V. P. & R. P. T. P. SCIENCE COLLEGE
VALLABH VIDYANAGAR
B. Sc. SEMESTER - III
Subject: **PHYSICS**   Course Code: **US03CPHY21** Title of the Subject: **OPTICS**
First Internal test: 2019-2020
Date: **01 /10/2019, Tuesday**   Time: **03:00 pm to 04:15 pm**
[Max Marks: 25]

Q-1 Multiple Choice Questions: [Attempt all]   **[5]**

[1]   _____ is a monochromatic aberration.
(a) Astigmatism   (b) Spherical   (c) Coma   (d) Distortion

[2]   In Newton's ring experiment the _____ lens is used.
(a) Concave (b) Concavo Convex (c) Plano-convex (d) Plano-concave

[3]   The Nicol prism can be used as _____.
(a) Polarizer   (b) Analyzer (c) both (a) & (b)   (d) None of these

[4]   _____polarized wave is result of superposition of two linearly polarized waves in same phase.
(a) Plane   (b) Elliptically   (c) Circularly   (d) None of these

[5]   If n_1 is refractive index of the core and n_2 is the refractive index of the cladding in an optical fiber than it is required that.
(a) $n_1 = n_2$ (b) $n_1 < n_2$ (c) $n_1 > n_2$ (d) All of these

Q-2   Discuss in details spherical aberration of a lens.   5
                                        OR
Q-2   Give the construction and working of Ramsden eyepiece.   5

Q-3   Describe Fresnel's biprism. Explain the experiment to determine the   5
wave length of Monochromatic light.
                                        OR
Q-3   Compare: (i) diffraction and interference and (ii) Fresnel and Fraunhoffer   5
diffraction.

Q-4   What is double refraction? Give the Huygen's theory of double refraction   5
in uniaxial crystal.
                                        OR
Q-4   Discuss phenomenon of polarization by reflection. State and explain   5
Brewster's law.

Q-5   Explain classifications of optical fiber.   5
                                        OR
Q-5   Discuss merits and demerits of the optical fibers.   5

ALL THE BEST.......