

[LK 0217]

FEBRUARY 2017

Sub. Code: 2703

B. OPTOM
(New Syllabus 2015-2016)

FIRST YEAR

PAPER III – PHYSICAL AND GEOMETRICAL OPTICS

Q.P. Code: 802703

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Interference phenomenon in Optics and its applications.
2. Laws of reflection and refraction of Light and its Applications in Optics.
3. Laser Optics and its Applications.

II. Write notes on:

(8 x 5 = 40)

1. Resolving power of optical instruments.
2. Thomas young experiment.
3. Electro Magnetic Spectrum.
4. Spherical Aberrations.
5. Magnifying the power of Simple and Compound Microscopes.
6. Aphakia.
7. Corneal Dystrophies.
8. Keratoconjunctivitis sicca.

III. Short answers on:

(10 x 3 = 30)

1. Einstein's Quantum Theory.
2. Raman Effect.
3. Fraunhofer Diffraction.
4. Total Internal Reflection.
5. Achromatic prisms.
6. Double optic lever.
7. Critical angle of Glass.
8. Angular Magnification.
9. Lens power.
10. Vertex distance.

[LL 0817]

AUGUST 2017

Sub. Code: 2703

B.OPTOM
(New Syllabus 2015-2016)

FIRST YEAR

PAPER III – PHYSICAL AND GEOMETRICAL OPTICS (I & II)

Q.P. Code: 802703

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Describe the cardinal points of the optical system.
2. Discuss the construction of a Nicol prism. How will you use it as an analyser?
3. Discuss the construction and working of Thomas Young experiment.

II. Write notes on:

(8 x 5 = 40)

1. Lambert's Law.
2. Double refraction.
3. Spherical aberration.
4. Zone plate.
5. Spatial coherence and temporal coherence.
6. Optical activity.
7. Write short notes on aphakia.
8. Write short notes on presbyopia. How is presbyopia corrected?

III. Short answers on:

(10 x 3 = 30)

1. Spontaneous emission.
2. Dual nature of light.
3. Laws of refraction.
4. EM Spectrum.
5. Difference between Fresnel and Fraunhofer diffraction.
6. Biquartz.
7. Simple magnifier/simple microscope.
8. Lateral magnification.
9. Spherical aberration.
10. Total internal reflection.

[LM 0218]

FEBRUARY 2018

Sub. Code: 2703

B.OPTOM
(New Syllabus 2015-2016)

FIRST YEAR

PAPER III – PHYSICAL AND GEOMETRICAL OPTICS (I & II)

Q.P. Code: 802703

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Describe the construction and working of Michelson Interferometer and how it is used to measure the wavelength?
2. Write the etiology, clinical varieties, features and treatment of myopia.
3. Explain Fraunhofer diffraction along a (a) single slit (b) circular aperture.

II. Write notes on:

(8 x 5 = 40)

1. Nicol prism.
2. Define astigmatism. Write about types of astigmatism.
3. What is conoid of Sturm? Illustrate with diagram.
4. Population inversion.
5. Angular magnification.
6. Antireflection coating.
7. Zone plate.
8. Fermat's principle.

III. Short answers on:

(10 x 3 = 30)

1. Spectrum of visible light.
2. Refractive index of a medium.
3. Nodal points.
4. Testing of planeness of surface.
5. Plane polarized light.
6. Distortion.
7. Coherence length and coherence time.
8. Fresnel's assumptions.
9. Malus' law.
10. Resolving power.

B.OPTOM
(New Syllabus 2015-2016)

FIRST YEAR

PAPER III – PHYSICAL AND GEOMETRICAL OPTICS (I & II)

Q.P. Code: 802703

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Describe the various types of aberrations in a lens and ways to reduce them.
2. Describe the Newton's rings experiment and how it is used to determine the refractive index of the liquid.
3. Describe the construction and working of Nicol prism & its double refracting property. Describe how it can be used both as polarizer and analyser?

II. Write notes on:

(8 x 5 = 40)

1. Applications of laser in ophthalmology.
2. Gullstrand's schematic eye with neat diagram.
3. Lloyd's single mirror.
4. Flicker photometer.
5. Photoelectric effect.
6. Write 5 differences between myopia and hypermetropia.
7. Polarization by reflection.
8. Solar spectrum.

III. Short answers on:

(10 x 3 = 30)

1. Constructive and destructive interference.
2. Explain emmetropia.
3. Linear magnification.
4. Fermat's principle.
5. Stimulated emission.
6. Polaroid sheets.
7. Weber's law.
8. Refractive index.
9. Population inversion.
10. Raman effect.

[LO 0219]

FEBRUARY 2019

Sub. Code: 2703

B.OPTOM
(New Syllabus 2015-2016)
FIRST YEAR
PAPER III – PHYSICAL AND GEOMETRICAL OPTICS

Q.P. Code: 802703

Time: Three Hours

Maximum: 100 Marks

Answer all questions

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

1. Interference phenomenon in optics and its applications.
2. Properties of light.
3. Discuss the construction of Nicol Prism. How will you use it as an analyser?

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

1. Spherical aberration.
2. Thomas young experiment.
3. Electro Magnetic spectrum.
4. Aphakia.
5. Double refraction.
6. Gullstand's Schematic eye with neat diagram.
7. State and explain prism diopre.
8. Total internal reflection.

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

1. Diopre.
2. Effect of stops.
3. Optic axis of a crystal.
4. Raman effect.
5. Properties and uses of laser.
6. Permat's principle.
7. Mention the types of manifest Hypermetropia.
8. What is polarization?
9. What are nodal points?
10. Refractive index of a medium.

[LP 0819]

AUGUST 2019

Sub. Code: 2703

B.OPTOM
(New Syllabus 2015-2016)

FIRST YEAR

PAPER III – PHYSICAL AND GEOMETRICAL OPTICS

Q.P. Code: 802703

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Discuss the construction and working of Thomas Young Expt.
2. Describe the various types Aberrations in a lens and ways to reduce them.
3. Astigmatism.

II. Write notes on:

(8 x 5 = 40)

1. Resolving power of optical instruments.
2. Double refraction.
3. Spherical aberrations.
4. Total internal reflection.
5. Write short notes on Aphakia.
6. Spatial coherence and temporal coherence.
7. Lambert's law.
8. Flicker's photometer.

III. Short answers on:

(10 x 3 = 30)

1. Entrance and exit pupil.
2. Define Myopia.
3. Refractive index.
4. Total internal reflection.
5. Glare effect.
6. Angular magnification.
7. Dual nature of light.
8. Explain Emmetropia.
9. Nodal points.
10. Positive and negative crystals.

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FIRST YEAR

PAPER III – PHYSICAL AND GEOMETRICAL OPTICS

Q.P. Code: 802703

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Laser optics and its applications.
2. Describe the cardinal points of the optical system.
3. Properties of light and spectrum of light and measurement.

II. Write notes on:

(8 x 5 = 40)

1. Infrared spectrum.
2. Gullstrand's schematic eye.
3. How hypermetropia can be remedied?
4. Visual acuity.
5. Wedge shaped thin films.
6. Raman effect.
7. Nodal points and nodal planes.
8. Vitamin A deficiency.

III. Short answers on:

(10 x 3 = 30)

1. Distortion.
2. Resolving power.
3. Photo electric effect.
4. Define ametropia.
5. Vertex power.
6. Critical angle of glass.
7. Coherence and its types.
8. Prism.
9. Types of lenses according to shapes.
10. Spectrometer.
