THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0321] **MARCH 2021** **Sub. Code: 2743**

(AUGUST 2020 EXAM SESSION)

B.OPTOM

SECOND YEAR (Regulation 2018-2019)

PAPER III – OPTOMETRIC INSTRUMENTS AND OPTOMETRIC OPTICS I

Q.P. Code : 802743

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(3 x 10 = 30)**

1. Define Binocular vision. Give its prerequisite, advantages and test to asses it.
2. What is the principal of visual acuity testing? Describe the Snellen chart and Bailey – lovie chart.
3. Describe the different illumination techniques used in a slitlamp examination.

II. Write notes on: **(8 x 5 = 40)**

1. Trial box and its contents.
2. Brightness acuity Tester, instrumentation and its uses.
3. Goldman applanation tonometer.
4. Differences between Direct and indirect Ophthalmoscope.
5. Toric transposition : -1.00DS /-2.00DCX90 BC : +6.00D.
6. Explain the parts of a frame with a neat labelled diagram.
7. Difference between spherical and cylindrical lenses.
8. Explain the steps of lens glazing.

III. Short answers on: **(10 x 3 = 30)**

1. Draw diagram of different forms of convex lens.
2. Interpret : 52 □ 14/145.
3. List three faults seen during the surfacing.
4. Calculate the prismatic effect for the RE -3.00 DS with a decentration of 3 mm inwards.
5. Give the RI for the following lens material : crown glass, polycarbonate and CR 39.
6. What is Arden’s ratio? What is its normal value.
7. Give three uses of keratometry.
8. Define fixation loss and false negative.
9. List three non-optical devices.
10. Differentiate between anopia and anomaly. Name any one test that screens for congenital colour defect.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0222] **FEBRUARY 2022** **Sub. Code: 2743**
(AUGUST 2021 EXAM SESSION)

B.OPTOM
SECOND YEAR (Regulation 2018-2019)
PAPER III – OPTOMETRIC INSTRUMENTS AND OPTOMETRIC OPTICS I
Q.P. Code : 802743

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(3 x 10 = 30)**

1. Explain the steps of lens surfacing.
2. Explain the instrumentation of a fixed lens retinoscope with a help of a neat labelled diagram.
3. Describe the principle of keratometry. Write the steps for performing a manual keratometry.

II. Write notes on: **(8 x 5 = 40)**

1. Synoptophore and its uses.
2. Principle of lensometer.
3. Instrumentation of Schiotz tonometer.
4. Principle and Uses of A-scan.
5. Types of Ophthalmic lens material.
6. Chromatic aberration and its correction.
7. Uses of Fresnel prism.
8. Types of temples with neat diagrams.

III. Short answers on: **(10 x 3 = 30)**

1. Simple transposition : plano /-1.00DC X 120.
2. Define effective diameter and give its importance.
3. Give three uses of prism in ophthalmology.
4. List the three grades of Binocular vision.
5. List three types of near vision notation.
6. Name the filters present in slit lamp and its use.
7. Give three indication for doing a B-Scan.
8. Name the different types of plates present in Ishihara color plates.
9. List the three types of magnification used in Low vision aids.
10. Image formation and magnification of direct ophthalmoscope.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0922] SEPTEMBER 2022 Sub. Code: 2743
(FEBRUARY 2022 & AUGUST 2022 EXAM SESSIONS)

B.OPTOM
SECOND YEAR (Regulation from 2018-2019)
PAPER III – OPTOMETRIC INSTRUMENTS & OPTOMETRIC OPTICS I
Q.P. Code : 802743

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(3 x 10 = 30)**

1. Slit lamp biomicroscopy and its principle, parts and methods of illumination.
2. Classification of contact lenses and evaluation of trial lens fit.
3. Steps of lens surfacing.

II. Write notes on: **(8 x 5 = 40)**

1. Hybrid contact lenses.
2. Fresnel prism.
3. Principles of keratometry.
4. Synaptophore and its uses.
5. Difference between direct and indirect ophthalmoscope.
6. Write about spherical and chromatic aberration.
7. Ishihara chart.
8. Explain the steps of lens glazing.

III. Short answers on: **(10 x 3 = 30)**

1. Name 3 low vision aids.
2. Principles of autorefractometer.
3. Name three types of tonometer.
4. Tests for near vision.
5. Give Refractive index for crown glass, polycarbonate and CR39.
6. Nerve fibre analyser.
7. Indications of B-scan.
8. Uses of prisms in ophthalmoscopy.
9. Principle of fundus camera.
10. Principle of Goldmann applanation tonometer.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0423] **APRIL 2023** **Sub. Code: 2743**

B.OPTOM
SECOND YEAR (Regulation 2018-2019 onwards)
PAPER III – OPTOMETRIC INSTRUMENTS & OPTOMETRIC OPTICS I
Q.P. Code: 802743

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(3 x 10 = 30)**

1. What are the different types of Electroretinogram? Explain the types of Electrodes used during testing.
2. Explain Optical Coherence Tomography. Mention its types in detail.
3. Describe the Composition of Glass and various ways of Manufacturing Glass.

II. Write notes on: **(8 x 5 = 40)**

1. Explain the Components of Lensometer.
2. Difference between Glass and Plastic Ophthalmic Lens Material.
3. What are the Errors which can occur in Retinoscopy?
4. Choice of Test Charts for Preschool Children.
5. What are the Faults on the Surface of the Lens?
6. Explain Toughened Glass.
7. Describe Fresnel Prisms.
8. Describe FM-100 test.

III. Short answers on: **(10 x 3 = 30)**

1. Define Doubling Principle.
2. Indications of VEP.
3. What are the various Frame Materials?
4. Spherocylindrical Lenses.
5. Fixation loss in Visual Field Test.
6. Refractive Index of Ophthalmic Lenses.
7. Spectacle Frame Construction.
8. Indications for B-scan.
9. Errors while performing A-scan.
10. Speed of Retinoscopy Reflex.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1123] **NOVEMBER 2023** **Sub. Code: 2743**

B.OPTOM
SECOND YEAR (Regulation 2018-2019 onwards)
PAPER III – OPTOMETRIC INSTRUMENTS & OPTOMETRIC OPTICS I
Q.P. Code: 802743

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(3 x 10 = 30)**

1. Measurement of IPD using ruler and Pupillometer.
2. Explain the Various Colour Vision Tests in detail.
3. Describe the different types of Illumination techniques used in Slit Lamp Bio-Microscopy.

II. Write notes on: **(8 x 5 = 40)**

1. Forms of Ophthalmic lenses.
2. Explain the Sag formula with an example.
3. What is SITA fast and SITA standard?
4. Explain the layers of retina as observed in OCT.
5. Define Base curve in a spectacle lens with an example.
6. What are the uses of Phoropter?
7. Discuss any three optical devices used in low vision.
8. Types of perimeters.

III. Short answers on: **(10 x 3 = 30)**

1. Define Pantoscopic tilt.
2. What is Prentice rule?
3. Uses of Maddox rod.
4. State the importance of measuring vertex distance in dispensing spectacles.
5. Mention any three Slit lamp accessories.
6. Advantages of Projection lensometer.
7. Indications for ERG.
8. Pachymeter and its uses.
9. Instrument used to measure corneal curvature.
10. Types of Nose bridge in spectacle frames.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0423] **APRIL 2024** **Sub. Code: 2743**

B.OPTOM

SECOND YEAR (Regulation 2018-2019 onwards)

PAPER III – OPTOMETRIC INSTRUMENTS & OPTOMETRIC OPTICS I

Q.P. Code: 802743

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(3 x 10 = 30)**

1. What is Perimetry? Types of Perimetry and write in detail about HFA.
2. Indications and Contra-indications of Contact Lenses and write about Parameters of Contact Lenses.
3. Types of Ophthalmoscope and write uses of Ophthalmoscope in special cases.

II. Write notes on: **(8 x 5 = 40)**

1. Types of Retinoscope and its Principles.
2. Ocular Biometry.
3. Schiotz Tonometer.
4. Fundus Camera – Principle and its Techniques.
5. Anti- Reflective Coatings and Methods of Tinting.
6. ERG.
7. Corneal Topography.
8. Methods of Illumination in Slit Lamp Examination.

III. Short answers on: **(10 x 3 = 30)**

1. Write any three methods of Colour Vision Assessment.
2. Principle of Lensometer.
3. Advantages and Disadvantages of PAL.
4. Arden’s Ratio.
5. Trail Frame Designs.
6. Methods of Measuring IPD.
7. Lens decentration.
8. Vertex power.
9. Notation of prisms.
10. Difference between Spherical and Cylindrical lens.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1125] **NOVEMBER 2025** **Sub. Code: 2743**

B.OPTOM

SECOND YEAR (Regulation 2018-2019 onwards)

PAPER III – OPTOMETRIC INSTRUMENTS & OPTOMETRIC OPTICS I

Q.P. Code: 802743

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(3 x 10 = 30)**

1. Describe the different illumination techniques used in slit lamp examination.
2. Explain the process of manufacture of glass?
3. Describe the principle of keratometry. Write the steps for performing manual keratometry?

II. Write notes on: **(8 x 5 = 40)**

1. Difference between Direct and Indirect ophthalmoscopy.
2. Telescopes used in low vision aids.
3. Instrumentation and uses of pupillometer.
4. Explain the steps of lens glazing.
5. Principles and uses of a scan.
6. Classification of frames.
7. Trial box and its contents.
8. What are the faults on the surface of the lens?

III. Short answers on: **(10 x 3 = 30)**

1. Define Gonioscopy.
2. Write about stenopic slit.
3. Illumination in consulting room.
4. Applications of VEP test.
5. Ultrasound Bio Microscopy.
6. Simple transposition: +2.00DS/-1.00DC x 70º.
7. Uses of prisms in ophthalmology.
8. Maddox rod and its uses.
9. Astigmatic lenses.
10. Miscellaneous spectacle lenses.

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