



SARASWATI EDUCATION SOCIETY'S
SARASWATI COLLEGE OF ENGINEERING, NAVI MUMBAI, KHARGHAR
DEPARTMENT OF ENGINEERING SCIENCES & HUMANITIES

FIRST UNIT TEST SEM- II (2014-2015)

APPLIED PHYSICS-11

Total Marks: 15

SET A

Time: 1 hour

Date: 06/02/2015

Q1) ATTEMPT THE FOLLOWING (each for 1 marks)

5 Marks

- 1) The phenomenon of interference is used to prove that light is
(a) Longitudinal (b) transverse (c) stationary wave (d) quantized
- 2) Which of the following phenomenon produces the colours in the soap bubble?
 (a) Interference (b) diffraction (c) polarisation (d) dispersion
- 3) The diameter of dark ring in Newton's ring is are
 (a) Directly proportional to square root of natural numbers
(b) Inversely proportional to square root of natural of natural numbers
(c) Directly proportional to square root of even numbers
(d) Directly proportional to square root of odd number
- 4) When the light wave suffers reflection at the interface between air and glass, the change of phase of the reflected wave is equal to
(a) 0 (b) $\pi/2$ (c) π (d) 2π
- 5) The refractive index of coating material should be equal to
(a) Cube root of refractive index of glass
 (b) Square root of the refractive index of glass
(c) Square root of the refractive index of air
(d) None of the above

Q2) Attempt any one

(5marks)

- 1) Prove that diameter of dark ring in Newton's ring is proportional to the square root of natural number & explain why centre of Newton's ring is dark.

OR

- 2) Explain the interference in thin parallel film and derived the expression for path difference between reflected rays, hence obtain the conditions of maxima and minima for interference with monochromatic light.

Q3) Attempt any one

(5marks)

- 1) Two optically planes glass strips of length 10 cm are placed one over the other .A thin foil of thickness 0.01 mm in introducing between them at one end to form an air film if the light used has wavelength 5900\AA ,Find the separation between consecutive bright fringes.

OR

- 2) Newton's rings are obtained with monochromatic light in between a flat glass plate and convex lens are viewed normally, what will be order of the dark ring which will have double the diameter that of 40^{th} dark ring.