ECE/OPTI 531
STUDY GUIDE FOR MID-TERM EXAM
9/28/03

Chapter 1

spectral regions for earth remote sensing
nomograph of wavelength versus frequency
typical spectral reflectance properties of vegetation, soils and minerals
multispectral image cube
types of scanners
calculate GSI, IFOV, GIFOV, FOV, GFOV
multispectral image formats: BIS, BIL, BSQ
typical color composite band assignments
Exercise 1-5

Chapter 2

shape of BB curve for sun
radiation components in the solar reflective region
generate the surface-reflected, unscattered term
topographic shading factor
self-shadowed versus projected-shadowed pixels
Exercise 2-3

Chapter 3

overall sensor model in Fig. 3-1
spatial and spectral resolution
simplified sensor model Eq. 3-20
Exercise 3-1

Chapter 4

definitions for histogram, cumulative histogram, DN mean and variance
calculate covariance and correlation matrix
contrast, modulation, SNR
scattergrams versus scatterplots; relation to histograms
effect of topography and sensor GIFOV on scattergrams
Exercise 4-8

Chapter 5

spectral band ratios
vegetation indexes
principal components (explain mathematically or geometrically), properties of PCT
calculate PC image given eigenvectors and DN image
tasseled cap components (how do they differ from the PCT?)
types of contrast stretches for single-band images
color contrast enhancement techniques
hexcone color space transform
Exercise 5-1