Roll No…….. **Total No. of Printed Pages: 1**
Total No. of Questions: [09]

B.Sc. Optometry (Semester – 2nd)
OCULAR PHYSIOLOGY AND NUTRITION
Subject Code: BOPTS1202
Paper ID: [20131807]

Time: 03 Hours **Maximum Marks: 60**

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(2 marks each)**

Q1. Attempt the following:

a. What structures make up the uvea and what is its function in the eye?
b. What triggers the blink reflex, and how does it protect the eye?
c. How do cones and rods differ in their response to changes in light intensity during light adaptation?
d. What is the primary function of the lens?
e. Define the term visual acuity?
f. What are some alternative methods for measuring visual acuity, particularly for those who cannot read a Snellen chart?
g. Explain the various functions of aqueous humor in maintaining a healthy eye?
h. Distinguish briefly between color blindness and color vision deficiencies?
i. How does the cornea obtain its essential nutrients like oxygen, glucose, and amino acids?
j. The visual cycle involves the bleaching of Rhodopsin. What does "bleaching" refer to in this context?

Section – B **(5 marks each)**

Q2. What are the different blood-ocular barriers and how do they protect the eye?
Q3. Discuss the role of lysozyme and other antimicrobial factors in tear film in protecting the eye from infections?
Q4. How do tear film abnormalities, like dry eye or excessive tearing, impact vision and ocular comfort?
Q5. What is Granit's modulator and dominator theory, and how does it explain color vision?
Q6. Describe the different types of lens proteins and their specific characteristics.

Section – C **(10 marks each)**

Q7. Compare and contrast the roles of rods and cones in vision? Also add on how the overall structure and organization of the retina contribute to its ability to convert light into electrical signals?
Q8. Explain the dynamic processes involved in tear film function, including secretion, formation, retention, redistribution, displacement, evaporation, and elimination? How does blinking impact these processes?
Q9. Explain the phenomenon of the Purkinje shift in spectral sensitivity and its relationship to dark adaptation? Discuss the physiological basis for this phenomenon and how it affects our perception of color under different lighting conditions?