

Physics 431 - Midterm Exam (3:00-4:00 pm 10/19/2010)

TIME ALLOTTED: 60 MINUTES

CLOSED BOOK. ONE 8 1/2" X 11" SHEET OF NOTES (double sided is allowed, no homework or problem solutions are allowed), AND SCIENTIFIC POCKET CALCULATOR PERMITTED (No laptop/netbook etc.)

Topics to be covered

Wave motion, EM Waves (phase velocity, frequency, energy), and Radiation
Hecht Ch 2.1-2.7 and 3.1-3.4

The Propagation of Light: Snell's law/Total internal refraction/Brewster's angle
Application of Fresnel's equations / Polarization by reflection
Hecht 4.1-4.7

Lens Maker Formula, Imaging Formula, Stops
Hecht 5.1-5.3

Concave Mirrors and Imaging
Hecht 5.4

Prisms
Hecht 5.5

Optical Systems: Magnifying glass, Microscope, Telescope, and Eyes
Hecht 5.7

Thick lens, Lens combination, Aberrations
Hecht 6.1 & 6.3

Polarization (linear and circular polarization)
Hecht 8.1-8.7

Note 1: There will be problems similar to the given homework problems.

Note 2: Answer and mark up to 6 problems for grading.