Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2006

SUBJECT: PATHOLOGY AND MICROBIOLOGY

Wednesday, June 07, 2006

Time: 3 Hrs. Max. Marks: 80

- **ANSWER SECTION A AND SECTION B IN TWO SEPARATE ANSWER BOOKS.**
- **Answer ALL the questions.**

SECTION – A : PATHOLOGY : 40 MARKS

1. Discuss the cellular events of inflammation with appropriate diagrams.

(10 marks)

2. Write short notes on:

(5×6 = 30 marks)

2A. Describe the morphology of tuberculous granuloma with the help of a diagram.
2B. Discuss the pathogenesis of cardiac edema.
2C. Classify leukemias. Discuss the clinical features of Chronic myeloid leukemia.
2D. Discuss the pathogenesis of septic shock.
2E. Define and give two examples of metaplasia.
2F. Define and give two examples of hyperplasia.

SECTION – B : MICROBIOLOGY : 40 MARKS

3. Enumerate agents causing infections of the eye. Describe in detail Chlamydial eye infection.

(5+5 = 10 marks)

4. Write briefly about the following:

(5×3 = 15 marks)

4A. McIntosh-Fildes Jar
4B. Bacterial spore
4C. Hot air oven

5. Write short notes on the following:

(2×5 = 10 marks)

5A. Prevention of HIV infection.
5B. Aspergillosis.
5C. Ophthalmia neonatorum.
5D. Antibiotic sensitivity tests
5E. Tyndallisation.

6. Fill in the blanks.

(1×5 = 5 marks)

6A. _____ is the father of antiseptic techniques in microbiology.
6B. Organ of locomotion in bacteria is _____.
6C. _____ is an example of transport medium.
6D. Temperature of vaccine bath is _____.
6E. Causative agent of amoebic keratitis is _____.

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2006

SUBJECT: PHARMACOLOGY

Thursday, June 08, 2006

Time: 1½ Hrs. Max. Marks: 40

1. Mention FOUR classes of adrenergic drugs according to their therapeutic use with two examples for each.

(6 marks)

2A. List SIX routes of drug administration.

2B. Mention TWO drugs given by subconjunctival route and TWO drugs instilled topically.

(3+1+1 = 5 marks)

3. Write briefly on:

(3×5 = 15 marks)

3A. Preanaesthetic medication.

3B. Aspirin.

3C. Styptics.

3D. Wetting agents.

3E. Dyes as ocular diagnostics.

4. Define local anaesthetics. List FOUR techniques of local anaesthesia. List TWO anaesthetics used in ophthalmic procedures.

(1+2+1 = 4 marks)

5A. Mention TWO antiviral drugs with one ophthalmic indication.

5B. Mention TWO synthetic glucocorticoids with two ocular side effects.

(1½+2 = 3½ marks)

6. Mention TWO drugs used for the following conditions:

i) Fungal keratitis ii) Trachoma iii) Organophosphorus poisoning

iv) Glaucoma

(1×4 = 4 marks)

7A. Explain why ketamine anaesthesia is contraindicated in ocular surgery.

7B. Explain the effects of atropine on eye.

(1+1½ = 2½ marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

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SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2006

SUBJECT: OPTOMETRIC OPTICS

Friday, June 09, 2006

Time: 3 Hrs. Max. Marks: 80

1. Answer the following:

1A. Path condition for an antireflection film is _____.

1B. What is the surface power necessary to make up a +4.25 DS in periscopic form.

1C. Transpose the lens -+4.25 DS /+1.75DC x H to cross cylinder form.

1D. A lens shape is known to have a SWF of 10. What is the minimum size uncut which can be used to obtain this lens of its datum length 42 mm?

1E. What is Spectacle Magnification?

1F. List two methods used for the inspection of glasses.

1G. An example of glass cement.

1H. Fresnel prisms are made of _____

1I. Calculate the jump exerted by the lens, +1.00 DS, Add 2.00, 22 segment.

1J. Reflection factor for following media in air assuming normal incidence. Glass, n=1.65

(1×10 = 10 marks)

2. Answer any **TEN.**

2A. Transpose the prescription +8.50 DC x V/+9.25 DCxH into toric form with a -6.00 D base curve.

2B. What is meant by the term angular field of view? Show that semiangular field of view produced by a thin lens of power F and diameter 2y mounted 25mm infront of the center of rotation of the eye can be found from $\tan\phi = \frac{y(40-F)}{1000}$.

2C. Which spectacle tools caliberated for glass of refractive index 1.523 are necessary to produce a +12.50D sphere in planoconvex form in a plastic material whose refractive index is 1.49?

2D. Short note on polarizing filters.

2E. Describe in brief the manufacture of fused bifocals.

2F. It is required to deposit an antireflection coating upon glass of refractive index 1.60. What must be the refractive index of the coating material inorder to satisfy the amplitude condition? Assuming that the correct coating material can be obtained, what must be its thickness if it is desired to produce zero reflection for the wavelength of 555 nm?

2G. Write briefly on the properties of cross cylinders.

2H. A rotary prism device consists of two 10^{Δ} prisms. If each prism in the arrangement is rotated through 30° from the zero position calculate the resultant effect. Through what angle must each prism rotate to produce a resultant effect of 5^{Δ}?

2I. Short note on Sturm's conoid.

2J. A+15.00 D lens corrects an eye for distance vision when fitted 12 mm from the cornea. If the lens is to repositioned 15 mm infront of the cornea what must its power become inorder to correct the eye. Repeat the question above for a -12.00D lens.

2K. Resolve 4Δ base up and in at 30° into vertical and horizontal components by graphical solution and calculation method.

2L. The following 4 lenses, each of which are infinitely thin are placed together in contact. Find the focal length of the combination in cm

+1.25DS/+0.50x V

-2.00 DCx H/-1.50 DCxV

+0.25 DC x V/-1.25 DC x H

+0.50 DS/ -2.50 DC x V

(5×10 = 50 marks)

3. Answer **ALL**.

3A. What is a Progressive Addition Lens? List the types. Briefly explain about the patient selection and dispensing considerations of PAL.

3B. i) List the mechanical and optical requirements of bifocal lenses.

ii) Find the position of the optical center for near in the following bifocal lenses

a) +4.00DS, Add 2.00, 22mm segment cut 4 mm.

b) –5.00DS, Add 1.00, 30 mm segment cut 3 mm.

(10×2 = 20 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2006

SUBJECT: VISUAL OPTICS

Saturday, June 10, 2006

Time: 3 Hrs. Max. Marks: 80

1. Answer the following questions.

1A. Far point of a -8.00 D myope.

1B. The lens power in the refractor is +2.00/-1.00×90° and examiner finds that retinoscopy is possible only at 20cms. The finding that is recorded is _____.

1C. The Snellen fraction 6/60 = _____ in English units.

1D. If a patient is found to have unequal visual acuity in both eyes, the procedure used as a balancing test is _____.

1E. An example of oblique astigmatism.

1F. Normal near point of convergence is _____.

(1×6 = 6 marks)

2. Answer the following questions.

2A. It is better to undercorrect than to overcorrect for a presbyope. True or False? Justify.

2B. How can you refine cylinder axis with Jackson crossed cylinder?

2C. List out the components of a trial set.

2D. What is biometry? Which is the most widely used formula in biometry?

2E. Differentiate between the terms: a) Spectacle refraction b) Ocular refraction.

(2×5 = 10 marks)

3. Answer the following questions.

3A. Differentiate between simple myopic and compound myopic astigmatism with examples.

3B. Given an uncorrected myopic eye with a far point located 50cms infront of spectacle plane and a near point of accommodation 10cm infront of the spectacle plane. What are the i) Range and ii) Amplitude of accommodation?

3C. What is Radical retinoscopy?

3D. Optical condition in hyperopia.

(3×4 = 12 marks)

4. Write short notes on any **SIX**.

4A. Possible causes of inaccurate retinoscopic findings.

4B. Mohindra's near retinoscopy.

4C. Insufficiency of accommodation.

4D. Strum's conoid.

4E. Cycloplegic refraction.

4F. Aphakia.

4G. Treatment modalities in myopia.

4H. Bichrome test.

(6×6 = 36 marks)

5. What is retinoscopy? Write briefly on optics of retinoscopy and the procedure you are going to follow if your patient's visual acuity improves with pinhole.

(16 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

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SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2006

SUBJECT: OPTOMETRIC INSTRUMENTS AND CLINICAL EXAMINATION OF VISUAL SYSTEM

Monday, June 12, 2006

Time: 3 Hrs. Max. Marks: 80

1. Fill in the blanks [Each question carries **ONE** mark]

1A. Measurement of lens power was first done by _____.

1B. _____ is a prototype of Mackay-Marg applanation tonometer.

1C. Photokeratoscope detects astigmatism upto _____ diopters.

1D. _____ was the first automated visual field screening instrument introduced.

1E. _____ introduced the indirect method of ophthalmoscopy.

1F. _____ was first to propose the mechanism of colour vision.

1G. The b-wave of ERG originates from _____.

1H. _____ received Nobel Prize for his contribution for the development of slit lamp Biomicroscope.

1I. Keratometer measures the curvature of the cornea by determining the _____.

1J. _____ predetermined positions are tested in the automated static perimeter.

2. Answer any **FIVE** questions [Each question carries **TWO** marks].

2A. What is the basic principle of tonometry?

2B. How is Hand neutralization performed?

2C. Comment on the two scales used for representing corneal topography.

2D. Define field of view, Boundaries of vision.

2E. Comment on magnification and field of vision of direct ophthalmoscope.

2F. What is Achromatopsia? What are the two types of Achromatopsia?

3. Answer any **FOUR** questions [Each question carries **FIVE** marks].

3A. What are the differences between Badal and Non-Badal principles?

3B. Write a short note on Tangent Screen.

3C. Comment on the clinical interpretation of Gonioscopy.

3D. List the tests for colour vision testing and comment on their failure criterion.

3E. Comment on Fransworth D-15 test.

4. Each question carries **TEN** marks.

4A. Comment on ultrasonography.

4B. What are the clinical implications of binocular indirect ophthalmoscope?

5. Answer any **ONE** [Each question carries **TWENTY** marks]

5A. Write in detail on clinical implications, applications, interpretation and limitations of Electroretinogram.

5B. Define tonometry. What are the types of tonometers? Elaborate on the types available.