoretinal surgery
 - Uveitis
 - Ocular oncology
 - Neurophthalmology
 - Paediatric Ophthalmology & Strabismus
 - General medicine relevant to ophthalmology
- Ophthalmic pathology

Generic competencies and professionalism

- Professional standards, ethics and good medical practice
- Principles of clinical governance
- Clinical audit and patient safety
- Communication skills:
 - Breaking bad news
 - Dealing with distressed patients and/or relatives
 - Dealing with complaints
 - Communicating with colleagues
- Visual impairment
 - International definitions
 - Psychological and social implications for the patient
 - Available support resources
- Driving and occupational regulations related to visual impairment in Ireland/ United Kingdom
- Principles of evidence based medicine
- Basic epidemiology and clinical research techniques

Clinical history taking and examination in ophthalmology

Candidates must demonstrate competence in clinical assessment in all areas of ophthalmology and relevant medical specialties.

Investigations in ophthalmology

Keratometry
Corneal topography
Pachymetry
Optical coherence tomography of anterior segment
Specular microscopy
Confocal microscopy
Wavefront analysis
Microbiological investigations
 Diagnostic corneal scrape
 Conjunctival swabs
 Intra-ocular samples; vitreous biopsy, anterior chamber tap
Schirmer's test
Retinal photography
Optical coherence tomography of posterior segment
Fluorescein angiography
Indocyanine green angiography
Scanning laser ophthalmoscopy
Scanning laser polarimetry
A and B scans
Ultrasound biomicroscopy
Doppler ultrasound
Dacryocystography
Plain skull and chest X ray
CT thorax
Orbital and neuro-CT scans
Orbital and neuro-MRI scans
Neuro-angiography
Electroretinography
Electrooculography
Visually evoked potentials
Humphrey and other automated perimeters
Goldmann perimetry
Hess charts
DEXA scans
Urinalysis
Serum biochemistry, haematology, immunology, relevant endocrine blood tests
Investigation of patients with suspected TB, syphilis and other relevant infectious diseases

Principles of ophthalmic surgery

Sterilisation
Surgical instrumentation
Sutures and their uses
Common ophthalmic surgical procedures
Management of trauma to the eye and adnexae

Clinical optics

Notation of lenses: spectacle prescribing, simple transposition, toric transposition
Identification of unknown lenses: neutralisation, focimeter, Geneva lens measure
Aberrations of lenses: correction of aberrations relevant to the eye, Duochrome test
Optics of the eye: transmittance of light by the optic media, schematic and reduced eye, Stiles-Crawford effect, visual acuity, contrast sensitivity, catoptric images, emmetropia, accommodation, Purkinje shift, pinhole
Ametropia: myopia, hypermetropia, astigmatism, anisometropia, aniseikonia, aphakia
Accommodative problems: insufficiency, excess, AC/A ratio
Refractive errors: prevalence, inheritance, changes with age, surgically induced
Correction of ametropia: spectacle lenses, contact lenses, intraocular lenses, principles of refractive surgery

Problems of spectacles in aphakia: effect of spectacles and contact lens correction on accommodation and convergence, effective power of lenses, back vertex distance, spectacle magnification, calculation of intraocular lens power, presbyopia
Low visual aids: high reading addition, magnifying lenses, telescopic aids - Galilean telescope
Clinical refraction; near and distance vision correction, tests of binocularity
Prescribing prisms
Direct and indirect ophthalmoscopes
Retinoscope
Focimeter
Simple magnifying glass (Loupe)
Lensmeter
Automated refractor
Slit-lamp microscope
Applanation tonometry
Keratometer
Specular microscope
Operating microscope
Zoom lens principle
Corneal pachymeter
Lenses used for slit lamp biomicroscopy (panfunduscope, gonioscope Goldmann lens, 90D lens, etc.)
Fundus camera
Lasers
Retinal and optic nerve imaging devices (OCT, SLO, GDx)

Clinical ophthalmology

Cornea and external eye disease

Clinical anatomy

Infections of the conjunctiva
Cicatricial conjunctival disease: Stevens-Johnson syndrome, mucous membrane pemphigoid; other causes
Allergic conjunctival disease; vernal keratoconjunctivitis, atopic keratoconjunctivitis, seasonal allergic conjunctivitis, giant papillary conjunctivitis
Conjunctival malignancies: ocular surface squamous neoplasia, melanocytic neoplasms
Pterygium
Benign lesions of the conjunctiva

Blepharitis and acne rosacea

Scleritis and episcleritis

Corneal infections: bacterial keratitis, herpes simplex keratitis, varicella zoster keratitis, fungal keratitis, acanthamoeba keratitis
Recurrent corneal erosion syndrome
Dry eye syndrome
Autoimmune corneal disease: peripheral ulcerative keratitis and corneal melting disorders, Mooren's ulcer
Keratoconus and other ectasias
Pseudophakic/aphakic bullous keratopathy; other causes of corneal oedema
Corneal dystrophies, degenerations and deposits
Neurotrophic keratopathy
Trauma: penetrating, chemical injury
Congenital corneal abnormalities
Contact lenses
Corneal Transplantation, limbal stem cell transplantation
Eye banking

Cataract and refractive surgery

Clinical anatomy of the lens

Acquired cataract:

Aetiology

Management

 Biometry and planning of refractive outcome

 Intraocular lenses

Pre-operative evaluation

Predicting surgical challenges

Surgical methods, equipment and instrument

Anaesthetic techniques

Complications of cataract surgery and local anaesthesia

Managing coexisting cataract and glaucoma

Cataract surgery combined with penetrating keratoplasty

Lens-induced glaucoma

Phacolytic inflammation

Viscoelastics

Intraocular lenses

Cataract surgery post corneal refractive surgery

Managing refractive surprise after cataract surgery

Ectopia lentis

Nd:YAG laser capsulotomy

Congenital cataract including surgical management options

Optical treatment and prevention of amblyopia

Corneal refractive surgery: arcuate keratotomy, laser (LASIK, LASEK, PRK)

Refractive lens surgery; clear lens extraction, phakic IOLs

Oculoplastics, lacrimal and orbital disease

Clinical anatomy

Eyelid malpositions including ectropion, entropion, ptosis, lagophthalmos, lid retraction

Lash abnormalities; trichiasis, distichiasis

Congenital abnormalities of the lids

Abnormal lid swellings and benign and malignant lid lesions

Blepharospasm

Dermatochalasis

Lid trauma

Facial nerve palsy

Principles of oculoplastic surgical technique

The watering eye

Congenital and acquired abnormalities of the lacrimal system

Lacrimal surgery

Orbital cellulitis

Orbital inflammation including thyroid eye disease

Orbital tumours

Orbital trauma

Congenital abnormalities of the orbit

Vascular lesions of the orbit

Evisceration, enucleation and exenteration

Glaucoma

Relevant clinical anatomy and physiology

Epidemiology and screening

Mechanisms of glaucoma

Optic nerve head assessment

Visual field analysis in glaucoma

Tonometry

Gonioscopy

Paediatric glaucoma

Open angle glaucomas

Ocular hypertension

Angle closure glaucomas

Medical management

Laser therapies

Surgical management including complications

Medical Retinal disease

Clinical anatomy

Vascular retinal disorders:

 Diabetic retinopathy

 Arterial and venous occlusive disease

 Ocular ischaemic syndrome

 Hypertensive retinopathy

 Retinal arterial macroaneurysm

 Retinal Vasculitis

 Coat's disease

 Sickle cell retinopathy

 Eales' disease

 Retinal features of blood disorders, e.g. anaemia, leukaemia, and myeloma

 Retinal vascular anomalies

Age-related macular degeneration

 Epidemiology, risk factors, and pathophysiology

 Management

Retinal dystrophies

 Retinitis Pigmentosa

 Flecked retina syndromes

 Macular dystrophies

 Congenital stationary night blindness

 Choroidal dystrophies and degenerations

 Hereditary vitreoretinopathies

Angioid streaks

Central serous retinopathy

Cystoid macular oedema

Degenerative myopia

Drug-induced retinal disease

Phototoxicity

Radiation retinopathy

Vitreoretinal surgery

Clinical anatomy

Peripheral retinal lesions

Retinal breaks

Retinal detachment

 Rhegmatogenous

 Serous retinal

 Tractional

 Proliferative vitreoretinopathy

Macular hole

Epiretinal membrane

Vitreous haemorrhage

Endophthalmitis

Trauma and IOFB

Retinoschisis

Uveitis

Clinical anatomy of the uveal tract

Congenital abnormalities

Infectious uveitis
Non-infectious immune-mediated uveitis
Uveitis masquerade syndromes
Systemic disease associated uveitis
Investigation of the patient with uveitis
Principles of uveitis management
Management of cataract and glaucoma in uveitis

Ocular oncology

Malignant intraocular tumours
 Retinoblastoma
 Uveal melanoma
 Uveal metastases
 Lymphoma and leukaemia
Benign intraocular tumours
Choroidal naevus
Choroidal haemangioma
Choroidal osteoma
Retinal hamartomas
Retinal vascular tumours
Investigation and management of intraocular tumours

Neurophthalmology

Clinical anatomy
Clinical assessment of ocular motility, diplopia, nystagmus, abnormal eyelid and facial movements, pupils, ptosis, proptosis, cranial nerve function and visual fields
Ocular motility disorders
Cranial nerve palsies
Visual field abnormalities
Pupil abnormalities
Nystagmus
Optic disc abnormalities
Optic neuropathies
Visually evoked cortical potentials
Pituitary and chiasmal disorders
Intracranial tumours
Headache and facial pain
Migraine
Benign intracranial hypertension
Cerebrovascular disease
Optic neuritis and multiple sclerosis
Myasthenia gravis
Parkinson's disease
Psychosomatic disorders and visual function
Blepharospasm and hemifacial spasm
Periocular Botulinum toxin injection technique

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Diabetes
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Retinal vascular occlusion
Retinal detachment and proliferative vitreo-retinopathy
Ocular tumours
Tissue sampling for pathological investigation; types of biopsy, fine needle aspiration, transport of specimens