Success in the Duke Elder Examination

180 MCQs

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Foreword by
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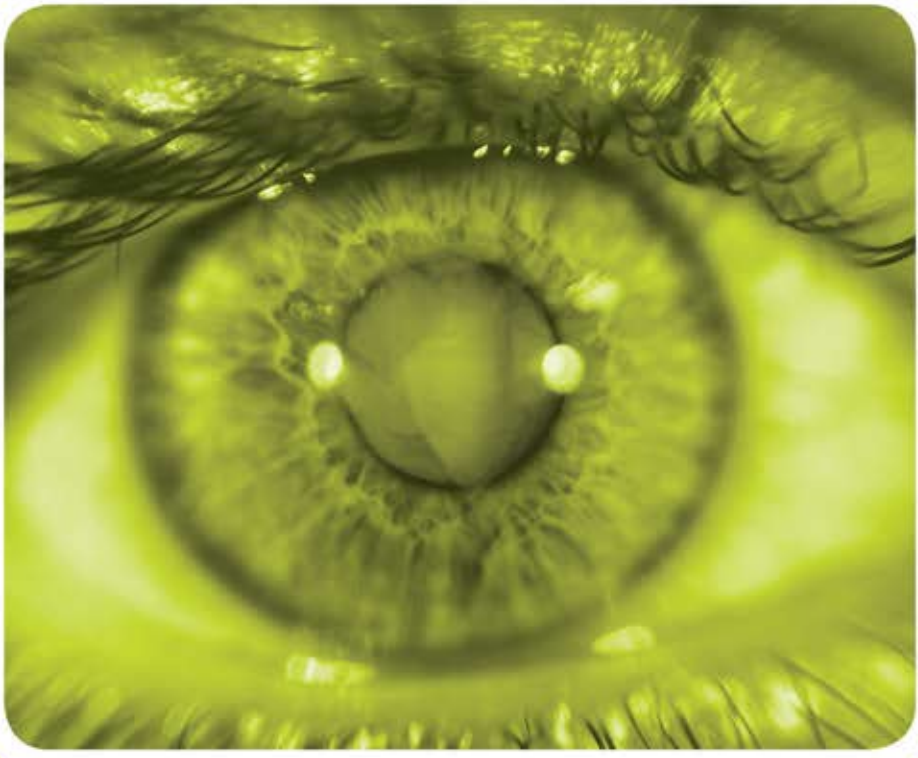

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EXAMINATION PAPER 1

Structured Practice Paper

Type of Questions: Multiple Choice Questions

Instructions:

- 90 multiple choice questions to be completed in 2 hours.
- Select the single best answer for each question.

Questions

Anatomy

1. Which pair of muscles from the following are yoke muscles?

A. Right lateral rectus and left medial rectus
B. Right superior oblique and left superior rectus
C. Left inferior rectus and right lateral rectus
D. Left medial rectus and right inferior oblique

2. What structure does NOT pass through the cavernous sinus?

A. Maxillary division of trigeminal nerve
B. Internal carotid artery
C. Mandibular division of trigeminal nerve
D. Trochlear nerve

3. Which bones make up the medial wall of the orbit?

A. Sphenoid, nasal, lacrimal
B. Ethmoid, maxilla, lacrimal
C. Ethmoid, sphenoid, nasal, lacrimal
D. Ethmoid, sphenoid, maxilla, lacrimal

4. What is the average axial length of the adult eye?

A. 24 mm
B. 22 mm
C. 26 mm
D. 21 mm

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Cataract

1. Which of the following is LEAST likely to be associated with the development of cataract?

A. Topical steroid use
B. Oral steroid use
C. Previous ocular trauma
D. Active treatment with anti-vascular endothelial growth factor (VEGF) medication

2. Which of the following is NOT usually associated with increased surgical complexity during cataract surgery?

A. Small pupil
B. White cataract
C. Patient taking tamsulosin
D. Patient on anticoagulation

3. Which material used for intraocular lenses has the highest refractive index?

A. Silicone
B. Polymethyl methacrylate (PMMA)
C. Hydrogel
D. Acrylic

4. Which of the following is the LEAST important consideration in intraocular lens selection for cataract surgery?

A. Density of cataract
B. Axial length
C. Pre-operative refraction
D. Patient preference

5. In routine cataract surgery, the continuous curvilinear capsulorhexis (CCC) should be of what size?

A. 4 mm
B. 5 mm
C. 6 mm
D. 7 mm

Cornea

1. Which of the following is considered to be a normal endothelial cell count?

A. 1,000
B. 2,500

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C. 4,500
D. 7,500

2. Which of the following is the MOST useful investigation to measure corneal thickness?

A. Slit-lamp examination
B. Pachymetry
C. Anterior segment optical coherence tomography (OCT)
D. Direct ophthalmoscopy

3. Fuchs' endothelial dystrophy is the MOST associated with variants in which of the following genes?

A. *TCF4*
B. *VSX1*
C. *PAX6*
D. *UBIAD1*

4. Which type of cell is responsible for the production of the mucin layer of the tear film?

A. Goblet cells
B. Secretory cells in the lacrimal gland
C. Secretory cells in the meibomian gland
D. Giant cells

5. Which of the following investigations is the MOST appropriate to monitor the progression of keratoconus?

A. Specular microscopy
B. Corneal tomography
C. Slit-lamp examination
D. Corneal pachymetry

6. Xerophthalmia is secondary to a deficiency of which vitamin?

A. Vitamin A
B. Vitamin C
C. Vitamin D
D. Vitamin B_{12}

7. Lattice corneal dystrophy affects which corneal layer?

A. Epithelium
B. Stroma
C. Descemet's layer
D. Endothelium

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8. Which corneal layer is the MOST immediately anterior to the stroma?

A. Epithelium
B. Bowman's layer
C. Descemet's layer
D. Endothelium

Embryology

1. What is the embryonic origin of the corneal epithelium?

A. Mesenchyme
B. Surface ectoderm
C. Neural crest
D. Endoderm

Epidemiology

1. Which of the following statements on angle-closure glaucoma is FALSE?

A. Females are more commonly affected than males
B. It affects 1 in 1,000 patients over 40 years
C. Patients tend to get attacks at night
D. Myopia is a risk factor

2. Which of the following statements on trachoma is FALSE?

A. It is caused by *Chlamydia trachomatis*
B. It is responsible for 3% of global blindness
C. The first infection causes the most damage
D. It affects 40 million people worldwide

3. Which of the following statements about uveitis is FALSE?

A. The majority of uveitis patients have posterior uveitis
B. Symptoms of uveitis include ocular pain, redness, and photophobia
C. 50% of uveitis cases are associated with systemic disease
D. The incidence is 15/100,000

Genetics

1. Which of the following is an autosomal dominant condition?

A. Retinoblastoma
B. Wilson's disease

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C. Stargardt's disease
D. Leber's hereditary optic neuropathy

2. Which chromosome is the gene for retinitis pigmentosa found on?

A. Short arm of chromosome 7
B. Long arm of chromosome 7
C. Short arm of chromosome 3
D. Long arm of chromosome 3

Glaucoma

1. Which of the following medications reduces intraocular pressure (IOP) by increasing uveoscleral outflow?

A. Latanoprost
B. Timolol
C. Betaxolol
D. Apraclonidine

2. What is the mechanism through which intraocular pressure is elevated in Sturge–Weber syndrome?

A. Trabecular meshwork obstruction
B. Excess aqueous production
C. Reduced anterior chamber volume
D. Elevated episcleral venous pressure

3. Which of the following medications is NOT typically associated with acute angle-closure glaucoma?

A. Sertraline
B. Topiramate
C. Promethazine
D. Hydroxychloroquine

4. What type of visual field test is the MOST commonly used to monitor the progression of glaucoma?

A. 30-2 Humphrey visual field
B. 24-2 Humphrey visual field
C. 10-2 Humphrey visual field
D. Esterman visual field

5. A free sight test is available to which group of patients to screen for glaucoma?

A. All patients
B. HGV drivers

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C. 2nd-degree relative with glaucoma
D. 1st-degree relative with glaucoma

6. Which of the following provides the MOST accurate assessment of anterior chamber depth?

A. Slit-lamp examination
B. Gonioscopy
C. Anterior segment OCT
D. Visual field test

7. Which of the following is the MOST appropriate investigation to objectively assess for progression in primary open-angle glaucoma?

A. Retinal nerve fibre layer thickness
B. Intraocular pressure measurement
C. Humphrey visual field testing
D. Optic nerve cup:disc ratio measurement

8. Which of the following procedures is the MOST likely to be performed in patients with mild open-angle glaucoma?

A. Minimally invasive glaucoma surgery (MIGS) combined with cataract surgery
B. Selective laser trabeculoplasty
C. Trabeculectomy
D. Baerveldt tube implantation

9. Which of the following topical medications is the MOST likely to be associated with elevated intraocular pressure?

A. Prednisolone
B. Apraclonidine
C. Pilocarpine
D. Hydrocortisone

Global Ophthalmology

1. What is the MOST common cause of blindness globally?

A. Age-related macular degeneration
B. Cataract
C. Glaucoma
D. Trachoma

2. What is the leading preventable cause of blindness globally?

A. Diabetic retinopathy
B. Trachoma
C. Glaucoma
D. Cataract

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3. Which disease does the Vision 2020 Global Initiative NOT target?

   A. Diabetic retinopathy
   B. Refractive error
   C. Retinoblastoma
   D. Onchocerciasis

Immunology

1. Which HLA subtype is psoriatic arthritis associated with?

   A. A29
   B. B22
   C. B27
   D. B51

Investigations

1. Which investigation is used as the basis to grade retinopathy for patients who have diabetic retinal screening?

   A. Fundus photography
   B. Optical coherence tomography
   C. Fluorescein angiography
   D. Ocular ultrasound

2. Fat on an MRI scan is typically:

   A. Bright on T1, dark on T2-weighted imaging
   B. Dark on T1, bright on T2-weighted imaging
   C. Bright on both T1- and T2-weighted imaging
   D. Dark on both T1- and T2-weighted imaging

3. Which of the following can be used to test colour vision?

   A. Snellen chart
   B. LogMAR chart
   C. Ishihara plates
   D. Hess chart

Medical Retina/Vitreoretinal Surgery

1. Myopia is LEAST likely to be associated with which of the following?

   A. Formation of choroidal neovascular membrane
   B. Angioid streaks

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C. Rhegmatogenous retinal detachment
D. Acute angle-closure glaucoma

2. Optical coherence tomography uses light of what type to create structural retinal images?

A. Ultraviolet A
B. Ultraviolet B
C. Infrared light
D. Visible light

3. Which of the following investigations is the MOST appropriate to confirm a diagnosis of wet age-related macular degeneration (AMD)?

A. OCT angiography
B. OCT
C. Fundus fluorescein angiography
D. Slit-lamp examination

4. Central serous chorioretinopathy (CSCR) is associated with which of the following risk factors?

A. Genetic predisposition
B. Steroid use
C. *Helicobacter pylori* infection
D. Systemic vascular disease

5. Which of the following examination techniques is the MOST appropriate in making a diagnosis of retinal vein occlusion?

A. Mydriatic slit-lamp examination
B. Non-mydriatic slit-lamp examination
C. OCT angiography
D. Pentacam imaging

6. Which of the following is NOT associated with poorer prognosis in patients with choroidal melanoma?

A. Young age at diagnosis
B. Chromosome 3 monosomy
C. Proximity of lesion to optic disc
D. Presence of metastatic disease at presentation

7. Which of the following is NOT a side effect from undergoing fundus fluorescein angiography (FFA)?

A. Yellow discolouration of skin/urine
B. Nausea/vomiting
C. Anaphylaxis
D. Visual disturbance

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Success in the Duke Elder Examination: 180 MCQs

Struggling to find good practice questions for the *Duke Elder Examination?* Look no further! This book contains 180 multiple choice questions covering all the sub-specialities specified by the Royal College of Ophthalmologists with clear and in-depth explanations. The first practice paper has been sectioned out by topic to aid revision, whereas the second practice paper is a full unstructured mock examination. Questions have been written specifically with the *Duke Elder Examination* in mind. All authors have passed the examination within the top decile with one scoring 3rd place nationally. This book will be integral in aiding your success in this examination. You will also learn clinically relevant information that will benefit you as you embark on the road to becoming an ophthalmologist.

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