MANIPAL ACADEMY OF HIGHER EDUCATION
(Deemed University)

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2005
SUBJECT: PATHOLOGY AND MICROBIOLOGY
Thursday, June 09, 2005

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 shock. List the types of shock. Discuss the pathogenesis of any one type.

    (1+2+7 = 10 marks)

2. Write short notes on:
2A. Describe the normal coagulation cascade with the help of a flow chart.
2B. List the differences between benign and malignant tumors.
2C. Describe the gross and microscopic features of CVC liver.
2D. Discuss the pathogenesis of cardiac edema.
2E. Define the following with one example each:
    i)   Coagulative necrosis   ii)   Acute inflammation   iii)   Metaplasia

    (5×6 = 30 marks)

SECTION – B : MICROBIOLOGY : 40 MARKS

3. Define disinfection. Name the commonly used chemical disinfectants. Add a note on sterilization by dry heat.

    (10 marks)

4. Write briefly about the following:
4A. Mc Intosh Fildes jar
4B. Bacterial spore
4C. TRIC agents

    (5×3 = 15 marks)

5. Write short notes on the following:
5A. Flagella
5B. Candle filters
5C. Ophthalmia neonatorum
5D. Antibiotic sensitivity
5E. Modes of infection

    (2×5 = 10 marks)

6. Fill in the blanks:
6A. _____ is an example of an enriched media.
6B. _____ and _____ gases are used for disinfection.
6C. _____ is used for purification of drinking water and to disinfect swimming pools.
6D. Kirby-Bauer method is used for testing _____.
6E. DPT vaccine protects against _____, _____ and _____ diseases.

    (5 marks)

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SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2005

SUBJECT: PHARMACOLOGY
Friday, June 10, 2005

Time: 1½ Hrs.   Max. Marks: 40

Note:

☞ *Answer ALL the questions.*

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1. Mention FOUR first line drugs used in tuberculosis with one important adverse effect of each.
    (4 marks)

2A. List FOUR classes of antihypertensives with TWO examples for each class.
2B. Name TWO different classes of drugs used in glaucoma.
    (6+1 = 7 marks)

3A. Define "General anaesthetics" and "Local anaesthetics".
3B. Mention TWO anaesthetics used in ocular procedure.
    (2+1 = 3 marks)

4. Write briefly on:
4A. Vitamins in ophthalmic disorders
4B. Ocular analgesics
4C. Calcium channel blockers
4D. Action and uses of Atropine on eye.
    (3×4 = 12 marks)

5A. List FOUR oral antidiabetic agents.
5B. Mention TWO important adverse effect of oral antidiabetics.
5C. Mention TWO advantages of human insulin over conventional preparation.
    (2+1+2 = 5 marks)

6. Name TWO synthetic corticosteroids. Mention one ocular use and one ocular adverse effects of corticosteroids.
    (1+1 = 2 marks)

7. Mention TWO drugs for each of the groups used in ophthalmic conditions.
    a) Antiviral   b) Antibacterial   c) Antifungal.
    (3 marks)

8. Explain the pharmacological basis for the following:
8A. Phenylephrine is preferred as a mydriatic in elderly individual.
8B. Ethyl alcohol is used in Methyl alcohol poisoning.
    (2×2 = 4 marks)

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SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2005
SUBJECT: OPTOMETRIC OPTICS
Monday, June 13, 2005

Time: 3 Hrs.   Max. Marks: 80

1. Answer the following:

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

1B. Find the radii of curvature in mm of each surface of a -6.50D equiconcave lens made of glass of refractive index 1.50.

1C. Transpose the lens -2.00 DS/ +4.00 DC × V into cross cylinder form.

1D. Calculate the prismatic effect produced when a -5.00 D lens is decentered 8 mm outwards.

1E. What is spectacle magnification?

1F. List 2 methods used for the inspection of glasses.

1G. Refractive index of MgF_2 is _____.

1H. First photochromic lens produced commercially in United States is _____.

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 +9.25DS/+1.75DC×V into toric form with a -7.00 D sphere curve.

2B. Derive approximate sag relationship, $s=y^2F/2000(n-1)$

2C. Calculate the central thickness of a planoconvex lens made in spectacle crown glass n=1.523. The power of the convex lens is +10.00 DS, diameter of lens 40 mm and edge substance 1 mm.

2D. Short note on polarizing filters.

2E. Write briefly on mechanical details of varilux lens.

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. Compare the advantages and disadvantages of plastic and glass lenses.

2H. Find the vertical and horizontal decentrations necessary to produce the following prescriptions:

R +3.00/+2.00×90 ⌒ 1.5^Δ base up and 2^Δ base out.

L - 4.00/-2.00×180 ⌒ 1.5^Δ base down and 2^Δ base out

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

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

2K. Explain what is meant by jump in biofocal lenses. What are the most noticeable effects of jump to the wearer?

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

+1.25 DS/+0.50 × V

-2.00 DC × H/-1.50 DC × V

+0.25 DC × V/-1.25 DC×H

+0.50 DS / -2.50 DC × V

(5×10 = 50 marks)

3. Answer the following:

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

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

(10×2 = 20 marks)

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SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2005

SUBJECT: VISUAL OPTICS

Tuesday, June 14, 2005

Time: 3 Hrs.   Max. Marks: 80

1.   Answer the following questions:
1A. Convert decimal acuity of 0.2 to Snellen fraction.
1B. +3.00/-2.00×90° is an example of _____.
1C. The convergence required for a myope of 2D to look at an object at 25 cms away is _____.
1D. Duochrome test make use of phenomenon of _____.
1E. 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?
1F. The phenomenon of macropsia occurs in _____.

(1×6 = 6 marks)

2.   Answer the following questions:
2A. What is AC/A ratio?
2B. What are the procedures you would do to confirm your neutralization point during retinoscopy?
2C. Differentiate between the terms: i)   Depth of focus   ii)   Depth of field
2D. What is biometry? Which is the most widely used formula in biometry?
2E. How can you determine your patient's near point of convergence?

(2×5 = 10 marks)

3.   Answer the following questions:
3A. What is accommodation? Write briefly on how accommodation is brought about?
3B. Write briefly on astigmatic fan.
3C. Given an uncorrected hyperopic eye with a far point of accommodation located 50 cms behind the spectacle plane and a near point of accommodation 10 cm in front of the spectacle plane. What are the (i) Range and   (ii) Amplitude of accommodation?
3D. Write on the optical condition in hyperopia.

(3×4 = 12 marks)

4.   Write short notes on any **SIX**.
4A. Optics of electric retinoscope
4B. Treatment modalities in myopia
4C. Anisometropia
4D. Cycloplegic refraction
4E. Aphakia
4F. MEM retinoscopy
4G. Possible causes of inaccurate retinoscopic findings
4H. Jackson crossed cylinder

(6×6 = 36 marks)

5.   Define astigmatism. Explain briefly on aetiology, optical condition and clinical features in astigmatism.

(16 marks)

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SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2005

SUBJECT: OPTOMETRIC INSTRUMENTS AND CLINICAL EXAMINATION OF VISUAL SYSTEM

Wednesday, June 15, 2005

Time: 3 Hrs.   Max. Marks: 80

1.   Fill in the blanks.

1A.   _____ technique of Slit-lamp is useful in viewing minute objects or filaments in the Anterior chamber.

1B.   Ultrasound is produced in the ecographic probe by the oscillation of _____.

1C.   Octopus automated perimeter is a _____ type of perimeter.

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

1E.   _____ described the trichromatic theory of colour vision.

1F.   The resting retinal potential picked up as the electrical potential across the eye is called _____.

1G.   Photokeratometer measures _____.

1H.   _____ described the procedure of state perimetry.

1I.   Non-contact tonometry was introduced by _____.

1J.   _____ principle is used in lensometer.

                                                                                      (1×10 = 10 marks)

2.   Answer any five questions:

2A.   What are the disadvantages of non-badal principle?

2B.   Name the procedures for measuring the curvature of the cornea?

2C.   List the types of visual field disturbances.

2D.   Short note on projecto-light pointer.

2E.   What are the advantages of direct gonioscopy?

2F.   Comment on how the EOG is interpreted?

                                                                                      (2×5 = 10 marks)

3.   Answer any **FOUR** questions.

3A.   Comment on the displaying of ultrasonogram.

3B.   What are the indications and contra-indications of fundus angiography?

3C.   What is the clinical interpretation of gonioscopy?

3D. Write short note on Amslers charts.

3E. Write short note on Tangent screen.

<div align="right">(5×4 = 20 marks)</div>

4. Answer the following:

4A. Comment on Direct Ophthalmoscope.

4B. What are the clinical applications of VEP?

<div align="right">(10+10 = 20 marks)</div>

5. Answer any **ONE**.

5A. Comment in detail on problem oriented ophthalmoscope routine for ocular fundus examination.

5B. Write about:

   i.   The clinical use of binocular indirect ophthalmoscope.

   ii.   Conditions in which binocular indirect ophthalmoscope should be considered when it is not done on a routine basis.

   iii. Theory of instrumentation of binocular indirect ophthalmoscope.

   iv.   The clinical procedure and implications of binocular indirect ophthalmoscope.

<div align="right">(20 marks)</div>