Reg. No.										

MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2010

SUBJECT: PATHOLOGY AND MICROBIOLOGY

Monday, December 13, 2010

Time: 10:00-13:00 Hrs. Max. Marks: 80

- **ANSWER SECTION 'A' AND SECTION 'B' IN TWO SEPARATE ANSWER BOOKS.**
- **Answer ALL the questions. Draw diagrams wherever appropriate:**

SECTION – A : PATHOLOGY : 40 MARKS

1. Define inflammation. Describe the cellular events in acute inflammation.

(2+6 = 8 marks)

2. Define leukemia. Give the FAB classification of leukemia. Write the clinical features of leukemia.

(1+3+3 = 7 marks)

3. Write short notes on:

3A. Factors affecting wound healing.

3B. Renal edema.

3C. Hemophilia.

3D. Differences between benign and malignant tumours.

3E. Aetiology, mode of infection and clinical features of AIDS.

(5×5 = 25 marks)

SECTION – B : MICROBIOLOGY : 40 MARKS

4. With the help of a diagram explain the structure of a virus. Classify viruses depending on the genome with two examples for each type.

(4+4 = 8 marks)

5. Define and classify sterilization. Explain autoclave in detail.

(1+2+4 = 7 marks)

6. Write short notes on:

6A. Acquired immunity.

6B. Bacterial flagella.

6C. Louis Pasteur.

6D. Mycotic keratitis.

6E. Loa loa life cycle and eye manifestations.

(5×5 = 25 marks)

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MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2010

SUBJECT: PHARMACOLOGY

Wednesday, December 15, 2010

Time: 10:00-11:30 Hrs. Max. Marks: 40

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1. Write briefly on:

1A. Ophthalmic drug absorption after topical application to the eye.
1B. Ocular anesthetics.
1C. Tear substitutes.
1D. Muscarinic antagonists and their uses in the eye.
1E. Ocular uses of dyes.

(3×5 = 15 marks)

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

2A. Herpes simplex keratitis.
2B. Bacterial conjunctivitis.
2C. Diabetes mellitus.
2D. Peptic ulcer.
2E. Angina pectoris.

(1×5 = 5 marks)

3. Enumerate four groups of antihypertensive drugs giving one example for each group.

(4 marks)

4. Mention one indication and one ophthalmic adverse effect of following drugs:

4A. Digoxin
4B. Ethambutol
4C. Chloroquine
4D. Physostigmine
4E. Naphazoline

(1×5 = 5 marks)

5. Mention two drugs belonging to the following groups

5A. Anticoagulants
5B. Antiplatelet agents
5C. Corticosteroids
5D. Anticancer agents
5E. Thyroid hormone synthesis inhibitors

(1×5 = 5 marks)

6. Define following terms with an example for each.

6A. Synergism
6B. Teratogenicity
6C. Prodrug

(2×3 = 6 marks)

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SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2010

SUBJECT: OPTOMETRIC AND DISPENSING OPTICS

Friday, December 17, 2010

Time: 10:00-13:00 Hrs. Max. Marks: 80

1. Answer the Following:

1A. Name all the temporary markings in a Progressive Addition lenses.

1B. What is the refractive index of polycarbonate lenses?

1C. What are the two factors on which the size of the image produced by an Iseikonic lens depends?

1D. True or False. An antireflection coating will make a lightly tinted lens perform better at night than it otherwise would with the tint but with no antireflection coating.

1E. Divide the 2▲ BO on right eye before both the eyes.

1F. What is the best way to reduce ring reflections in a high minus prescription?

1G. What is the refractive index and density of Allyl Diglycol Carbonate?

1H. Draw a neat diagram of the standard notation chart.

1I. List any four monochromatic aberrations.

1J. Transpose the prescription into one of its alternate forms:

- +1.25DS/-5.50DC*65

(1×10 = 10 marks)

2. Answer any TEN:

2A. An equi-concave lens whose focal length is -16.67cm is placed in close contact with a second lens and the focal length of the combination is found to be +20cm. If each lens is made from glass of refractive index 1.60 and the two surfaces which are in contact fit together exactly, find the radius of curvature of the other surface of the second lens.

2B. Write short notes on the following Aberrations:

i) Oblique astigmatism

ii) Distortion

2C. Write briefly on the following lens quality inspection techniques:

i) Transmission

ii) Reflection

iii) Shadowing

2D. Name the four common difficulties while taking Binocular Distance PD and write the solution for any one of them.

2E. Show that the catoptric surface powers of a thin lens in air, whose dioptric surface powers are F and F, are given by:

i) $\overrightarrow{F_{1c}} = -2F_1/(n-1)$

ii) $\overrightarrow{F_{2c}} = 2nF_2/(n-1)$

iii) $\overleftarrow{F_{1c}} = 2nF_1/(n-1)$

iv) $\overleftarrow{F_{2c}} = -2F_2/(n-1)$

2F. Resolve $2^{\blacktriangle}$BU and BI at 160^0 into vertical and horizontal components for the right eye by:

i) Graphical solution

ii) Mathematical Calculation

2G. Write short note on Electromagnetic spectrum.

2H. Explain the manufacturing process of Fused Bifocals.

2I. Write briefly on the following safety lenses:

i) Chemical toughened lens

ii) Polycarbonate lens

2J. Transpose the prescription +2.00DS/+1.00DC*20 into toric form with a +10.00D sphere curve.

2K. Calculate the edge substance of a biconcave lens of power -19.00DS made in spectacle glass of refractive index 1.23. The surface power of which are -10.00D and -9.00D. Lens is 40mm in diameter and has a central thickness of 1.7mm.

2L. With the help of neat diagrams explain the principles of:

i) Lens thickness calipers

ii) Geneva lens measure

Also mention their uses.

(5×10 = 50 marks)

3. Answer Both:

3A. Find the sphero-cylindrical equivalent to the following pair of crossed cylinders:

- -400DC*30/ -700DC*60

3B. Write on the patient selection and dispensing of Progressive Addition Lens.

(10×2 = 20 marks)

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MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2010

SUBJECT: VISUAL OPTICS

Monday, December 20, 2010

Time: 10:00-13:00 Hrs. Max. Marks: 80

1. Fill in the blanks:

1A. _____ is a type of astigmatism which shows an increase with increasing age.
1B. A high AC/A ratio may cause_____.
1C. In Gullstrand's schematic eye, anterior lens surface is at _____ distance from the corneal surface.
1D. _____ is a condition of refraction wherein a point focus of light cannot be formed upon the retina.
1E. Unit of convergence as proposed by Nagel is _____.
1F. Pseudomyopia is a condition seen in _____.

(1×6 = 6 marks)

2. Answer the following questions:

2A. Define spectacle magnification and relative spectacle magnification.
2B. What do you mean about Vergence of light and conjugate points?
2C. What are the characteristics of the movement of reflex during retinoscopy?
2D. What would be the effect of static retinoscopy finding-
  i) Scoping at too close a working distance
  ii) Scoping at too great a working distance
2E. Define convergence? What do you mean about one metre angle of convergence?

(2×5 = 10 marks)

3. Answer the following questions:

3A. A reduced eye with axial myopia is corrected using a -6.00 Dsph thin lens at a vertex distance of 14 mm. Find the ocular refraction.
3B. Differentiate between simple myopic and compound myopic astigmatism with examples.
3C. What is contrast sensitivity? Explain briefly about two charts used to measure contrast sensitivity.
3D. Explain briefly about aetiology and treatment of aniseikonia.

(3×4 = 12 marks)

4. Short notes :(Any SIX)

4A. Friend Test
4B. Vision in Anisometropia
4C. Accommodation in Hypermetropia
4D. Sturm's conoid
4E . Ophthalmoscopic findings seen in pathological myopia
4F. Cycloplegic Drugs
4G. Jackson cross cylinder

(6×6 = 36 marks)

5. Define accommodation? Enumerate the ocular changes during accommodation. What do you mean about amplitude of accommodation? Write in details about the methods by which you can measure the amplitude of accommodation clinically. Comment on their relative advantages and disadvantages.

(1+4+1+8+2 =16 marks)

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MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2010

SUBJECT: OPTOMETRIC INSTRUMENTS AND CLINICAL EXAMINATION OF VISUAL SYSTEM

Wednesday, December 22, 2010

Time: 10:00-13:00 Hrs. Max. Marks: 80

Draw diagrams wherever necessary.

1. Fill in the blanks:

1A. 'Yellow' is considered as a _____ (Hot/Cold) color in topographic assessment.

1B. The far point of a myope whose refractive error is more than -1.5D will be _____ if we perform the retinoscopy at 67 cm.

1C. What is the standard of visual acuity _____.

1D. _____ is the illumination technique used to examine the fundus with the help of 90D lens.

1E. _____ is the preferred room illumination (Dim/Bright/moderate) for applanation tonometry.

1F. _____ is the angling of the mirror used for AC angle evaluation in Goldmann 3-mirror Gonioscope.

1G. 0.6mm difference in axial length during biometry causes _____ D difference in final refraction.

1H. The commonly preferred dioptric power of condensing lens in IDO is _____ D.

1I. An overcorrected myope will appreciate _____ better in Duochrome test.

1J. +2.00DS / -2.00DC x 90 is an example of _____ type of astigmatism.

(1×10 = 10 marks)

2. Answer any FIVE questions:

2A. What are the side effects of FFA?

2B. Explain how ocular rigidity affects Schiotz tonometric results.

2C. Write a note on Pin hole.

2D. Explain the principle of Placido's Disc.

2E. What are the instruments used for central field screening?

2F. What are the possible sources of errors in Keratometry?

(2×5 = 10 marks)

3. Answer any FOUR questions:

3A. What are the parts of a direct ophthalmoscope head? Explain the uses of each.

3B. Write about the clinical procedure of Keratometry. Explain briefly about extended Keratometry.

3C. Define Lensometry. Explain about the optical principle employed in Lensometers.

3D. Explain how will you perform ocular motility test? Note down the extra ocular muscles acting on each cardinal positions.

3E. Explain the components of ERG.

(5×4 = 20 marks)

4. Answer the following:

4A. Write a note on corneal topography.

4B. Explain the clinical procedure and clinical application of Applanation tonometry

(10×2 = 20 marks)

5. Answer any ONE.

5A. Explain retinoscopy under following headings

i) Characteristics of retinoscopic reflex

ii) Clinical procedure and documentation

iii) Sources of errors

iv) Instrumentation

5B. Explain the following in a single field printout from Humphrey Field Analyzer

i) Reliability indicators

ii) Grey scale

iii) Total Deviation plot

iv) Pattern Deviation plot

v) Plain-language analysis.

(20×1 = 20 marks)