

End Semester Examination - 2018
Course –Remote Sensing and GIS (ES5101)

(Maximum marks: 50)

(Time: 3 hours)

Q1. What precautions do you take in choosing ground control points. Write down the type of photographs obtained in aerial photography. What are the possible displacement due to tilt in aerial photography. [8]

Q2. Write a transformation equation of a linear stretch having 8 bit recording. What is Principal Component analysis? Explain with example the effect of addition, subtraction and rationing of the band data (draw neat pictures). [10]

Q3. Define radiometric quantities- 1. Radiant energy, 2. Radiant Flux and 3. Irradiance. What is a specular and diffuse reflection? How and why, a sand and boulder bed appears in a visible light reflection and microwave. [8]

Q.4. What is Hyperspectral Imaging. What are the major application of these images? How it helps to identify clay minerals? What are radiometric and spectral resolution? [7]

Q5. Make a low pass filter matrix of 3x3 and apply on the highlighted DN values in the given matrix to show the effect of low pass filtering. What happens on using low pass and high pass filters and what kind of features are affected using these filters. [7]

68	68	72	72
69	61	71	71
69	72	60	71
68	72	68	69

Q.6. With a special case of wave incident normal from the air on the two media (glass and water), what would be the reflectance and transmittance. (refractive index of glass is 1.5 and for water, 1.33). Determine the no. of photograph required to cover an area of $25 \times 20 \text{ km}^2$, if the scale of the photograph is 1:10,000 and the photograph format is $23 \times 23 \text{ cm}^2$. Take the longitudinal overlap as 60% and side overlap is 30%. If velocity of the flight is 400 km/hour, calculate the exposure interval. [10]

