MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2009
SUBJECT: PATHOLOGY AND MICROBIOLOGY
Thursday, December 10, 2009

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. Define necrosis. Describe the different types of necrosis giving suitable examples.

                                                                                    (2+6 = 8 marks)

2. Define leukemia. Give the FAB classification of acute myeloid and acute lymphoblastic leukemia. Describe the clinical features.

                                                                                    (1+4+2 = 7 marks)

3. **Write short notes on:**

3A. Granulomatous inflammation with examples.

3B. Aetiology, modes of infection and clinical features of AIDS.

3C. Thalassemia.

3D. Spread and prognosis of tumors.

3E. Fate of a thrombus.

                                                                                    (5×5 = 25 marks)

SECTION – B : MICROBIOLOGY : 40 MARKS

4. Discuss the general features, life cycle, ocular manifestations and laboratory diagnosis of Chlamydia trachomatis.

                                                                                    (1+3+2+2 = 8 marks)

5. Classify and define immunity. Discuss the different mechanisms of innate immunity.

                                                                                    (1+2+4 = 7 marks)

6. **Short notes:**

6A. Bacterial growth curve.

6B. Acanthamoeba.

6C. Adenovirus.

6D. Fusarium.

6E. Morphology and transmission of HIV.

                                                                                    (5×5 = 25 marks)

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1. Mention any two routes of drug administration. Explain the two advantages of any one of the routes.

(2 marks)

2. Mention two drugs belonging to different groups useful in CCF. Mention one specific adverse effect of each one of them.

(2 marks)

3. Mention two uses and two adverse effects of diclofenac.

(2 marks)

4. Mention two uses and adverse effects of glucocorticoids.

(2 marks)

5. Name one antiplatelet agent and explain its mechanism of action.

(2 marks)

6. Write briefly of the following:

6A. Cotrimoxazole
6B. Insulin preparation
6C. Drug antagonism
6D. Thyroid hormone synthesis inhibitors
6E. Drugs used in glaucoma
6F. Chloroquine
6G. Teratogenecity

($2\times7 = 14$ marks)

7. Answer the following:

7A. Mention two drugs useful in viral conjunctivitis with their routes of administration.
7B. Mention two drugs useful in treatment of vomiting, tuberculosis and peptic ulcer.

($2+3 = 5$ marks)

8A. Write a note on:

    i)   Tear substitutes.
    ii) Anesthetics used in ocular surgery.
    iii) Requirements of ideal ocular preparations.
8B. Mention two drugs used for bacterial conjunctivitis and ocular candidiasis.

($(3\times3)+2 = 11$ marks)

MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2009

SUBJECT: OPTOMETRIC AND DISPENSING OPTICS

(COMMON FOR BOTH OLD AND NEW REGULATIONS)

Saturday, December 12, 2009

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

1. **Answer the Following:**

1A. Transpose the prescription into one of its alternate forms:
   - +10.25DS/-5.50DC*15

1B. What is a curvature and what is its unit?

1C. What is the refractive index and density of polymethyl methacrylate?

1D. When taking Interpupillary distance measurements, the person doing the measuring covers or closes one of his or her eyes at a time. He or she never covers one of the subject's eyes. (True/False).

1E. Divide the $6^\triangle$ BI on left eye before both the eyes.

1F. The quality of the Antireflection coating is not indicated by the evenness of the reflex color of the coating. True/False

1G. Write two advantages of Aspherical lenses.

1H. Write the formula to find the reflectance of a lens material.

1I. What are Split Trifocal Lenses?

1J. A lens shape is known to have a Shape Wastage Factor of 10mm. What is the minimum size uncut which can be used to obtain this lens if its datum length is 32mm?

$(1\times10 = 10$ marks)

2. **Answer any TEN:**

2A. What is a toroidal surface? Name the different types of toroidal surface and draw a neat figure for each.

2B. Write short notes on the following:
   i)   Coma   ii)   Oblique astigmatism

2C. Write a short note on the selection of spectacles for Elderly.

2D. A lens system made up of 2 thin co-axial lenses whose powers are +15.00DS and -15.00DS are separated by 5cm. Find the front and back vertex power of the system.

2E. Find the reflection factor for Crown glass of refractive index 1.523 and Polycarbonate lens material of refractive index 1.586 and compare.

2F. Compound the $1^\triangle$BD and $5^\triangle$BO into a single resultant prismatic effect for the right eye by:
   i)   Graphical solution
   ii) Mathematical Calculation

2G. Calculate the fields of view obtained by a +6.00D hyperope and a -6.00D 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.

2H. Write briefly on:
i) Ocular effects of UV radiation
ii) Ocular effects of IR radiation
Also give suggestion on how to protect the eyes from such harmful radiations.

2I. With the help of a neat figure derive the expression to find the near optic center of a bifocal lens.

2J. Write short note on Aspherical Lenses.

2K. Mention the Optical and Mechanical requirements of Bifocal lenses.

2L Define Pantoscopic and Retroscopic tilts. A +9.00DS is tilted pantoscopically by 10^0 then what will be the resultant lens power?

$(5 \times 10 = 50$ marks$)$

3. **Answer Both:**

3A. Find the sphero-cylindrical equivalent to the following pair of crossed cylinders:
- -3.00DC*10 / +2.00DC*60

3B. Write on the various designs of Progressive Addition Lens.

$(10 \times 2 = 20$ marks$)$

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MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2009
SUBJECT: RESEARCH METHODOLOGY AND STATISTICS

Monday, December 14, 2009

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

1A. State the functions and limitations of statistics.
1B. Explain discrete and continuous variables with example.

(5+5 = 10 marks)

2A. Differentiate nominal and ordinal scales of measurement with example.
2B. Explain stratified random sampling with example. State its advantages over simple random sampling.

(5+5 = 10 marks)

3.   Following are the height distribution of 30 students of a class.

Height in inches of 30 students of a class				
60	71	67	68	69
72	61	60	65	70
66	65	64	69	68
60	63	70	67	69
62	63	67	68	67
70	73	65	69	74

i)   Prepare a frequency table with class intervals 60-63, 63-66, 66-69, ……..
ii) Represent the data by a histogram.

(5+5 = 10 marks)

4A. Calculate median and standard deviation for the following data:
Sys. B.P (mmHg): 121, 128, 125, 119, 122, 125, 118, 126,
4B. Define and explain the use of Coefficient of Variation.

(6+5 = 11 marks)

5A. Explain the interpretation of correlation coefficient.
5B. Given the mean and standard deviation of weight of new born babies are 3 Kg and 0.5 Kg respectively. Assuming Normality estimate the percentage of newborns with weight
i)   more than 2.5 Kgs   ii)   between 2.5 and 3.5 Kgs

(4+5 = 9 marks)

6A. Discuss Sample registration system as a source of health information system.
6B. Explain the terms rate and ratio with example.

(5+5 = 10 marks)

7A. Differentiate Reliability and Validity with example.
7B. Define Crude death rate. What are its uses and limitations?

(5+5 = 10 marks)

8A. Enumerate the uses of descriptive epidemiology.
8B. Write short note on Cross-sectional studies.

(5+5 = 10 marks)

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MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2009

SUBJECT: VISUAL OPTICS

Tuesday, December 15, 2009

Time: 10:00-13:00 Hrs.   Max. Marks: 80
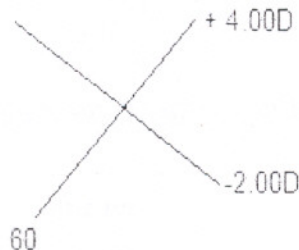
1.   Answer the following:

1A.   Type 1 contrast sensitivity loss is seen in _____ eye condition.

1B.   Donders reduced eye is an ideal spherical surface having radius of curvature _____ mm.

1C.   If the punctum remotum is at 5cm from the eye, _____ will be the correction required to correct the amount of ammetropia.

1D.   The red marking on a JCC lens indicate the meridian of _____ power.

1E.   The clinical rule of thumb for aniseikonia management is that for every 1.00D of anisometropia, there is _____% aniseikonia.

1F.   Unit of convergence as proposed by Nagel is _____.

$(1 \times 6 = 6$ marks)

2.   Answer the following questions:

2A.   What are the indications for cycloplegic refraction?

2B.   Spectacle refraction is of greater interest to the clinician than ocular refraction.
       True/False. Justify your answer.

2C.   A person having far point located at 50cm behind the spectacle plane and near point located at infinity, what is the range and amplitude of accommodation available?

2D.   Write briefly about astigmatic fan.

2E.   What will be the final prescription of the following record of Retinoscopy for a working distance of 67cm? What type of refractive anomaly is present?

+ 4.00D

-2.00D

60

$(2 \times 5 = 10$ marks)

3.   Answer the following:

3A.   Write a note on pediatric visual acuity charts.

3B.   Classify regular astigmatism and explain each type with an example.

3C.   What are the factors to be considered in IOL power calculation?

3D.   What is accommodation? What are the phenomenon associated with Accommodation?

$(3 \times 4 = 12$ marks)

4. Answer any of the following **SIX** questions:

4A. Write about the clinical features and treatment modalities of hypermetropia.

4B. Explain briefly how is vision in anisometropia affected?

4C. What is dynamic Retinoscopy? What are the types of dynamic Retinoscopy practiced in optometry?

4D. Explain in detail about the optical condition in astigmatism.

4E. Write briefly about symptoms in presbyopia and treatment options available to correct this eye condition.

4F. What are the problems faced by an aphake corrected with spectacle for the first time? Give reasons.

4G. Write about charts available to measure contrast sensitivity.

4H. Explain in detail about anomalies of accommodation.

(6×6 = 36 marks)

5. A 22 year old boy coming to the clinic complaining of diminution of vision for distance, what will be the possible causes for diminution of vision for distance? Explain in detail about the following

- Etiological factors for the condition
- Possible complications
- Treatment modalities.

(16 marks)

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MANIPAL UNIVERSITY

SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – DECEMBER 2009

SUBJECT: OPTOMETRIC INSTRUMENTS AND CLINICAL EXAMINATION OF VISUAL SYSTEM

(COMMON FOR BOTH OLD AND NEW REGULATIONS)

Wednesday, December 16, 2009

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

✍ Draw diagrams wherever necessary.

1. **Fill in the blanks:**

1A. _____ introduced the first color coded map to represent the corneal power in topography

1B. _____ will be the Snellen VA of a patient who is able to resolve a 40ft letter at a distance of 15 ft.

1C. The micrometer reading of an applanation tonometer is graduated for _____ mm of Hg.

1D. Visibility of Scleral Spur indicates _____ grade in SHAFFER Grading system of Anterior chamber angle.

1E. _____ is the principle of IOL master.

1F. While performing Distant Direct Ophthalmoscopy, a 'with' motion of an opacity indicates _____.

1G. _____ is the principle of ultrasound.

1H. _____ introduced the contact lens with mirror method of fundus Biomicroscopy.

1I. The magnification produced by Direct Ophthalmoscope in a Myope will be _____ (More / Less) than that in a Hyperope.

1J. Trichromatic theory was proposed by _____.

(1×10 = 10 marks)

2. **Answer any FIVE questions:**

2A. Explain QUAD map of ORBSCAN.

2B. Write a note on Trial frame.

2C. What are the factors that control the image size of an Indirect Ophthalmoscope?

2D. How is the VER recorded?

2E. What is the clinical use of Duochrome test?

2F. Explain briefly about radical Retinoscopy.

(2×5 = 10 marks)

3. **Answer any FOUR questions:**

3A. Explain the diagnostic uses of B-Scan.

3B. Discuss the limitation of GAT in post corneal refractive surgery measurements. Explain about the 'instrument of choice' to measure IOP after corneal refractive surgeries.

3C. Explain the Indications and contraindications of Gonioscopy.

3D. Write briefly on the optics, doubling principle and target mires of Bausch & Lomb Keratometer.

3E. During the history, what complaint or complaints would you expect to hear from a patient having

i) Myopia   ii) Hypermetropia   iii) Astigmatism?

(5×4 = 20 marks)

4. Answer the following:

4A. Write down common color vision defects. Record the clinical importance of assessing color vision.

4B. Write a note on the displays of A-Scan and B-Scan. What are the indications of both procedures?

(10×2 = 20 marks)

5. Answer any ONE:

5A. Write in detail about Fundus Biomicroscopic Procedures.

5B. Write an essay on visual acuity and various methods of its measurement.

(20 marks)

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