Rajiv Gandhi University of Health Sciences, Karnataka

I Year B.Sc. Optometry Degree Examination - APRIL 2015

Time: Three Hours **Max. Marks: 80 Marks**

General Anatomy and Physiology, Ocular Anatomy and Physiology

Section B: Ocular Anatomy and Physiology (40 Marks)

(Revised Scheme – 3)

Q.P. CODE: 3104

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

(Note: Both QP Codes 3103 and 3104 are to be answered within total duration of 3 hours)

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. Explain anatomy of crystalline lens and factors affecting lens transparency and changes seen in ageing lens.
2. Mention layers of retina. Brief on any two layers of retina
3. Write on anatomy of cornea and mention factors affecting its transparency.

SHORT ESSAYS (Answer any Two) **2 x 5 = 10 Marks**

4. Brief on pupillary reflex pathway
5. Explain the formation of aqueous humor.
6. What is binocular vision? Mention the fundamental laws governing ocular motility.

SHORT ANSWERS **5 x 2 = 10 Marks**

7. Mention the structures of angle of anterior chamber.
8. Agonist
9. Functions of RPE layer of retina
10. Plica semilunaris
11. Trabecular Meshwork

I Year B.Sc. Optometry Degree Examination - APRIL 2015

Time: Three Hours **Max. Marks: 80 Marks**

Physical and Principles of Lighting Geometric Optics

Q.P. CODE: 3105

Section A – Physical and Principles of Lighting (40 Marks)

Revised Scheme - 3

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

(Note : Both QP Codes 3105 and 3106 are to be answered within total duration of 3 hours)

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. Define the terms, Luminous flux, luminous intensity and intensity of illumination. Mention the units of each one of them. How the reflection factor of a mirror is estimated using a photometer?
2. Give the theory of young's double slit experiment for the distance of a bright fringe from the center.
3. What is diffraction of light? Describe diffraction at a single slit. What will be the width of the central maxima?

SHORT ESSAYS (Answer any Two) **2 x 5 = 10 Marks**

4. How the specific rotation of cane sugar is determined using a polarimeter?
5. What is scattering of light? Distinguish between coherent and incoherent scattering. Give an example for each.
6. In a Newton's ring experiment, the radius of the lens is 1m. If the diameters of the 15th ring and 5th ring are 0.59cm and 0.336cm respectively. What is the wavelength of light used?

SHORT ANSWERS **5 x 2 = 10 Marks**

7. How do you account for the blue of the sky?
8. How is a quarter wave plate constructed?
9. What is the resolving power of the grating having 6000 line per cm observed in the 2nd order spectrum?
10. It is easier to observe diffraction with sound waves, but not so with light waves. Explain
11. Define LUX

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Time: Three Hours **Max. Marks: 80 Marks**

Physical and Principles of Lighting Geometric Optics

Q.P. CODE: 3106

Section B – Geometric Optics (40 Marks)

Revised Scheme - 3

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

(Note : Both QP Codes 3105 and 3106 are to be answered within total duration of 3 hours)

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. Describe the construction and action of a Ruby laser.
2. Explain spherical aberration and chromatic aberration. How are they eliminated?
3. Obtain the expression for refraction at a single spherical surface and apply the same to derive the Lens maker's formula

SHORT ESSAYS (Answer any Two) **2 x 5 = 10 Marks**

4. What are the cardinal points of a thick lens? Define all of them.
5. A ray of light incident at 60^0 on a prism of angle 40^0 undergoes a deviation of 20^0. Show that the emergent ray is normal to the second face of the prism.
6. The greatest thickness of a Plano convex lens when viewed normally with its plane surface top appears to be 2 cm. When viewed normally through curved surface it appears to be 20/9 *c*m. If its actual thickness is 3 cm, calculate its radius of curvature.

SHORT ANSWERS **5 x 2 = 10 Marks**

7. Show by a diagram the enlarged image of an extended object formed by a concave mirror.
8. State the Laws of refraction of light.
9. State Planck's law of radiation
10. Distinguish between spontaneous emission and stimulated emission.
11. Define power of a lens. Mention the unit.

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