Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

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

SUBJECT: PATHOLOGY AND MICROBIOLOGY

Monday, August 14, 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. Define and classify anemias. Discuss the clinical features seen in anemia.

(2+5+3 = 10 marks)

2. Write short notes on:

2A. Differences between benign and malignant tumor.
2B. Chemotaxis.
2C. Pathogenesis of renal edema.
2D. Coagulative necrosis
2E. Fate of a thrombus.

(6×5 = 30 marks)

SECTION – B : MICROBIOLOGY : 40 MARKS

3. Classify bacteria based on the morphology and arrangement. Describe bacterial cell.

(4+6 = 10 marks)

4. Write briefly on the following:

4A. Bacterial infections of the eye.
4B. Anaerobic culture methods.
4C. Autoclave.

(5×3 = 15 marks)

5. Write short notes on the following:

5A. Incineration.
5B. Viral conjunctivitis.
5C. Basic structure of viruses.
5D. Chlamydia.
5E. Pasteurisation.

(2×5 = 10 marks)

6. Fill in the blanks.

6A. The principal sites of respiratory enzymes in the bacteria are _____.
6B. River blindness is caused by _____.
6C. Cocci arranged in chains are called as _____.
6D. Amebic keratitis is caused by _____.
6E. _____ is an example of enriched media.

(1×5 = 5 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

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

SUBJECT: PHARMACOLOGY

Wednesday, August 16, 2006

Time: 1½ Hrs. Max. Marks: 40

1. Answer the following:

1A. List any four routes of drug administration and mention a drug given by each of these routes.

1B. Mention two neuromuscular blocking drugs from different groups and list two uses for any one of them.

1C. List two objectives of preanesthetic medication with a drug used for each objective.

1D. Mention a local anaesthetic used in ophthalmic procedures and add a note on its mechanism of action.

1E. What is cycloplegia? Mention two drugs causing it.

(2×5 = 10 marks)

2. Mention the mechanism of action and one therapeutic use for the following drugs.

2A. Neostigmine.

2B. Ciprofloxacin.

2C. Rifampicin.

2D. Amphotericin – B.

2E. Timolol maleate.

(2×5 = 10 marks)

3. Write briefly on:

3A. Wetting agents.

3B. Mannitol.

3C. Clinical uses of hydrocortisone.

3D. Diclofenac.

3E. Glibenclamide.

(3×5 = 15 marks)

4. Mention two drugs for each of the following conditions.

4A. Allergic conjunctivitis.

4B. Methanol poisoning.

4C. Herpes simplex keratitis.

4D. Ocular candidiasis.

4E. Trachoma.

(1×5 = 5 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

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

SUBJECT: OPTOMETRIC OPTICS

Thursday, August 17, 2006

Time: 3 Hrs. Max. Marks: 80

1. Answer the following:

1A. Spectacle tool used for making concave surfaces.

1B. Find the power of a single lens that will replace the following cross cylinder:
+3.00 DC XH/-1.00 DC x V

1C. In the antireflection surface, if the coating is insufficient, it appears _____

1D. Name a type of lens that are not normally accepted for toughening.

1E. Power of a 625 mm lens in dioptres.

1F. Radii of curvature in mm of each surface of the lens +5.00equiconvex made up in glass of refractive index 1.50.

1G. Example of a shaped fused segment.

1H. The tolerances on centration of finished lenses of powers over ± 2.50D.

1I. Calculate the prismatic effect produced when a –5.00D lens is decentered 6mm inwards.

1J. 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?

(1×10 = 10 marks)

2. Answer any **TEN**:

2A. What are the optical requirements of bifocal lenses? Give a spectacle prescription to a 45 year old clerk OD: +0.50/-1.00 x180(6/6), OS: -1.00/-2.00 x 175 (6/6) .Add: +1.25 DS, N_6

2B. Comment briefly on different spectacle lens shapes available

2C. i) A lens system is made up from two thin co-axial lenses whose powers are +10.00 D and –10.00D separated by 5cm. Find the front and back vertex powers of the system.

ii) A -12.00 D lens corrects an eye for distance vision when fitted 12 mm from cornea. If the lens is to be repositioned 15 mm infront of the cornea what must its power become inorder to correct the eye?

2D. 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 $\tan\varphi = \frac{y(40-F)}{1000}$.

2E. Consider the prescription R +2.00DS/+2.00DS x90°. Find the prismatic effect introduced by the lens when the eye views through a point 5mm above and 5mm inwards from the optical centre.

2F. Explain the characteristics of the following group of filters

i) Contrast filters ii) Yellow absorbing filters iii) Neutral grey filters

2G. The following four thin lenses are placed together in close contact.

i) f = +25cm ii) f = + 14.29 mm iii) f +-40mm iv) f =-100mm

Find the focal length in metres which must be added to the combination in order to neutralize it.

2H. Briefly write on the mechanical details of varilux lens.

2I. 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?

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

2K. The following surfaces, worked on glass of refractive index 1.523, have been smoothed in preparation for polishing. If the polished pads which are attached to the tools are 1mm thick find the powers which must be chosen for the polishing tools i) -8.5 D ii) +32 D

2L. Define using diagrams the following segment location terms.

i) segment depth ii) segment drop iii) geometrical inset

(5×10 = 50 marks)

3. Answer both.

3A. i) An uncut spectacle lens is to be produced from a rough glass blank. Describe the various processes to which the blank is subjected during the surfacing operation.

ii) Briefly describe the defects caused on the lens during the production or working of the surface.

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

(10×2 = 20 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

(Deemed University)

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

SUBJECT: VISUAL OPTICS

Friday, August 18, 2006

Time: 3 Hrs. Max. Marks: 80

1. Answer the following questions.

1A. In case of excessive accommodation, a hyperope appears.

1B. The best treatment modality for an anisometrope, OD: + 6.00 DS and OS: + 0.50DS, age 25.

1C. For a visual acuity of 0.5, the letter size would be _____.

1D. Using a clock dial test for astigmatism under fog, where would you place the cylinder axis if the patient reported that 12– 6 O'clock spoke was the most distinct.

1E. +3.00/-2.00 × 90° is an example of _____

1F. If the convex lense is placed farther from the eye than anterior focal plane, the retinal image _____.

(1×6 = 6 marks)

2. Answer the following questions.

2A. Differentiate between the terms: i) Depth of field ii) Depth of focus.

2B. List the treatment modalities in regular astigmatism.

2C. What are the procedures you would do to confirm your neutralization point during retinoscopy?

2D. How can you determine your patient's near point of convergence?

2E. Define myopia.

(2×5 = 10 marks)

3. Answer the following questions.

3A. Write briefly on Roving ring scotoma.

3B. Given an uncorrected hyperopic eye with a far point of accommodation located 50cms behind the 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. Write briefly on astigmatic fan.

3D. Brief on the symptoms of presbyopia.

(3×4 = 12 marks)

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

4A. Anisometropia.

4B. Optics of electric retinoscope.

4C. Jackson crossed cylinder.

4D. Axial and refractive ametropia.

4E. Biometry.

4F. Special difficulties faced in retinoscopy.

4G. Position and nature of image formed for the following object positions in a convex lens.

i) Distance greater than 2f. ii) At 2f.

iii) At a distance less than f. iv) At infinity.

4H. Schematic and reduced eyes.

(6×6 = 36 marks)

5. What is accommodation? Explain in detail about the anomalies of accommodation.

(16 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

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

SUBJECT: OPTOMETRIC INSTRUMENTS AND CLINICAL EXAMINATION OF VISUAL SYSTEM

Saturday, August 19, 2006

Time: 3 Hrs. Max. Marks: 80

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

1A. ____ was the first to describe the use of specular microscopy of the corneal endothelium.

1B. The two types of keratometers are ___ and ____.

1C. Octopus Automated perimeter is a ____ type of perimeter.

1D. Amslers charts were designed by ____.

1E. ____ is called the father of direct ophthalmoscopy.

1F. The steady D.C potential in the retina is called ____.

1G. _____ were the first to use ultrasonography to demonstrate various ocular diseases.

1H. The oldest device used to measure the power of spectacle lens was ___ according to Hirsberg.

1I. Non contact tonometry was introduced by ___.

1J. Placido's disc consists of __ Dioptre lens.

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

2A. What is the basic concept of Pneumatic tonometer and what are the major components?

2B. What are the optical design problems of Badal principle?

2C. Name the parts of orbscan and how are the measurements taken?

2D. Comment on magnification and field of view of Monocular Indirect Ophthalmoscope.

2E. List the patients who should be selected for colour vision tests.

2F. What is the difference between A-scan and B-scan?

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

3A. Write a short note on slit – lamp biomicroscope? What are the techniques used? List the accessories used in slit – lamp biomicroscope.

3B. What are the clinical uses of gonioscopy?

3C. What are the guidelines for colour vision testing?

3D. What are the aims of fundus photography?

3E. Comment on the displaying of the ultrasonogram.

4. Answer all the questions [Each question carries **TEN** marks]

4A. What is the principle of keratometry? What are the different types of keratometers available?

4B. List all the procedures for central field procedures and elaborate the manual procedures.

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

5A. Describe in detail on ultrasonography.

5B. Define the term 'defective colour vision'. Comment on the theory of instrumentation. Comment on 'clinical colour vision tests and its uses in detail.