MANIPAL UNIVERSITY

SECOND YEAR BACHELOR OF CLINICAL OPTOMETRY DEGREE EXAMINATION – JUNE 2013

SUBJECT: PATHOLOGY AND MICROBIOLOGY
(NEW REGULATION)

Monday, June 10, 2013

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 leukemia. Classify acute leukemias. Add a note on the clinical features of acute leukemia.

    (1+4+3 = 8 marks)

2. Define neoplasia. Write the differences between benign and malignant tumours.

    (2+5 = 7 marks)

3. **Write short notes on:**

3A. Secondary tuberculosis
3B. Definition and examples of atrophy and hypertrophy
3C. Aetiology and clinical features of vitamin B12 deficiency anaemia
3D. Healing by second intention
3E. Fate of thrombus

    (5×5 = 25 marks)

SECTION – B : MICROBIOLOGY : 40 MARKS

4. Classify bacteria based on morphology with examples for each.

    (4+4 = 8 marks)

5. Classify immunity. Discuss the factors associated with innate immunity.

    (2+5 = 7 marks)

6. **Write short notes on:**

6A. Enriched media
6B. Morphological classification of fungi
6C. Autoclave
6D. Sources of hospital acquired infections
6E. Laboratory diagnosis of eye infections caused by Staphylococcus species

    (5×5 = 25 marks)

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SECOND YEAR BACHELOR OF CLINICAL OPTOMETRY DEGREE EXAMINATION – JUNE 2013

SUBJECT: OPTOMETRIC AND DISPENSING OPTICS
(NEW REGULATION)

Wednesday, June 12, 2013

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

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1.   **Answer the following:**

1A.   Calculate the spectacle tool power required to produce a +13.00DS surface on crown glass.

1B.   Transpose the prescription into one of its alternate forms: $\pm$ / - 7.75DC*75

1C.   Convert $19^0 12'$ into prism diopters.

1D.   Define Catoptric power of a lens.

1E.   Define Shape Wastage Factor for ophthalmic lenses.

1F.   Name any two uses of Fresnel prisms.

1G.   What are Split Trifocal Lenses?

1H.   Name any two ocular effects of Visible spectrum.

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

1J.   Name any two materials coated on a lens surface in order to act as reflecting filters.

$(1\times10 = 10$ marks)

2.   **Answer any TEN:**

2A.   Find the focal length in centimeters of the following lenses which are made in spectacle crown glass of refractive index 1.523. Also sketch the form of each lens.

   i) r_1= -170.30mm r_1= +170.30mm

   ii) r_1= +135.75mm r_1= +30.87mm

2B.   Write short notes on Chromatic Aberration.

2C.   With the help of a neat figure prove that the optic center must be dropped 1mm for every 2 degrees of Pantoscopic tilt, if the optic axis is to continue to pass through the center of rotation.

2D.   Write in detail about manufacture of glass by Individual Batch Method.

2E.   Classify spectacle frames based on temple position and coloration.

2F.   What is surfacing of glass lenses? Write on the stages in surfacing.

2G.   Compound $8^\triangle$BU and $9^\triangle$BO into a single resultant prismatic effect for the right eye by:

   i)   Graphical solution

   ii)   Mathematical Calculation

2H.   Define the terms with respect to prisms:

   i)   Thickness difference

   ii)   Differential Prismatic Effect

iii) Prism Diopters

iv) Decentration

v) Pull of a Prism

2I. Calculate the fields of view obtained by a +9.00D hyperope and a -9.00D myope assuming the diameters of their lenses to be 43mm and the lenses are to be worn 22mm from the centers of rotation of the eyes. Compare these fields with the apparent field of view.

2J. Calculate the vertical, horizontal and the single resultant prismatic effects at a point 10mm below and 5.5mm inwards from the optical center of the lens -4.00DS for the right eye.

2K. What are plot diagrams? Write on:

i) The Grid plot

ii) Three Dimensional Topographical Plot

iii) The Eye-Path profile progression

2L. Write short note separately on the selection of spectacles for High Myopes and Elderly population.

$(5 \times 10 = 50 \text{ marks})$

3. **Answer both:**

3A. Write in detail on the defects in the material of the lens and describe the techniques to identify defect in lens.

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

$(10 \times 2 = 20 \text{ marks})$

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SECOND YEAR/FOURTH SEMESTER BACHELOR OF CLINICAL OPTOMETRY DEGREE EXAMINATION – JUNE 2013

SUBJECT: PHARMACOLOGY (BOP 210)
(COMMON FOR NEW REGULATION/GRADING SYSTEM)

Friday, June 14, 2013

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

✍ **Answer the following questions:**

1.   Mention one advantage and one disadvantage of intravenous route of drug administration. List two drugs that can be given by this route.

                                                                                    (2 marks)

2.   List two drugs belonging to different groups useful in angina and list two adverse effects of any one of them.

                                                                                    (2 marks)

3.   **Explain the pharmacological basis for the following:**
3A. Levodopa is combined with carbidopa in the treatment of parkinsonism
3B. Omeprazole is useful in peptic ulcer

                                                                        ($2 \times 2 = 4$ marks)

4.   **Mention two examples and two therapeutic uses of the following group of drugs:**
4A. Aminoglycosides
4B. Benzodiazepines
4C. Macrolides
4D. Wetting agents
4E. Opioids

                                                                        ($2 \times 5 = 10$ marks)

5.   Mention three drugs belonging to different groups used in open angle glaucoma and explain the mechanism of action of any one of them.

                                                                                    (3 marks)

6.   **List two drugs used in the following conditions:**
6A. Malaria
6B. Diarrhoea
6C. Ocular myasthenia
6D. Diabetes mellitus
6E. Tuberculosis

                                                                        ($1 \times 5 = 5$ marks)

7. **Define the following terms:**

7A. Efficacy of a drug

7B. First order kinetics

7C. Therapeutic index

(1×3 = 3 marks)

8. Mention three immunomodulators belonging to different groups used in ophthalmic practice with one therapeutic use for each of them.

(3 marks)

9. Explain the pharmacological actions of atropine on eye.

(2 marks)

10. **Write short notes on the following:**

10A. Role of vitamin A in ophthalmic practice

10B. Warfarin

(3×2 = 6 marks)

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SECOND YEAR BACHELOR OF CLINICAL OPTOMETRY DEGREE EXAMINATION – JUNE 2013

SUBJECT: RESEARCH METHODOLOGY AND STATISTICS

(NEW REGULATION)

Monday, June 17, 2013

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

1. What is the role of Statistics in Clinical Medicine?

(5 marks)

2. Form a frequency table along with relative frequencies for the ages of 48 patients given below:

(Class intervals: 0 – 15, 15 – 30, 30 – 45, so on)

30	39	53	47	64	31	10	36	29	40	22	40
76	33	46	17	38	50	30	34	25	36	39	36
15	65	39	43	62	30	07	47	32	36	42	42
47	27	32	39	24	57	37	43	43	54	40	39

(5 marks)

3. List the four different scales of measurement and give an example each.

(4 marks)

4A. Standard normal curve is _____ kurtic.

4B. _____ percent of the observations lie above the 60th percentile.

(2 marks)

5. Construct a simple bar diagram for the distribution of mites on leaves.

Number of mites per leaf	No. of leaves
0	23
1	22
2	13
3	7
4	6
5	2
6	2

(4 marks)

6. Erythrocyte Sedimentation Rate (ESR) readings (in mm) of 12 tuberculosis patients are given below. Calculate median and inter quartile range.

11   9   8   14   10   8   7   12   8   9   11   12

(10 marks)

7. Obtain coefficient of variation for the data regarding number of post operative days until diagnosis of infection for each subject experiencing an infection.

17   13   15   8   16   14   21   19   12

(8 marks)

8.   **Define the following:**
8A. Crude birth rate
8B. Infant mortality rate
8C. General fertility rate

(2×3 = 6 marks)

9.   Given the heights of females is approximately normally distributed with a mean of 62 inches and a standard deviation of 2 inches. Obtain the proportion of females having height
9A. Taller than 58 inches
9B. Between 56 and 64 inches

(3×2 = 6 marks)

10. **Write short notes on:**
10A. Correlation
10B. Cluster sampling
10C. Prevalence and Incidence
10D. Requirements of health information system
10E. Sample registration system
10F. Cross sectional studies

(5×6 = 30 marks)

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SECOND YEAR BACHELOR OF CLINICAL OPTOMETRY
DEGREE EXAMINATION – JUNE 2013

SUBJECT: OPTOMETRIC INSTRUMENTS AND CLINICAL EXAMINATION OF VISUAL SYSTEM
(NEW REGULATION)

Wednesday June 19, 2013

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

1.   **Match the following:**

1A.	Retinoscopy	A	Zeiss ophthalmometer
1B.	Keratometer	B	Risley prism(smooth vergence)
1C.	Trichromatic theory	C	Corneal Endothelium
1D.	Opponent theory	D	Hermann Von helmholtz
1E.	Phoropter	E	Accomodation
1F.	Telecentric priniciple	F	Jack Copeland
1G.	Corneal topography	G	3 channels with axon pathways
1H.	Specular microscopy	H	Adaptive Colour scale map
1I.	Pentacam	I	Step vergence
1J.	Dynamic Retinoscopy	J	Ophthalmometers
		K	Posterior corneal curvature

                                                              $(1 \times 10 = 10$ marks$)$

2.   **Answer any FIVE short answers:**

2A.   Describe the common test/procedure used for assessing cataract.

2B.   Expand these Abbreviation NRA and PRA.

2C.   What are the various methods used to determine Contrast sensitivity?

2D.   What is the principle of gonioscopy?

2E.   Can decibel values be compared between Humphrey and Octopus perimeters? Justify your answer.

2F.   Name the accessories that are commonly used in slitlamp biomicroscope.

                                                              $(2 \times 5 = 10$ marks$)$

3.   **Answer any FOUR of the following in brief:**

3A.   What is the standard illumination (in lux) recommended for visual acuity testing and how would you monitor in screening set up?

3B.   What is the use of Anaglyphs (red green goggles) in clinical examination? What are the merits and demerits and are there any better alternatives to this?

3C.   List the various methods available for tear assessment and state one advantage each.

3D. What are the newer retinal imaging tools available for early diagnosis of glaucoma?

3E. Explain briefly about Pelli-Robson contrast sensitivity chart.

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

4. **Answer the following:**

4A. What is the principle of ultrasonography? Describe the display of A and B-Scan. List the clinical use of Ultrasound Biomicroscopy technique.

4B. Explain the principle of Applanation tonometry and list the factors/condition that may affect the intraocular pressure measurement with it.

<div align="right">(10×2 = 20 marks)</div>

5. **Answer any ONE the following in detail:**

5A. **Explain in detail:**
   i)   The series of test performed to evaluate the binocular vision status of a patient
   ii) Mention the significance of each of these tests.
   iii) Explain what visual / sensory measurement evaluated using these tests.

5B. **Explain streak retinoscope under following headings:**
   i)   Plane mirror & Concave optics with neat diagrams
   ii) Parts of the retinoscope with diagram
   iii) Advantage over spot retinoscope
   iv) Explain what visual / sensory measurement evaluated using these tests.

<div align="right">(20×1= 20 marks)</div>

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SECOND YEAR BACHELOR OF CLINICAL OPTOMETRY
DEGREE EXAMINATION – JUNE 2013

SUBJECT: VISUAL OPTICS
(NEW REGULATION)

Friday, June 21, 2013

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

1. **Fill in the blanks:**

1A. Type-3 contrast sensitivity loss can be seen in patient having _____ .

1B. A rise in the blood sugar level for diabetic may cause _____ shift in refractive error.

1C. Pseudopapillitis is a condition seen in patient having _____.

1D. _____ is an example of compound myopic astigmatism.

1E. _____ is the instrument used for measuring the surface of cornea.

1F. Mohindra's retinoscopy is usually done at a distance of _____ .

                                                            (1×6 = 6 marks)

2. **Answer the following questions:**

2A. How would you verify the neutralization point during retinoscopy?

2B. What are the causes for anisometropia?

2C. Differentiate between the terms- Anisometropia and Aniseikonia

2D. What is Pseudomyopia? In which clinical conditions it is seen?

2E. Calculate the spherical equivalent of : -3.00DS/-1.00DCX180°

                                                            (2×5 = 10 marks)

3. **Answer the following questions:**

3A. Define angle Alpha, angle Gamma and angle kappa with diagram.

3B. Classify regular astigmatism.

3C. Suppose you have a lens of power +3.25 D in the 60° and a power of -3.00 D in orthogonal meridian, draw the optical cross and write the power in minus cylinder form.

3D. What is contrast sensitivity? Explain briefly about pelli robson contrast sensitivity chart.

                                                            (3×4 = 12 marks)

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

4A. Cycloplegics

4B. Spasm of accommodation

4C. Optical condition in myopia with diagram

4D. Bailey lovie log MAR chart

4E.   Pseudophakia

4F.   Clinical features and treatment modalities of Presbyopia

4G.   Jackson cross cylinder

(6×6 = 36 marks)

5.   **Explain Hypermetropia under the following:**

5A.   Etiology

5B.   Components of Hypermetropia

5C.   Clinical features

5D.   Treatment

(3+4+3+6 = 16 marks)

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