

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
APRIL, 2004

Date :- 27th April, 2004

Time :- 1.00 p.m. - 2.30 p.m.

STRUCTURED ESSAY PAPER I

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. Describe the types and functions of specialised junctional complexes at different locations within the corneal epithelium.

How is the epithelium attached to the basal lamina and the corneal stroma.
 - 1.2. Give the relations of the superior oblique muscle and its tendon.
Explain how the structure of its tendon help~ in its action.
2.
 - 2.1 Describe the relations of the optic nerve and their clinical relevance.
 - 2.2 Draw and label a diagram of the neural organisation within the optic chiasma
 - 2.3 Give the embryological basis of
 - (a) coloboma of the optic disc
 - (b) myelinated nerve fibres
 - (c) Bergmeister papilla
3.
 - 3.1. List the radiological investigations used to image the orbits starting from simple non-invasive methods.
Briefly mention the advantages and disadvantages of each of them.
 - 3.2. Outline the events of the cell cycle and describe the M phase of a primary oocyte.

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
APRIL, 2004

Date : 27th April 2004

Time :- 3.00 p.m. - 4.30 p.m.

STRUCTURED ESSAY PAPER II

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. Discuss the factors influencing colour vision.
 - 1.2. Discuss the physiological basis of the methods available to test colour vision.
 - 1.3. Add a note on colour blindness.

2. Write notes on ,
 - 2.1. factors affecting the intraocular pressure.
 - 2.2. vestibula-ocular reflex.
 - 2.3. the Near response.

3. Write short notes on
 - 3.1.
 - (a) Randomised clinical trial.
 - (b) Normal distribution.

 - 3.2.
 - (a) List five (05) diagnostic techniques used in ocular surgical biopsy specimens and aspirates.
 - (b) Write briefly how you would send the corneal button specimen to pathology laboratory when fungal keratitis is suspected.
 - (c) What special features should be present on biopsy specimens to diagnose fungal corneal ulcers.
How will this differ from bacterial and viral corneal ulcers.

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
APRIL, 2005

Date :- 26th April, 2005

Time :- 1.00 p.m. - 2.30 p.m.

STRUCTURED ESSAY PAPER I

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. Describe the structure of the iris
 - 1.2. Explain how the iris is adapted to its functions
 - 1.3. What features of the iris are helpful in diagnosing ocular/systemic diseases ?

2.
 - 2.1. Describe the anatomy of the lacrimal gland including its histology, blood supply and nerve supply
 - 2.2. Give the relations of the lacrimal sac that are of surgical importance.

3.
 - 3.1. Write short notes on the use of plain x'ray, CT and MRI of the head and neck in ophthalmic practice.
 - 3.2. The following pedigree is of a family with retinitis pigmentosa (RP). The results of a linkage study using closely linked markers to a gene implicated in RP are shown below.
 - (a) Explain the most likely mode of inheritance of retinitis pigmentosa in this family.
 - (b) Outline the advantages and disadvantages of genetic testing for the child III.2
 - (c) Outline why a linkage study like this is never 100% accurate.

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
APRIL, 2005

Date :- 26th April, 2005

Time :- 3.00 p.m. - 4.30 p.m.

STRUCTURED ESSAY PAPER II

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. Compare and contrast the saccadic eye movements with smooth pursuit eye movements.
 - 1.2. Describe briefly the physiological mechanisms involved in reading a book.
 - 1.3. Explain how the horizontal conjugate eye movements are intergrated in the brain stem.

2.
 - 2.1. (a) List the functions of the ciliary body
(b) Explain the physiological basis of the functions listed
 - 2.2. Describe the principles underlying the different methods of tonometry available to measure the intraocular pressure.

3.
 - 3.1. A randomised controlled trial was conducted to assess the efficacy of topical betaxolol and timolol on the visual field, in open angle glaucoma. Thirty patients out of 100 who received timolol and 12 patients out of 100 who received betaxolol had normal visual fields. Relative risk for the treatment comparison was 2.5 (95% confidence interval 1.36 - 4.60).

- (a) State the null hypothesis
- (b) List the advantages of randomisation
- (c) Interpret the results
- (d) What suggestions would you make to improve the quality of the above trial ?

3.2. Write notes ,

- (a) Immunohistochemical staining
- (b) Polymerase chain reaction (PCR)
- (c) A three day old infant presents with a bilateral eye discharge. Discuss the laboratory investigations that are helpful in diagnosing the aetiology.

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
APRIL, 2006

Date :- 27th April, 2006

Time :- 1.00 p.m. - 2.30 p.m.

STRUCTURED ESSAY PAPER I

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. Describe the anatomy of the ciliary body and its functions.
 - 1.2. Enumerate the structural and the functional changes that occur in it with ageing.

2. Write short notes including relevant clinical anatomy on the following
 - 2.1. The floor of the orbit.
 - 2.2. The internal limiting membrane of the retina.
 - 2.3. The middle cerebral artery, branches and area of supply.

3.
 - 3.1. List the different radiological imaging modalities available and briefly discuss how they help in the diagnosis of orbital disease.
 - 3.2. Polymerase chain reaction.
 - 3.3. Discuss briefly "Structural chromosomal abnormalities".

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OPHTHALMOLOGY MODULE II EXAMINATION
APRIL, 2006

Date :- 27th April, 2006

Time :- 3.00 p.m. - 4.30 p.m.

STRUCTURED ESSAY PAPER II

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. Discuss the physiological factors responsible for the maintenance of corneal transparency.
 - 1.2. Describe the factors affecting drug penetration through the cornea.
 - 1.3. Briefly outline the mechanisms of healing of a corneal incised wound.

2. Write short notes on –
 - 2.1. Regulatory mechanisms of secretion of different components of the tear film.
 - 2.2. Functions and clinical importance of the pupil.
 - 2.3. The factors affecting the stereoacuity and how it can be assessed.

3.
 - 3.1. The procedures you would adopt to send different orbital biopsy specimens to the laboratory.
 - 3.2. List 3 common immunohistochemical markers used on ocular surgical biopsy specimen.

3.3. Fifty patients with no graft rejection and 50 patients with graft rejection were studied to determine the risk factors for graft rejection after an optical penetrating keratoplasty. Odds ratios (OR) and its 95% confidence intervals (CI) were calculated. Authors concluded that persistent epithelial defect (OR = 3.0, 95% CI = 1.17 – 8.73), suture related problems (OR = 3.6, 95% CI = 1.39 – 9.28) and ocular surface disorders (OR = 2.4, 95% CI = 0.93 – 6.03) were found to be statistically significant risk factors.

3.1. What was the study design ?

3.2. State the null-hypothesis.

3.3. Comment on the authors conclusion.

3.4. List the methods that could be used to control confounding factors.

POSTGRADUATE INSTITUTE OF MEDICINE
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OPHTHALMOLOGY MODULE II EXAMINATION
APRIL 2007

Date : 24th April 2007

Time : 1.00 p.m. 2.30 p.m.

STRUCTURED ESSAY PAPER I

Answer all questions

Answer each question in a separate book.

1.
 - 1.1. Describe and label a diagram of the drainage angle of the eye. (40 marks)
 - 1.2. Describe the anatomy of the trabecular meshwork including the microscopic appearance. (30 marks)
 - 1.3. Discuss the clinical importance of the examination of the angle. (gonioscopy) (30 marks)

2. Write short notes on
 - 2.1. Ageing changes of the vitreous (40 marks)
 - 2.2. Retinal pigment epithelium (30 marks)
 - 2.3. Neural arrangement within the optic chiasm (30 marks)

3.
 - 3.1. Outline briefly the usefulness of the following special imaging techniques:
 - (a) MRI scan
 - (b) MRA scan
 - (c) Doppler studies (50 marks)

3.2. A 20 year old male with retinitis pigmentosa has the following family history.

Mother born 1960 Normal vision
Father born 1955 died 1990 in night time traffic accident
Brother born 1985 Reduced night vision
 Refusing further investigations
Sister born 1989 Normal vision
Mother also had a miscarriage at 15 weeks (first pregnancy)

Proband's (patient's) father's family

Mother died aged 40 years Normal vision
Father died aged 65 years Heart attack

Brother born 1958 Poor night vision since teenage years
 2 sons normal vision
Identical twin sisters born 1962 Both have normal vision

Proband's (patient's) Mothers's family

Mother 70 years Normal night vision
Father 80 years Normal night vision

Sister born 1962 Normal vision
 2 daughters - Normal vision

- 3.2.1. Draw this patient's pedigree (15 marks)
- 3.2.2. State the most likely mode of inheritance of retinitis pigmentosa in this family (10 marks)
- 3.2.3. Give one other possible mode of inheritance (05 marks)
- 3.2.4. Give the risk to the patient's children (for the most likely mode of inheritance) (05 marks)
- 3.2.5. Assume that this family has requested genetic testing for this condition and that multiple genes are involved in causing retinitis pigmentosa with this type of inheritance. State 5 issues that you need to discuss with the affected patient prior to genetic testing. (15 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
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OPHTHALMOLOGY MODULE II EXAMINATION

APRIL 2007

Date : 24th April 2007

Time : 3.00 p.m. 4.30 p.m.

STRUCTURED ESSAY PAPER II

Answer all questions

Answer each question in a separate book.

1.
 - 1.1. Describe the physiological mechanisms of passage of the aqueous humour into and out of the eye. (40 marks)
 - 1.2. Why is the balance between the inflow and out flow of aqueous humour important ? (35 marks)
 - 1.3. Add a note on physiological basis of actions of antiglaucoma drugs. (25 marks)
2. Describe the following:
 - 2.1. How does the retina works to produce sight ? (40 marks)
 - 2.2. Physiological basis of disc oedema. (40 marks)
 - 2.3. Ocular cardiac reflex. (20 marks)
3.
 - 3.1.1. Describe the study design you would adopt in following situations
 - (a) assessment of prevalence of community blindness (20 marks)
 - (b) assessment of risk factors for glaucoma (15 marks)
 - 3.1.2. How do you reduce type I error in a research study ? (15 marks)
 - 3.2.1. List five commonly used fixatives to transport ocular surgical biopsy specimen to pathology laboratory. (10 marks)
 - 3.2.2. Write notes on
 - (a) FNAC (Fine needle aspiration cytology) (20 marks)
 - (b) Frozen section biopsies (20 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
NOVEMBER 2007

Date : 20th November 2007

Time : 1.00 p.m. - 2.30 p.m.

STRUCTURED ESSAY PAPER I

Answer all questions.

Answer each question in a separate book.

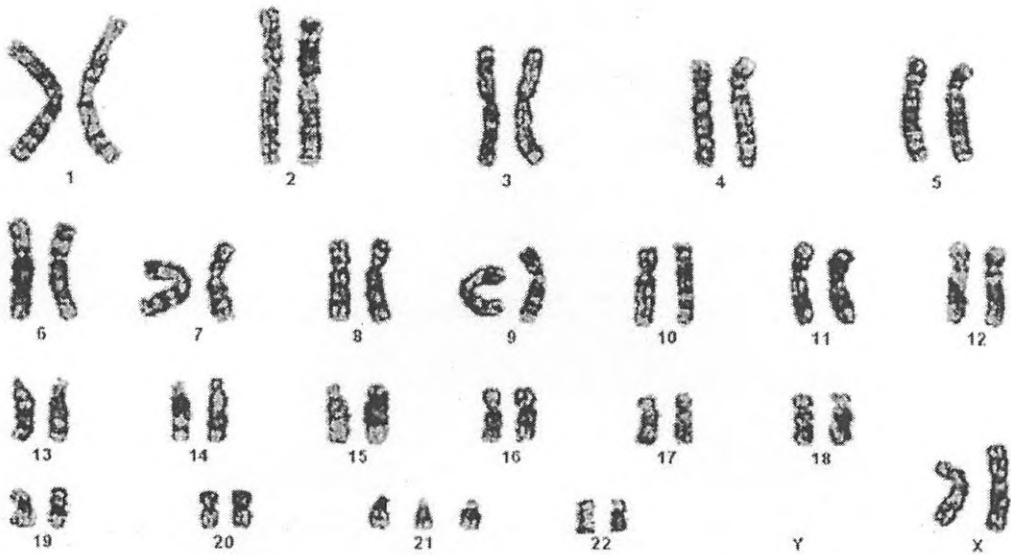
1.
 - 1.1. Give the anatomical definition of the limbus. (20 marks)
 - 1.2. Describe and label a diagram of the limbus. (50 marks)
 - 1.3. Give a brief account of stem cells including their clinical importance. (30 marks)

2.
 - 2.1. List the anatomical layers of the retina. (10 marks)
 - 2.2. Describe the sensory (neural) arrangement of the retina. (50 marks)
 - 2.3. Explain how rods and cones are adopted to their functions. (40 marks)

3.
 - 3.1. Discuss the advantages and disadvantages of **MRI** over CT scan in relation to diagnosis of neum-ophthalmological disorders. (50 marks)

- 3.2. A 10 year old girl with a suspected chromosome disorder is referred to an ophthalmologist who orders a chromosome culture.

Given below is the karyotype of the girl.



- 3.2.1. Name the disorder. (05 marks)
- 3.2.2. Explain the genetic mechanisms which could have led to this condition. (25 marks)
- 3.2.3. What other chromosome anomalies can cause this disorder? (10 marks)
- 3.2.4. Should one of the anomalies stated in 3.2.3 be the cause of the disorder in this girl, what further genetic investigations would you carry out? (10 marks)

3.

3.1. A study was carried out to find out whether reduced visual acuity among drivers causes road traffic accidents. Study included 100 drivers who were involved with accidents and 100 drivers of same age and gender who have never met with accidents. Twenty drivers involved with accidents had reduced visual acuity as against ten in the other category.

3.1.1. What is the study design ? (10 marks)

3.1.2. Present this data in a 2 by 2 table. (20 marks)

3.1.2. Calculate an appropriate statistic. (20 marks)

3.2.

3.2.1. List five (05) diagnostic techniques used in ocular surgical biopsy specimens and aspirates. (10 marks)

3.2.2. Write briefly how you would send a biopsy specimen to pathology laboratory when chronic endophthalmitis is suspected. (20 marks)

3.3.3. What special features should be present in the biopsy specimen to diagnose fungal endophthalmitis. (20 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
MAY 2008

Date: 27th May 2008

Time: 1.00 p.m. - 2.30 p.m.

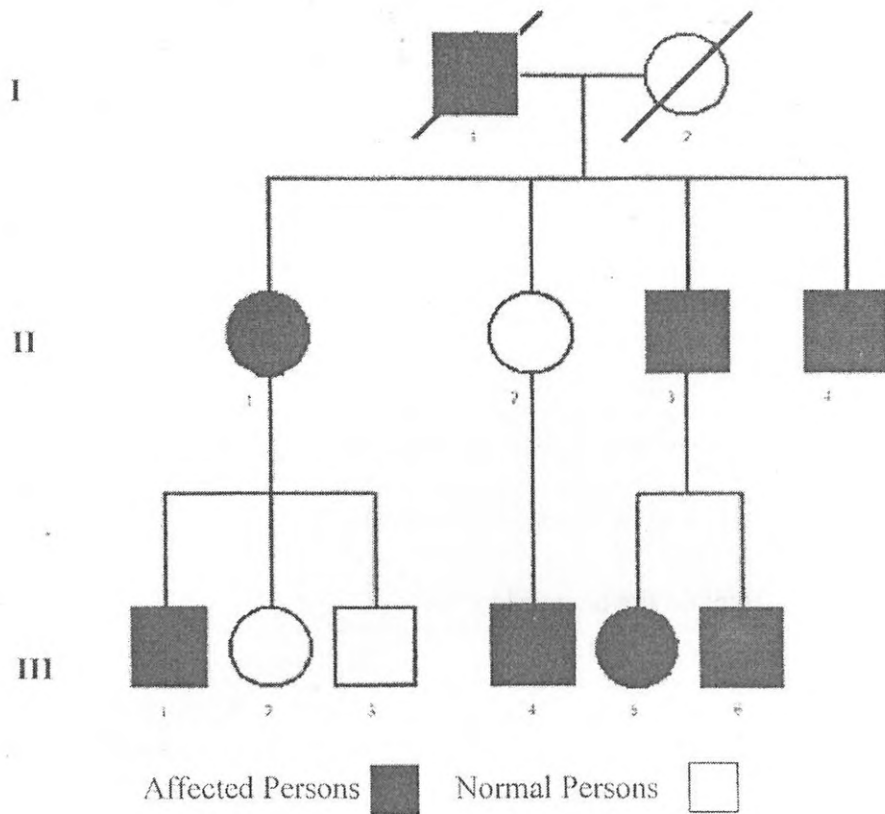
STRUCTURED ESSAY PAPER I

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. Describe with the aid of a diagram the anatomy of the intra ocular part of the optic nerve (optic nerve head). (40 marks)
 - 1.2. Briefly give its arterial blood supply. (30 marks)
 - 1.3. Explain the anatomical basis of
 - 1.3.1. choroidal crescent
 - 1.3.2. scleral crescent
 - 1.3.3. zone α
 - 1.3.4. zone β (30 marks)
2. Discuss
 - 2.1. The nucleus of the trigeminal nerve. (50 marks)
 - 2.2. The waves of neural crest cell migration in the development of the anterior segment of the eye. (50 marks)
3. A patient presents to you with a suspected calcified intra orbital neoplasm extending intracranially.
 - 3.1. List the radiological investigations which should be done (discussing the advantages and disadvantages) in order
 - 3.1.1. confirm the presence of the mass
 - 3.1.2. evaluate its extension starting from simple non invasive readily available investigations. (50 marks)

3.2.



- 3.2.1. What is the pattern of inheritance ? (10 marks)
- 3.2.2. Give three reasons for your answer to 3.2.1 (15 marks)
- 3.2.3. Give two reasons as to why II-2 is phenotypically normal ? (10 marks)
- 3.2.4. Name an ophthalmological condition that would fit the pattern of inheritance stated in your answer to 3.2.1. (05 marks)
- 3.2.5. What type of genetic test would help you to confirm the diagnosis? (10 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
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OPHTHALMOLOGY MODULE II EXAMINATION
MAY 2008

Date: 27th May 2008

Time: 3.00 p.m. - 4.30 p.m.

STRUCTURED ESSAY PAPER II

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. What are the functions of the pigment epithelium of the retina ? (60 marks)
 - 1.2. Discuss the role played by the retinal pigment epithelium in visual pigment regeneration. (40 marks)
2.
 - 2.1. Describe the composition of the pre-corneal tear film. (40 marks)
 - 2.2. Discuss its functions. (60 marks)
3. A randomized placebo controlled crossover trial was conducted to evaluate the efficacy of super blue-green algae (SBGA) on Meige syndrome. After six months of treatment patients underwent a 6 month washout period with no treatment
 - 3.1.
 - 3.1.1. Briefly describe what you mean by a 'crossover trial'. (20 marks)
 - 3.1.2. State the null-hypothesis for the above trial. (10 marks)
 - 3.1.3. What is the advantage of implementing a washout period? (10 marks)
 - 3.1.4. Suggest how you would improve the quality of the above trial. (10 marks)

3.2.

3.2.1 List five neoplastic lesions of eye lid. (10 marks)

3.2.2: Describe how you would send surgical biopsy specimens of eye lid to the Pathology Laboratory. (40 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
JUNE 2009

Date: 3rd June 2009

Time: 1.00 p.m. - 2.30 p.m.

STRUCTURED ESSAY PAPER I

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. Describe the anatomy of the levator palpebrae superioris muscle (include relevant diagrams). (80 marks)
 - 1.2. Give the anatomical basis for two causes of ptosis. (20 marks)

2. Briefly describe the anatomy of (use diagrams wherever necessary)
 - 2.1. the third cranial nerve nucleus and the course of the third nerve within the brain stem. (50 marks)
 - 2.2. posterior and anterior ciliary arteries. (50 marks)

- 3.
- 3.1. Briefly describe the advantages and disadvantages of MRI over CT scan. (50 marks)

 - 3.2. Retinoblastoma is one of commonest malignancies affecting the eye. It is caused by mutations in the RBI gene. (50 marks)
 - 3.2.1. List three different types of mutations found in the RBI gene.
 - 3.2.2. List two types of tests that can be used to detect these mutations.
 - 3.2.3. What type of a gene is RBI ?
 - 3.2.4. What is the pattern of inheritance of retinoblastoma ?
 - 3.2.5. What is the chromosomal abnormality seen in some patients with retinoblastoma ?
 - 3.2.6. What type of test can be used to detect this abnormality ?

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
JUNE 2009

Date: 3rd June 2009

Time: 3.00 p.m. - 4.30 p.m.

STRUCTURED ESSAY PAPER II

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. List the functions of aqueous humour. (40 marks)
 - 1.2. Describe the clinical implications of break down of the blood Aqueous barrier. (60 marks)

2. Write notes on :
 - 2.1. Halos (20 marks)
 - 2.2. Spontaneous blinking. (20 marks)
 - 2.3. Stereo acuity and factors affecting it. (30 marks)
 - 2.4. Physiological and visual function changes of the eye on exposure to dim illumination. (30 marks)

3. A prospective cohort study was conducted to determine the association between Glitazone and diabetic macular oedema. The study found that odds ratio was 2.60 and 95% confidence interval 2.4 to 3.0.

3.1.

3.1.1. Describe the study populations of the above study. (10 marks)

3.1.2. Describe briefly the steps involved in carrying out the above study. (15 marks)

3.1.3. Interpret the above results. (10 marks)

3.1.4. List two potential biases of the study. (05 marks)

3.1.5. How would you minimize biases of the study? (10 marks)

3.2.

3.2.1 List five common granulomatous lesions of the eye lid. (10 marks)

3.2.2. List five different diagnostic techniques used in diagnosing granulomatous lesions. (10 marks)

3.2..3 Describe how would you send the surgical biopsy specimen of The eye lid to the Pathology Laboratory when granulomatous Lesion is suspected. (30 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
MAY 2010

Date: 19th May 2010

Time: 1.00 p.m. - 2.30 p.m.

STRUCTURED ESSAY PAPER I

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. Describe the transitions that take place at the limbus. (35 marks)
 - 1.2. Briefly describe the anatomical division of the trabecular meshwork. (35 marks)
 - 1.3. What are stem cells ? What is their significance ? (30 marks)
2.
 - 2.1. Draw a diagram of the apex of the orbital cavity showing superior orbital fissure and optic canal. Mark the structures that traverse through it. (50 marks)
 - 2.2. Draw a diagram showing the origin and branches of ophthalmic artery within the orbital cavity. (50 marks)
3.
 - 3.1.
 - (a) List the radiological investigations available for imaging the orbit and brain. (20 marks)
 - (b) Compare and contrast the advantages and disadvantages of CT and isotope studies (PET – positron emission tomography). (30 marks)

3.2.

Glaucoma is a complex disorder caused by genetic as well as non genetic factors. What evidence in the following types of studies would suggest that genetic factors are involved in the aetiology of glaucoma ?

- (b) Epidemiological studies. (7.5 marks)
- (c) Twin studies. (7.5 marks)
- (d) Eight genetic locations have been identified as harboring genes causing primary open angle glaucoma in linkage studies. Briefly describe how linkage studies are done. (15 marks)
- (e) Mutation in two genes (MYOC and OPTN) have been identified as causing primary open angle glaucoma. DNA sequence analysis can be used to identify these mutations. What information does a DNA sequence provide ? (05 marks)
- (f) List three types of abnormalities that can be detected on a DNA sequence. (05 marks)
- (g) The DNA sequence of a man with primary open angle glaucoma shows a homozygous A to G transition at position 35 of exon 2 of the MYOC gene located on chromosome no. 1. This mutation results in the substitution of an amino acid leading to the production of a missense protein. His mother and father were both heterozygous at this position.
 - (g.1) What is the pattern of inheritance of the condition ? (05 marks)
 - (g.2) What is the risk of occurrence of this condition in his sister ? (05 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
MAY 2010

Date: 19th May 2010

Time: 3.00 p.m. - 4.30 p.m.

STRUCTURED ESSAY PAPER II

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. Describe the physiological functions of the pupil. (50 marks)
 - 1.2. Briefly outline the clinical importance of the pupil. (50 marks)
2. Write notes on
 - 2.1. Factors affecting drug delivery through the cornea. (30 marks)
 - 2.2. Non optic reflex mechanisms involved in ocular motor control. (35 marks)
 - 2.3. Binocular vision. (35 marks)
3.
 - 3.1. A study was conducted to determine the prevalence of visual impairment among adults aged sixty years and above in the MOH area, Wattala. Study population consisted of 500 participants selected from applying cluster sampling technique. Of them, 40 males and 60 females had visual impairment.
 - (a) Define the study population. (10 marks)
 - (b) List two advantages of using cluster sampling technique over simple random sampling.
 - (c) Calculate the overall prevalence of visual impairment and its 95% confidence interval. (20 marks)
 - (d) Name two statistical tests that can be used to test the significance of the difference in prevalences of visual impairment between males and females. (10 marks)

3.2.

- (a) List five (05) common pathological conditions of conjunctiva. (10 marks)
- (b) List five (05) different diagnostic techniques used in diagnosing pathological lesions of conjunctiva. (10 marks)
- (c) describe how you would send a surgical biopsy specimen of conjunctiva to the pathology laboratory when a **neoplastic** lesion is suspected. (30 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
MAY 2011

Date: 24th May 2011

Time: 1.00 p.m. - 2.30 p.m.

STRUCTURED ESSAY PAPER I

Answer all questions.

Answer each question in a separate book.

1. Describe
 - 1.1. the origin (illustrated with diagrams) of the fourth cranial nerve. (40 marks)
 - 1.2. intracranial cause including its relations. (60 marks)

2.
 - 2.1. Describe the anatomy of the choroid. (60 marks)
 - 2.2. What are the differences between retinal and choroidal blood flow ? (30 marks)
 - 2.3. What are the age related changes seen in the choroid ? (10 marks)

3.
 - 3.1. A patient presents with a suspected intra cranial space occupying lesion.
 - 3.1.1. Describe the imaging modalities available to image this lesion. (20 marks)
 - 3.1.2. Discuss the advantages and disadvantages of each modality. (30 marks)

- 3.2. A 30 year old man is diagnosed with x linked retinitis pigmentosa. This is based on a mutation test demonstrating a missense mutation in his RPGR gene. His mother is identified as a carrier of the same condition.
- 3.2.1. Giving your reasons, outline the risk of developing retinitis pigmentosa in the following relatives.
- 3.2.1. His brother. (05 marks)
- 3.2.2. His son. (05 marks)
- 3.2.3. His daughter (10 marks)
- 3.3. Define the term "mutation". (05 marks)
- 3.4. Outline the term "missense mutation". (10 marks)
- 3.5. State the difference in likely outcome between a missense and nonsense mutation. (15 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
MAY 2011

Date: 24th May 2011

Time: 3.00 p.m. - 4.30 p.m.

STRUCTURED ESSAY PAPER II

Answer all questions.

Answer each question in a separate book.

1.
 - 1.1. What is the supra nuclear control of eye movement ? (20 marks)
 - 1.2. List the neural centres involved in supra nuclear control of eye movements. (20 marks)
 - 1.3. Discuss the physiological mechanisms involved in reading a book. (40 marks)
 - 1.4. List the clinical features of internuclear ophthalmoplegia. (20 marks)

2.
 - 2.1. Describe the physiological functions of vitreous. (60 marks)
 - 2.2. Describe the pathophysiology of posterior vitreous detachment. (40 marks)

- 3.
- 3.1. A randomized controlled trial was conducted to assess the efficacy of twice daily, preservative free ketorolac 0.45% administration for treatment of inflammation after cataract surgery. The primary outcome was the percentage of patients with no ocular inflammation on postoperative day 7. Intention to treat analysis was performed and 52.5% (167/318) of the ketorolac group versus 26.5% (41/155) of the control group had no ocular inflammation.

3.1.1. Briefly describe the term “concealment of an allocation”.
(15 marks)

3.1.2. Describe the rationale for performing “intention to treat analysis”
(15 marks)

3.1.3. Calculate an effect measure to assess the association between administration of ketatolac and ocular inflammation.(10 marks)

3.1.4. What is your conclusion ?
(10 marks)

3.2. A female patients with a lower lid lump of 6 months duration.

3.2.1. Discuss the uses and limitations of fine needle aspiration cytology and frozen section histology in arriving at pathological diagnosis in this patient.
(40 marks)

3.2.2. How do you send the excision biopsy sample to the laboratory ?
(10 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
MAY 2012

Date: 24th May 2012

Time: 1.00 p.m. - 2.30 p.m.

STRUCTURED ESSAY PAPER I

Answer all questions.

Answer each question in a separate book. (Question 1,2,3.1 and 3.2)

1.
 - 1.1. Describe with the aid of diagrams the anatomy of the medial wall of the orbit and its relations. (70 marks)
 - 1.2. Briefly outline the clinical importance of the medial wall of the orbit. (30 marks)

2.
 - 2.1. Describe using labeled diagrams the detailed anatomy of the drainage angle of the eye. (70 marks)
 - 2.2. Briefly discuss what clinical information you could obtain by examination of the angle (gonioscopy). (30 marks)

3.
 - 3.1.
 - 3.1.1. A 45 year old patient presents with headache. list the radiological investigations which would help you to find the cause. (15 marks)
 - 3.1.2. Briefly describe the advantages and disadvantages of each investigation with regard to arriving at a diagnosis mentioning the simple investigations first. (35 marks)

3.2.

- 3.2.1. Define the term 'carrier' when applied to genetic diseases. (05 marks)
- 3.2.2. List two (02) categories of chromosome anomalies identified in carriers. (10 marks)
- 3.2.3. Outline the implications of being a carrier of **one** of the categories stated above. (15 marks)
- 3.2.4. List two (02) categories of single gene disorders in which carriers are identified. (05 marks)
- 3.2.5. Outline the risk of affected offspring for the two categories listed above. (15 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
MAY 2012

Date: 24th May 2012

Time: 3.00 p.m. - 4.30 p.m.

STRUCTURED ESSAY PAPER II

Answer all questions.

Answer each question in a separate book. (Question 1,2,3.1 and 3.2)

1. Write explanatory notes on
 - 1.1. near reflex (30 marks)
 - 1.2. reflex blinking (30 marks)
 - 1.3. physiological basis of different methods for assessing colour vision. (40 marks)

2. Discuss the physiological adaptations of each of the following ocular structures to optimize its optical function.
 - 2.1. cornea (25 marks)
 - 2.2. aqueous (25 marks)
 - 2.3. lens (25 marks)
 - 2.4. macula (25 marks)

3.

3.1. A study was conducted to assess the association between Ocular Surface Disease (OSD) and glaucoma-related quality of life (GQL) in patients with open-angle glaucoma. Two hundred patients were recruited from four glaucoma clinics. Demographic information, OSD, GQL, number and type of glaucoma medication, daily dose of benzalkonium chloride (BAK) and visual fields were assessed. The following table shows the results of the study.

Table - Results of multivariate analysis for ocular surface disease.

Variable	Odds ratio	95% confidence interval	P value
GQL – Low	4.0	2.6 - 6.6	< 0.001
Daily dose of BAK more than 3 drops	2.5	1.2 - 5.2	0.02

BAK benzalkonium chloride : GQL – glaucoma –related quality of life

3.1.1. Briefly describe how would you select the sample for this study. (10 marks)

3.1.2. list two (02) sources of observation bias. (10 marks)

3.1.3. Name the multivariate method applied for this study. (10 marks)

3.1.4. Interpret the above Table. (20 marks)

3.2. A 45 year old female patient presented to an eye clinic with right eye proptosis and a palpable orbital mass of 3 months duration.

3.2.1. Discuss how you would proceed further to arrive at a pathological diagnosis in this patient. (20 marks)

3.2.2. Discuss special pathological tests (techniques) which would be useful in this patient to arrive at a definitive histological diagnosis. (20 marks)

3.2.3. Discuss the importance of correct sample collection and transport of this patient's specimens to the laboratory. (10 marks)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
MAY 2013

Date: 21st May 2013

Time: 1.00 p.m. - 2.30 p.m.

STRUCTURED ESSAY PAPER I

Answer all questions.

Answer each question in a separate book. (Question 1,2,3.1 and 3.2)

1.
 - 1.1. Describe the anatomical structure of the human lens elaborating on each of the following components.
 - 1.1.1. lens capsule
 - 1.1.2. lens epithelium
 - 1.1.3. lens fibres and their arrangement. (70%)
 - 1.2. Briefly describe the development of the human lens with the aid of diagrams. (30%)
2.
 - 2.1. Describe the origin, course (intracranial and intraorbital) and relations of the Abducent nerve. (50%)
 - 2.2. Give the anatomical basis for the "false localizing sign". (20%)
 - 2.3. Briefly describe the Ciliary Ganglion. (30%)

3.

3.1.

3.1.1. List the radiological investigations which would be used to diagnose a calcified intraorbital mass with intracranial extension. (20%)

3.1.2 Describe the advantages and disadvantages of each. (30%)

3.2. A 2 year old boy is referred to the ophthalmology clinic because of strabismus. He is the only child of healthy, non consanguineous parents who are both aged 25 years. His father is a labourer from Badulla and his mother is a housewife. On reviewing his notes, you note that Williams syndrome (WS) is suspected in him.

You are able to perform a Google search and find out that WS is clinically easily recognized condition associated with a heterozygous, 1.5 Mb microdeletion of chromosome 7q 11.23. It is associated with neurodevelopmental delays and behavior problems, congenital cardiac malformations, endocrine abnormalities and dysmorphic features. A *de novo* deletion is the most common cause of the condition but occasionally a parent is a carrier of a chromosome inversion or also has a deletion.

3.2.1. Comment on the location and size of the chromosome abnormality in Williams syndrome. (10%)

3.2.2. List two (02) tests used to identify the deletion in a Williams syndrome patient and outline when each should be used. (10%)

3.2.3. Outline the benefits and disadvantages of genetic testing in this child. (10%)

3.2.4. Outline the recurrence risk of Williams syndrome for the child's siblings. (10%)

3.2.5. Outline the clinical and laboratory management that would help to define the recurrence risk. (10%)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION
MAY 2013

Date: 21st May 2013

Time: 3.00 p.m. - 4.30 p.m.

STRUCTURED ESSAY PAPER II

Answer all questions.

Answer each question in a separate book. (Question 1,2,3.1 and 3.2)

1.

- 1.1. What are the factors affecting intraocular pressure ? (15%)
- 1.2. Describe how each of these influence the maintenance of intraocular pressure. (50%)
- 1.3. Briefly explain the physiological basis of one of the methods used to measure intraocular pressure. (Do not write the optical principle). (35%)

2.

- 2.1. List the factors that affect the visual acuity. (20%)
- 2.2. Briefly explain the physiological basis of factors considered in design of standard visual acuity charts. (50%)
- 2.3. Briefly describe the development of vision in infancy. (30%)

3.

3.1. A randomized controlled trial was conducted to assess the efficacy of intravitreal aflibercept injection. (IAI) monthly against placebo injections for patients with macular edema secondary to central retinal vein occlusion (CRVO). The primary outcome was the percentage of patients who gained adequate visual acuity and a secondary outcome was change in central retinal thickness (CRT) at week 24.

The following table shows the results of the study.

Visual acuity and change in central retinal thickness by intervention and control arm.

	IAI (N = 114)	Placebo (N = 73)	p value
	n (%)	n (%)	
Adequate visual acuity	64 (56)	9 (12.3)	<0.05
Mean change from baseline in CRT	-457.2	-144.8	<0.01

IAI – intravitreal aflibercept injection, CRT – central retinal thickness.

- 3.1.1. What is meant by 'primary outcome' ? (10%)
- 3.1.2. Calculate the number needed to treat (NNT) for the primary outcome. (10%)
- 3.1.3. Name a statistical test to assess the efficacy of the drug on the secondary outcome. (10%)
- 3.1.4. What are the advantages of blinding in the above study ? (10%)
- 3.1.5. What is your conclusion ? (10%)

3.2. A 60 year old patient presented to the eye clinic with right lower lid swelling of 4 – 6 months duration.

3.2.1. List the possible pathological lesions. (10%)

3.2.2. Discuss the sequence of laboratory investigations that you would consider to diagnose the lesion. (20%)

3.2.3. If it a neoplastic lesion, list the histological features that you would look for in the histopathology report to decide on further management of this patient. (20%)

POSTGRADUATE INSTITUTE OF MEDICINE
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OPHTHALMOLOGY MODULE II EXAMINATION

MAY 2014

Date: 21st May 2014

Time: 1.00 p.m. - 2.30 p.m.

STRUCTURED ESSAY PAPER I

Answer all questions.

Answer each question in a separate book. (Question 1,2,3.1 and 3.2)

1.
 - 1.1. Describe the vitreous, elaborating on the following components
 - 1.1.1. Gross and microscopic structure (60%)
 - 1.1.2. Composition (20%)
 - 1.2. Briefly explain the basis of posterior vitreous detachment and its clinical significance. (20%)
2.
 - 2.1. Describe the anatomy of the superior oblique muscle. (70%)
 - 2.2. Give the anatomical basis for its paralysis in close head trauma. (15%)
 - 1.2. Explain briefly the anatomical basis for the abnormal head posture seen in unilateral superior oblique paralysis. (15%)
3.
 - 3.1.
 - 3.1.1. List the radiological procedures which would help to diagnose and manage an intracranial calcified vascular malformation. (10%)
 - 3.1.2. Describe briefly what you would expect to see in each of the above and the advantages and disadvantages of each procedure. (40%)
 - 3.2.
 - 3.2.1. Outline the clinical features that would suggest autosomal dominant inheritance rather than X linked inheritance in a family with retinitis pigmentosa affecting three generations. (25%)
 - 3.2.2. Outline the issues you would need to discuss with the index case (person consulting you) prior to offering genetic testing for this condition. (25%)

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

OPHTHALMOLOGY MODULE II EXAMINATION

MAY 2014

Date: 21st May 2014

Time: 3.00 p.m. - 4.30 p.m.

STRUCTURED ESSAY PAPER II

Answer all questions.

Answer each question in a separate book. (Question 1,2,3.1 and 3.2)

1.
 - 1.1. Describe perimetry (60%)
 - 1.2. Explain the basis of depth perception (40%)

2. Write notes on -
 - 2.1. Functions of the retinal pigment epithelium. (30%)
 - 2.2. Electroretinography (ERG). (35%)
 - 2.3. Abnormal retinal correspondence. (35%)

3.
 - 3.1. A phase III double blind randomized placebo controlled trial was conducted to evaluate the efficacy of 0.07% bromfenac ophthalmic solution dosed once daily in achieving zero-to-trace (0-5 cells) anterior chamber cells, following cataract surgery with posterior chamber intraocular lens implantation. Anterior chamber cells were determined based on a manual count of cells using a slit lamp biomicroscope. The proportion of subjects with zero-to-trace anterior chamber cells was significantly higher in the intervention group compared with the placebo group on day 8 ($p < 0.01$) and day 15 ($p < 0.01$)
 - 3.1.1. Briefly describe how you would select, randomise and group the study population. (20%)
 - 3.1.3. Briefly describe the ways in which blinding affected the results of the above study. (20%)
 - 3.1.4. Name two (02) statistical tests that could be applied for evaluating the efficacy of the intervention. (10%)

 - 3.2.
 - 3.2.1. List four (04) commonly encountered inflammatory lesions in the eyelid. (15%)

 - 3.2.2. Discuss diagnostic steps used in diagnosing the lesions mentioned above, with special emphasis on the use of laboratory investigations to get the maximum pathological information about the lesions. (35%)