

M.Sc. 3rd Semester Examination, 2015

REMOTE SENSING AND GIS

PAPER — RSG-304 (Opt.-4 (Gr.-A + B))

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

Write the answers to questions of each Group in separate books

Option-4 : (Geoinformatics in Earth Sciences)

GROUP — A

(Fundamental of Earth System)

[Marks : 20]

Answer any two questions : 10 × 2

1. (a) Define "Orogenesis".

(Turn Over)

- (b) Define folding and faulting of rocks with neat sketches.
- (c) Discuss different types of faulting with neat sketches. 2 + 3 + 5
2. (a) Define "sedimentation".
- (b) What are the process involve in formation of clastic sedimentary rocks ?
- (c) How the features of sedimentary rocks that give dues to the environment of deposition ? 2 + 3 + 5
3. Elaborately discuss about the drainage pattern analysis and terrain parameters from RS data for lithological and structural geological studies with suitable examples and sketches. 10
4. Elaborately discuss on the role of applied geomorphology in hydrogeological/ hydrogeomorphological mapping using RS and GIS technologies. 10

(3)

GROUP – B

(*Application of Geoinformatics in Earth Science*)

[Marks : 20]

Answer any two questions : 10 × 2

1. (a) Name different approaches for extraction of information from an image.
(b) Compare properties of derivative masks for detection of linear geologic features.
(c) Explain decision rules for image segmentation of an image with bimodal histogram by global threshold technique. 3 + 3 + 4
2. (a) Write a note on seismic body waves and surface waves.
(b) What are different factors that control Ground Shaking by earthquakes ?
(c) How seismic zones of India are categorized with earthquake intensity ?

- (d) What are tsunamis and how they are normally triggered ? 3 + 2 + 3 + 2
3. (a) Which band of LANDSAT ETMT digital data is suitable for identification of sedimentary rock body ?
- (b) How the thermal data can be used to monitor the igneous rock body ?
- (c) What are the image elements used in visual image interpretation with special reference to geological features ? 2 + 3 + 5
4. Short notes any two : 5 × 2
- (i) Digital terrain models for selection of dam sites
- (ii) Digital image enhancement techniques for lithological discrimination
- (iii) G.P.S in plate tectonic study
- (iv) G.I.S in mineral targeting.
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