Reg. No. ☐☐☐☐☐☐☐☐☐☐☐☐

MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2008

SUBJECT: PATHOLOGY AND MICROBIOLOGY

Wednesday, December 10, 2008

Time: 10.00-13.00 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.   What is granulation tissue? Explain the process of healing by primary and secondary intention. What are the factors affecting wound healing?

(1+4+3 = 8 marks)

2.   Define and classify leukemias. Explain the clinical features of acute leukemia.

(1+2+4 = 7 marks)

3.   Write short notes on:
3A. Chemotaxis
3B. AIDS
3C. Types of embolism with examples
3D. Metastasis of tumors
3E. Renal edema

(5×5 = 25 marks)

SECTION – B : MICROBIOLOGY : 40 MARKS

4.   Define and classify sterilization. Discuss in detail dry heat sterilization.

(3+5 = 8 marks)

5.   Classify immunity. Discuss in detail mechanisms innate immunity.

(2+5 = 7 marks)

6.   Write short notes on:
6A. Anaphylaxis
6B. Fungal infection of eye
6C. Adenovirus
6D. Pseudomonas
6E. Louis Pasteur

(5×5 = 25 marks)

MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2008
SUBJECT: PHARMACOLOGY

Thursday, December 11, 2008

Time: 10.00-11.30 Hrs.   Max. Marks: 40

✍   **Answer ALL questions.**

1.   Explain the following terms with an example:
1A. Teratogenecity
1B. Drug antagonism.
1C. Transdermal therapeutic system.
1D. Prodrug.

                                                                 (1×4 = 4 marks)

2.   Give two examples for each of the following:
2A. Reversible anticholinesterases.
2B. Neuromuscular blockers.
2C. Sympathomimetics.
2D. Nasal decongestants.

                                                                   (1×4 = 4 marks)

3.   List two uses of each of the following drugs:
3A. Diazepam.
3B. Lignocaine.
3C. Morphine.
3D. Carbamazepine.

                                                                   (1×4 = 4 marks)

4.   List four antihypertensives belonging to different groups. Explain the mechanism of action any one of them.

                                                                         (4 marks)

5.   Mention two drugs belonging to the following:
5A. Beta-lactam antibiotics.
5B. Fluoroquinolones.
5C. Immunomodulators.
5D. Antileprotics.

                                                                   (1×4 = 4 marks)

6.   Write briefly on:
6A. Actions and uses of atropine substitutes on eye.
6B. Wetting agents.
6C. Ocular diagnostic agents.
6D. Vitreous substitutes.

                                                                (3×4 = 12 marks)

7.   Mention two drugs useful in the following conditions:
7A. Herpes simplex keratitis.
7B. Fungal keratitis.
7C. Toxoplasmosis.
7D. Organophosphorous poisoning.

                                                                   (2×4 = 8 marks)

MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2008
SUBJECT: OPTOMETRIC OPTICS AND DISPENSING OPTICS

Friday, December 12, 2008

Time: 10.00-13.00 Hrs.   Max. Marks: 80

1.   Answer the Following:

1A.   Transpose the prescription into one of its alternate forms:
   - -0.75DC*20/+0.75DC*110

1B.   "Most optical media used for spectacle lenses are isotropic". What do you infer from this statement?

1C.   When lightning strikes a bed of dry sand, the natural glass formed due to fusing of sand is _____.

1D.   Frames that are suitable for use as safety glasses must have _____ code written on them.

1E.   True or False? Ophthalmic prisms have large apical angles.

1F.   Name any one condition in which the Ghost Images may cause the spectacle wearer trouble.

1G.   What is Shape Difference?

1H.   The central portion of the lens in which the prescription exists is called _____ of a Lenticular lens.

1I.   Which is the narrow waveband of radiations giving rise to sensation of vision?

1J.   Define Segment Top Position

                                                                         (1×10 = 10 marks)

2.   Answer any **TEN**:

2A.   Two thin lenses whose focal lengths are f_1 and f_2 are placed together in close contact. Show that the focal length of the combination is given by f_1f_2/ f_1+f_2

2B.   A lens is said to have a power of +4.25D in the vertical meridian and -2.50D in the horizontal meridian. Write out its prescription in the toric form with -6.00D base curve.

2C.   List and describe any five plastic material used for spectacle frames.

2D.   Write on the following lens defects:
   i)   Tarnish   ii)   Greyness
   iii) Polishing burn   iv)   Strain

2E.   Match the following terms from **Set A** with **Set B**:

Set A		Set B	
1.	Optyl	a.	Zyl
2.	Lorgnettes	b.	Anodized
3.	Aluminum	c.	Hand-Held
4.	Shoe	d.	Collar
5.	Shell	e.	Has Memory

2F. Show that the catoptric surface powers of a thin lens in air, whose dioptric surface powers are F_1 and F_2, 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) $\overleftarrow{F_{2c}} = -2F_2/(n-1)$

2G. Calculate the vertical, horizontal and the single resultant prismatic effects at a point 8mm below and 5mm inwards from the optical center of the lens +4.00DS for the right eye.

2H. Calculate the fields of view obtained by a +5.00D hyperope and a -5.00D myope assuming the diameters of their lenses to be 45mm and the lenses are to be worn 25mm from the centers of rotation of the eyes. Compare these fields with the apparent field of view.

2I. Write short notes on Photochromatic glasses and plastics.

2J. Write any five differences between Soft and Hard Progressive Addition Lens design.

2K. Rotary prism device consists of 2prisms of $20^{\blacktriangle}$. If each prism in this arrangement is rotated through 40^0 from 0^0 position.

i)   Calculate the resultant effect.

ii) Through what angle must each prism be rotated to produce a resultant of $20^{\blacktriangle}$

2L. Draw a neat labeled diagram of Progressive Addition Lenses with its micro etchings and mention their importance. How do we find the power for distance in a Progressive Addition Lenses?

$(5\times10 = 50$ marks)

3.   Answer the following:

3A. Write short notes on the following type of Safety lenses:

i)   Heat Toughened lenses

ii) Chemically Toughened lenses

3B. i)   Derive the approximate sag relationship.
         $s = y^2F / 2000 (n-1)$

ii) With the help of neat diagrams write the formula to find the central thickness of Biconvex, Plano-concave and negative meniscus lens.

$(10\times2 = 20$ marks)

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SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2008

SUBJECT: VISUAL OPTICS

Saturday, December 13, 2008

Time: 10.00-13.00 Hrs.   Max. Marks: 80

1. Fill in the blanks:

1A. In myopia, there may be an apparent _____ squint due to negative angle alpha.

1B. The ideal treatment for anisometropia is _____.

1C. _____ is a condition of refraction wherein a point focus of light cannot be formed upon the retina.

1D. The Retinoscopy done with the patient's eyes fixed at a near distance is known as _____.

1E. The phenomenon used in duochrome test is _____.

1F. The linear distance traversed by the point of conjugacy in moving from far point to near point of accommodation is known as _____.

(1×6 = 6 marks)

2. Answer the following questions:

2A. Define visual acuity. Mention names of 4 charts used to measure distance visual acuity in normal adults in optometry practice.

2B. Define anisometropia. Write the classification of anisometropia?

2C. What are the symptoms seen in presbyopic patients?

2D. A 4.00 D hypermetrope has amplitude of accommodation of 8.00D. When uncorrected, where is the near point located?

2E. What should be your instructions to the patient, as you decrease plus lens power or increase minus lens power in arriving at the subjective end point?

(2×5 = 10 marks)

3. Answer the following questions:

3A. Explain briefly about radical Retinoscopy.

3B. Describe a check test for cylindrical axis other than the Jackson-crossed cylinder test.

3C. Define presbyopia. Write a note on variation of accommodation with age.

3D. Write a note on the following:
  i)   Stenopaeic slit   ii)   Maddox rod

(3×4 = 12 marks)

4. Answer any SIX of the following:

4A. Write short note on Donder's Reduced eye concept.

4B. Explain about the optics of Retinoscopy in hypermetropia.

4C. Write briefly about uniocular aphakia and its treatment.

4D. What is the principle employed in subjective refraction? Explain briefly about the procedures involved in it.

4E. Write short note on anomalies of accommodation.

4F. Explain briefly about ophthalmoscopic findings seen in pathological myopia.

4G. Write a note on cycloplegic refraction.

4H. Write about the etiology of refractive anomalies.

$(6 \times 6 = 36 \text{ marks})$

5. A 20 year old male having refraction in OD: -2.00DSph/-1.00DCyl×170,

5A. Draw strum's conoid for this eye condition and state what type of atigmatism is present?

5B. What are the treatment modalities available to correct his refractive error.

5C. Write about the causes of astigmatism.

5D. What are the clinical features of astigmatism?

$(4+4+4+4 = 16 \text{ marks})$

MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2008

SUBJECT: OPTOMETRIC INSTRUMENTS AND CLINICAL EXAMINATION OF VISUAL SYSTEM

Monday, December 15, 2008

Time: 10.00-13.00 Hrs.   Max. Marks: 80

✍ **Draw diagrams wherever necessary.**

1.   **Fill in the blanks.**

1A.   _____ technique is used to assess the posterior corneal surface in ORBSCAN.

1B.   To get the plane mirror effect in streak retinoscope, the light source is placed _____ (within / outside) the focal length of condensing lens.

1C. $20/5 = 6/?$ _____

1D.   _____ is the name of the illumination technique in which both Observation and Illumination system are focused at the same point

1E.   If the corneal toricity is more than 3D, the red line on the applanation probe holder should be aligned to the _____ (flattest/Steepest) meridian

1F.   _____ is the 4 mirror goniolens which does not have a holding rod

1G.   Reichert Keratometer has got _____ position design.

1H.   _____ in Lensometer is used to measure prescribed prism in spectacles

1I.   Most currently used automated Lensometers are accomplished by automating the _____ principle in their optical system

1J.   Hartridge proposed _____ theory of color vision.

$(1×10 = 10$ marks$)$

2.   **Answer any FIVE questions.**

2A.   Describe Snellen fraction.

2B.   Note down 4 advantages of Tonopen.

2C.   What are the limitations of Direct Ophthalmoscope?

2D.   Comment on the A-Scan display.

2E.   If the Keratometer finding for a patient's right eye is 44.00D at 180 and 42.50D at 90, what are the radii of curvature in each of the two principal meridians, using the index of refraction 1.3375?

2F.   Mention the types of Gonioscopes. Record the major differences between the two.

$(2×5 = 10$ marks$)$

3.   **Answer any FOUR questions.**

3A.   A patient's neutralizing powers in retinoscopy are as follows. Vertical meridian (-4 D), Horizontal meridian (-5 D), WD = 67 cm. Record the Gross retinoscopy, Net retinoscopy and Final refraction.

3B.   Explain the Optical principle of Direct Ophthalmoscope with a neat diagram.

3C. How can you clinically distinguish between acquired and hereditary color vision defects?

3D. Write on the features of Traquair's "Hill of Vision".

3E. Define Gonioscopy and record the SHAFFER grading system. Explain the expected gonioscopic findings if the patient had following ocular histories; a) CRVO, b) Blunt ocular trauma c) Angle closure glaucoma.

$(5\times4 = 20 \text{ marks})$

4. Answer the following.

4A. Explain how ORBSCAN corneal topographer represents corneal surface. Note down how ORBSCAN map helps to take a decision on refractive surgery.

4B. Write a note on ERG.

$(10\times2 = 20 \text{ marks})$

5. Answer any ONE.

5A. Explain Schiotz Tonometry under following headings

   i)   Working principle

   ii) Parts

   iii) Clinical Procedure

   iv) Documentation and clinical interpretation

   v) Sources of errors

   vi) Calibration and disinfection

5B. Write an essay on Retinoscope.

(20 marks)