Rajiv Gandhi University of Health Sciences, Karnataka

I Year B.Sc. Optometry Degree Examination - SEP-2019

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

Basic Biochemistry and Ocular Biochemistry and Nutrition
Section A – Basic Biochemistry (40 Marks)
(Revised Scheme – 3)
Q.P. CODE: 3101

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary
(Note: Both QP Codes 3101 and 3102 are to be answered within total duration of 3 hours)

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

1. Mention the sources, functions and deficiency manifestations of Vitamin A.
2. What is Urea? Describe the synthesis of Urea.
3. Describe the process of glycolysis with its energetics.

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

4. Mention factors affecting enzyme activity. Explain any two factors in detail.
5. Functions of Phospholipids.
6. Name the buffer system of body fluids. Explain any one of them.

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

7. Name the Ketone bodies
8. Name the nucleic acids and their biomedical importance.
9. Name any Two diagnostically importance enzymes.
10. What are antioxidants? Give two examples.
11. Name Four Plasma Proteins.

I Year B.Sc. Optometry Degree Examination - SEP-2019

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

Basic Biochemistry and Ocular Biochemistry and Nutrition
Section B: Ocular Biochemistry and Nutrition (40 Marks)
(Revised Scheme – 3)
Q.P. CODE: 3102

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary
(Note: Both QP Codes 3101 and 3102 are to be answered within total duration of 3 hours)

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

1. What is balance diet? Plan a normal diet for a 60kg sedentary Man.
2. Metabolic pathways of Cornea.
3. Sources, RDA, functions, Absorption and transport of Iron. Add a note on Iron Deficiency.

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

4. Protein Energy Malnutrition.
5. Tear Film and its functions.
6. Differences in biochemical composition of aqueous humor and vitreous humor.

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

7. Respiratory Quotient.
8. What are the functions of ciliary body?
9. Sources and RDA of Vitamin A.
10. Obesity.
11. Define Trace Elements (Micro Minerals).Give Two Examples.

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I Year B.Sc. Optometry Degree Examination - OCT-2019

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

General Anatomy and Physiology, Ocular Anatomy and Physiology
Section A: General Anatomy and Physiology (40 Marks)
(Revised Scheme – 3)
Q.P. Code : 3103

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. Describe the mechanism of clotting of blood.
2. Enumerate the differences between the cardiac muscle and skeletal muscle.
3. Write a neat diagram of the digestive system and label the parts.

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

4. Differences between artery and vein
5. Functions of Bone
6. Chambers and valves of the heart

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

7. Systole
8. Blood pressure
9. Alveoli
10. Gastric juice
11. Red blood cells

I Year B.Sc. Optometry Degree Examination – OCT-2019

Time: 3 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) **2x 10 = 20 Marks**

1. Give the details of the gonioscopic appearance of the angle of anterior chamber.
2. Describe the anatomy of the optic nerve.
3. Give the fundal picture of the normal human eye

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

4. Diagram and description of an artery.
5. Composition of blood.
6. Discuss the factors governing the transparency of the cornea

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

7. Minimum visual angle
8. Plica semilunaris
9. Limbus
10. Field of vision
11. Rods and cones

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I Year B.Sc. Optometry Degree Examination - OCT-2019

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

Physical and Principles of Lighting, Geometric Optics
Section A: Physical and Principles of Lighting (40 Marks)
(Revised Scheme – 3)
Q.P. Code : 3105

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. What is scattering of light? Distinguish between coherent and incoherent scattering. Give an example for each.
5. A source of light emitting two wavelengths 4200 Å and 5000 Å is used in a double slit experiment. The distance between the coherent sources in 0.025mm and the screen is at 1.4m from the slits. Calculate the separation between the third order bright fringes due to these wavelengths.
6. How is the resolving power of a telescope determined?

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 grafting having 6000 line per cm observed in the 2^{nd} 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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I year B.Sc. Optometry Degree Examination – OCT-2019

Time: 3 Hours **Max. Marks: 80 Marks**

Physical and Principles of Lighting, Geometric Optics
Section B: Geometric Optics (40 Marks)
(Revised Scheme – 3)
Q.P. Code : 3106

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. Deduce the prism formula and the expression for the deviation produced by a thin prism?
2. Obtain the expression for equivalent focal length of two lenses kept (a) in contact. (b) Separated.
3. Explain the principle of a laser. Describe a He-Ne laser. Mention one use of the same

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

4. What is dispersive power of a prism? Obtain the condition for combination of two thin prisms to produce dispersion without deviation.
5. The magnification produced by a convex lens was found to be twice as great when the object is 20cm from it, as when it was 30cm from it. Calculate the focal length of the lens.
6. Light of wavelength 4800Å is incident on a surface of photo emissive metal of work function 1.05 eV. Calculate (I) energy of the incident photon and (ii) the maximum kinetic energy of the ejected photoelectrons. $h=6.625 \times 10^{-34}$ J.s. $e=1.6 \times 10^{-19}$C. $c=3x10^{8}m.s^{-1}$.

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

7. What is an ophthalmic prism? Mention its use in optometry.
8. Write the expressions for resolving power and dispersive power of a grating, explaining the symbols.
9. Mention the uses of spherical mirrors.
10 State the conditions for total internal reflection.
11. What is the significance of velocity of light?

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