

B. R. HARNE COLLEGE OF ENGG. & TECHNOLOGY, KARAV

UNIT TEST - I / FE (DIV A/ B)

SUB: APPLIED PHYSICS -II

DATE: 28/02/2015

TIME: ONE HOUR

MARKS: 15

QUE: A: SOLVE ANY ONE OF FOLLOWING:

- 1 Discuss wedge shape film & obtain the condition of maxima & minima due to interference in reflecting system of light. [05]
- 2 Why Newton's ring are circular. Prove that radius of nth dark ring proportional to square root of ring number. If diameter of 4th & 12th rings are 0.40cm & 0.70 resp. Find diameter of 20th dark ring. [05]
- 3 Discuss required condition for thin film with ray diagram to act as anti-reflecting film & highly reflecting film. [05]

QUE: B: SOLVE ANY ONE OF FOLLOWING:

1. Explain Rayleigh criteria of resolution & resolving power of grating with equations. [05]
2. Explain plain transmission grating & how to find wavelength of light. [05]
3. A diffraction grating has 4000 line per cm is at normal incidence. Calculate dispersive power of the grating in third order spectrum of wavelength 5000Å. [05]

QUE: C: SOLVE ANY ONE OF FOLLOWING:

1. What is fiber optics? Classify various types of optical fiber with detail. [05]
2. Explain numerical aperture of an optical fiber with various equations. [05]
3. What are the losses in optical fiber & find attenuation loss when 34 % power fed at launching end of a 0.32km length of fiber. [05]
4. Define various quantum processes in LASER system [05]

$\frac{n_2 - n_1}{n_1}$
 $\frac{n_1^2 - n_2^2}{4n_1 n_2}$