

M.Sc. 3rd Semester Examination, 2012

REMOTE SENSING AND GIS

PAPER—RSG-304(Gr.-A + B)

(Option — 4)

Full Marks : 40

Time : 2 hours

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

GROUP — A

[Marks : 20]

Answer any two questions

- 1. Discuss the role and importance of drainage pattern analysis from RS data for lithological and structural interpretation of an area with examples.**

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(Turn Over)

2. (a) Discuss very briefly about the factors that control the metamorphism. 7
- (b) Why do we see intrusive igneous rocks at the surface of the earth? 3
3. (a) Discuss the process of formation of clastic sedimentary rock. 5
- (b) Discuss very briefly about plate tectonics theory. 5
4. (a) Define faults. 3
- (b) Discuss very briefly about different types of faults with suitable figure. 7

GROUP – B

[Marks : 20]

Answer any *two* questions

5. (a) What is PCA? What is the implication of PCA if sum of variances (%) of PC-1, 2 & 3 is 98%? What happens when (PC-1/Band-4) Eigenvectors of Covariance Matrix is 0.71? 2 + 2 + 1
- (b) Explain Maximum Likelihood Classifier. Suppose over a deciduous forest zone; DN values of

Band-A and Band-B are 40 and 50 in sunlit areas and that of shadow areas DN values are 18 and 19 respectively. Explain how you process these data for meaningful interpretation. 2 + 3

6. (a) Name different approaches for extraction of information from an image. Write properties of derivative masks for detection of linear features. Name two operators for such filtering operation. 2 + 2 + 1

(b) What is LoG operator and what is its use? What do you mean by Global and Adaptive Threshold? 2 + 3

7. (a) What is Quadtree? What controls Earthquake Shaking? How seismic zones of India are categorized with earthquake intensity? 1 + 1 + 3

(b) What are seismic body waves and surface waves? Which types of waves contribute most for strong ground shaking. Explain earthquake early warning system (EEWS). 1 + 1 + 3

8. (a) What are tsunamis and how they are normally triggered? What morphological causes are responsible for landslides? 2 + 3

(b) Prepare the rock information system for any two rocks from the given list :

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(i) Sand stone

(ii) Granites

(iii) Marble

(iv) Dolomite.