

MANIPAL UNIVERSITY
SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2010
SUBJECT: PATHOLOGY AND MICROBIOLOGY

(NEW REGULATION)

Monday, June 07, 2010

Time: 14:00-17:00 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. Describe the process of wound healing by primary intention. Add a note on factors influencing wound healing.
(4+4 = 8 marks)

2. Define neoplasia. Write the differences between benign and malignant tumors.
(2+5 = 7 marks)

3. **Write short notes on:**
 - 3A. Hyperplasia and metaplasia.
 - 3B. Aetiology and clinical features of nutritional anemias.
 - 3C. Primary tuberculosis.
 - 3D. FAB classification and clinical features of acute leukemias.
 - 3E. Haemophilia.(5×5 = 25 marks)

SECTION – B : MICROBIOLOGY : 40 MARKS

4. Define and classify hypersensitivity. Discuss in detail anaphylaxis.
(8 marks)

5. Discuss the laboratory diagnosis of ocular infections.
(7 marks)

6. **Write short notes on:**
 - 6A. Fungal keratitis.
 - 6B. Adenoviral infections of the eye.
 - 6C. Laboratory diagnosis of HIV infection.
 - 6D. Ophthalmia neonatorum.
 - 6E. Trachoma.(5×5 = 25 marks)



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MANIPAL UNIVERSITY

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

**SUBJECT: PHARMACOLOGY
(NEW REGULATION)**

Wednesday, June 09, 2010

Time: 14:00-15:30 Hrs.

Max. Marks: 40

1. Enumerate two methods to prolong the action of drug with an example for each. (2 marks)
2. Mention four NSAID's. Explain their mechanism of analgesic action. List two specific adverse effects of any one of them. (4 marks)
3. Define drug synergism and drug antagonism with an example for each. (4 marks)
4. Give two examples for the following class of drugs:
 - 4A. Macrolides
 - 4B. ACE inhibitors
 - 4C. Anticancer drugs
 - 4D. Antiallergic drugs
 - 4E. Immunomodulators(1×5 = 5 marks)
5. Write briefly on:
 - 5A. Tear substitutes
 - 5B. Enzymes in ophthalmic practice
 - 5C. Mydriatics
 - 5D. Heparin
 - 5E. Metoclopramide(3×5 = 15 marks)
6. Mention two drugs used for the following conditions:
 - 6A. Angina pectoris
 - 6B. Bacterial conjunctivitis
 - 6C. Toxoplasmosis
 - 6D. Ocular candidiasis(1×4 = 4 marks)
7. Explain the rationale for the following:
 - 7A. Timolol in glaucoma
 - 7B. Ethanol in methanol poisoning
 - 7C. Levodopa in parkinsonism
 - 7D. Neostigmine in ocular myasthenia(1½×4 = 6 marks)



MANIPAL UNIVERSITY**SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2010****SUBJECT: OPTOMETRIC AND DISPENSING OPTICS
(COMMON FOR BOTH OLD AND NEW REGULATION)**

Friday, June 11, 2010

Time: 14:00-17:00 Hrs.

Max. Marks: 80

1. Answer the Following:

- 1A. Mention one use each of lens calipers and lens measure.
- 1B. Name any two factors based on which we decide the Lens quality.
- 1C. With high plus lenses, should more or less eye makeup than average be used for an equal cosmetic effect.
- 1D. A rotary prism consists of two 10^Δ . If each prism in the arrangement is rotated through 30° from the zero position, calculate the resultant effect.
- 1E. True or False? The process of adding an antireflection coating to a tinted plastic lens often changes the color of the tint.
- 1F. Compared with a spheric design, which lens design may result in a thinner lens?
- A lenticular design
 - An aspheric design
 - Neither a lenticular design nor an aspheric design
 - Both lenticular design and aspheric design
- 1G. Name any four uses of Sunglasses.
- 1H. True or False? The progressive corridor for Progressive Addition Lenses is longer for Soft design than for Hard Design.
- 1I. A lens measure calibrated for spectacle glass reads +4.00D when placed on a surface of refractive index 1.523. Find the true power of the surface.
- 1J. Transpose the prescription into one of its alternate forms:
- +0.25DS/-0.50DC*15

(1×10 = 10 marks)

2. Answer any TEN:

- 2A. A -6.00D spectacle lens is to be produced. After finishing the first with a +4.00D spectacle tool the workman discovers that, in error, he has used glass of refractive index 1.62 instead of the 1.523 intended. With what spectacle tool must the second surface be worked so that the lens will finally have the correct power -6.00D?
- 2B. Write short notes on the following Aberrations:
- Oblique astigmatism
 - Curvature of image
- 2C. Write briefly on the power, axis, centration aspect of lens quality.

- 2D. What are the common causes of errors while distance PD using a PD ruler?
- 2E. Define Ghost images. Describe each type of Ghost image with the aid of a neat figure.
- 2F. Explain the effectivity of a prism with the help of a neat figure.
- 2G. Write briefly on:
- Ocular effects of UV radiation
 - Ocular effects of Visible spectrum

Also give suggestion on how to protect the eyes from such harmful radiations.

2H. Describe the manufacturing process of Shaped Fused Bifocal.

2I. Write briefly on the following safety lenses:

- Chemical toughened lens
- Laminated lens

2J. Write the all rules for toric transposition when the Base curve is given.

2K. Explain the different techniques of inspecting a lens for its defects.

2L. With the help of a neat figure derive the equation to find the thickness difference of a prism.

(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. Explain the various designs of Progressive Addition Lens.

(10×2 = 20 marks)



MANIPAL UNIVERSITY**SECOND YEAR B.Sc. OPTOMETRY DEGREE EXAMINATION – JUNE 2010****SUBJECT: VISUAL OPTICS****(NEW REGULATION)**

Monday, June 14, 2010

Time: 14:00-17:00 Hrs.

Max. Marks: 80

1. Fill in the blanks:

- 1A. In the higher degrees of myopia, whole of the posterior pole of the eye herniated backwards resulting in a condition called _____.
- 1B. In Donders reduced eye, nodal point lies _____ mm behind the corneal surface.
- 1C. In SRK –II formula, if axial length is < 20 mm then we will have to subtract _____ D from usual A constant.
- 1D. _____ is a type of hypermetropia overcome physiologically by the tone of ciliary muscle.
- 1E. An examiner working at 40cm will observe _____ motion when refracting a 2.00D myopic patient (without any lenses being placed in front of the patient).
- 1F. In clock dial test, if a patient reports that 2 to 8 o'clock spoke is clear then _____ would be the cylinder axis.

(1×6 = 6 marks)

2. Answer the following:

- 2A. What is the criterion for determining the end point in subjective refraction?
- 2B. What are the two methods that can be used clinically to stimulate a patient's accommodation?
- 2C. What are the four components of convergence?
- 2D. In Aphakia, nodal point of the eye is moved backwards. TRUE / FALSE. Give reason.
- 2E. Write about optical condition of myopia.

(2×5 = 10 marks)

3. Answer the following questions:

- 3A. If an emmetropic patient's near point has receded to 200cm,
i) What is the amount of accommodation present?
ii) What would be the lens power required to make him read comfortably @ 25cm?
- 3B. What are the options given while correcting a patient having refraction OD: +2.00DSph
OS: +4.00DSph
- 3C. Write a note on sign conventions used in optics.
- 3D. Calculate the amount of ocular accommodation required for a corrected 5.00D hypermetrope to look at an object placed at 40cm.

(3×4 = 12 marks)

4. Answer any SIX of the following:

- 4A. Write a note on binocular balancing tests.
- 4B. Explain the procedure of Retinoscopy.
- 4C. Write short note on anomalies of accommodation.
- 4D. Write about etiology, optical condition and symptoms of hypermetropia.
- 4E. Write in detail about ophthalmoscopic findings in pathological myopia.
- 4F. Where will be the image formed in convex lens when object is placed
 - i) At $2F$
 - ii) Between F & $2F$
 - iii) At F
- 4G. How does accommodation vary with age? How do you treat a patient who has lost his accommodation with age?
- 4H. Write short note on trial set and its accessories.

(6×6 = 36 marks)

5. Define astigmatism. Explain astigmatism under the following:

- 5A. Sturm's conoid.
- 5B. Causes
- 5C. Clinical features

(1+6+3+6 = 16 marks)



MANIPAL UNIVERSITY

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

SUBJECT: RESEARCH METHODOLOGY AND STATISTICS

(NEW REGULATION)

Wednesday, June 16, 2010

Time: 14:00-17:00 Hrs.

Max. Marks: 80

✍ **Answer ALL questions.**

1A. Differentiate nominal and ordinal scales of measurement with example.

1B. Discuss in detail about the uses of Review of literature in Research.

(5+5 = 10 marks)

2A. Describe stratified and systematic random sampling techniques.

2B. Enumerate advantage of sampling over Census.

(6+4 = 10 marks)

3A. Represent the following data by a histogram and locate the mode of the distribution.

| | | | | | | |
|--------------|--------|---------|---------|---------|---------|---------|
| Age in years | 5 – 10 | 10 – 15 | 15 – 20 | 20 – 25 | 25 – 30 | 30 – 35 |
| frequency | 2 | 9 | 29 | 54 | 11 | 5 |

3B. Explain various uses of scatter diagram with sketches.

((4+1)+5 = 10 marks)

4A. Define epidemiology. State the aims of epidemiology.

4B. Write briefly on cross sectional studies.

(5+5 = 10 marks)

5A. Define health information system. List the requirements of health information system.

5B. Define crude birth rate and general fertility rate.

(5+5 = 10 marks)

6. Write short note on:

6A. Registration of vital events.

6B. Discrete and continuous variables.

6C. Quartiles and Percentiles.

6D. Measures of central tendency.

6E. Characteristics of a good hypothesis.

6F. Properties of normal curve.

(5×6 = 30 marks)



MANIPAL UNIVERSITY

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

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

Friday June 18, 2010

Time: 14:00-17:00 Hrs.

Max. Marks: 80

✍ Draw diagrams wherever necessary.

1. Fill in the blanks.

- 1A. The corneal surface which matches the BFS will be displayed in _____ color.
- 1B. _____ & _____ are the examples of slit lamp accessories.
- 1C. Thick corneas will _____ (underestimate/overestimate) the IOP.
- 1D. Aqueous Humor is produced by _____.
- 1E. B-Scan provides a _____ dimensional image of eye ball and orbit.
- 1F. _____ is an example for a contact fundus biomicroscopic lens.
- 1G. Size of the reduced snellen type is _____ of the normal snellen type.
- 1H. An 'against' motion in retinoscopy while using plane mirror can be neutralized by _____ lens.
- 1I. _____ is an example of a placido-disc based topographer.
- 1J. Opponent process theory of color vision was proposed by _____.

(1×10 = 10 marks)

2. Answer any FIVE questions.

- 2A. Describe color coding used in Corneal topography.
- 2B. Record the Sloan and British letters used to construct visual acuity chart.
- 2C. Note down the parts of observation system of slit lamp.
- 2D. Explain the optic nerve head evaluation with ophthalmoscope.
- 2E. Mention any two factors which influence the movement of the reflex in Retinoscopy?
- 2F. Write a note on Zeiss 4 mirror Goniolens.

(2×5 = 10 marks)

3. Answer any FOUR questions.

- 3A. What are the designs employed in color arrangement tests? Explain.
- 3B. Explain how 'plane mirror' and 'concave mirror' effects are obtained in streak retinoscope?
Note down the major parts of a streak retinoscope.
- 3C. Explain the anterior chamber angle structures in detail with necessary diagrams.
- 3D. Explain the optical principle of Indirect Fundus biomicroscopy. Describe the features of the auxiliary lenses used for that.
- 3E. How do you prepare the Goldmann perimeter before the commencement of the test?

(5×4 = 20 marks)

4. Answer the following.

4A. Define Piezoelectric Effect. Explain in detail about the properties of Ultrasound.

4B. What is the shape of the cornea? Write a note on ORBSCAN.

(10×2 = 20 marks)

5. Answer any ONE.

5A. List out the commonly used tonometers. Explain in detail about the working principle, advantages and disadvantages of each.

5B. Write an essay on lens measuring devices.

(20 marks)

