

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: M Sc
BRANCH: GEOINFORMATICS

SEMESTER : II
SESSION : SP/19

SUBJECT: GI509 DIGITAL SATELLITE IMAGE PROCESSING

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Explain and name the resolution concerning the time of taking the imagery of a digital image with examples. [5]
- Q.1(b) What is radiometric distortion. How is it corrected. [5]
- Q.2(a) What do you understand by LUT? Explain its significance. [5]
- Q.2(b) Explain what are Low Pass Filters and when are they applied? Apply the Roberts filter to band 4 data which is as follows: [5]
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|----|-----------|----|----|
| 34 | 56 | 39 | 40 |
| 25 | 50 | 15 | 45 |
| 52 | 37 | 12 | 34 |
- Change the two values given in Bold.
- Q.3(a) Explain the difference between the potential of standard FCC of band ratios and hybrid FCC of band ratios. [5]
- Q.3(b) Explain why PCA is also referred to as dimensionality reduction technique. [5]
- Q.4(a) Describe the difference between spectral cluster and spectral class with the help of a suitable example. [5]
- Q.4(b) What is the minimum number of spectral bands required for performing k-means unsupervised clustering? Justify your answer with suitable reason(s). [5]
- Q.5(a) What do you understand by Speckle? What are its causes? Justify the use of Cartoon Model in a speckled SAR image. [5]
- Q.5(b) How is the concept of Spectral Angle Mapper useful in hyperspectral remote sensing? [5]

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