PG/IIIS/RSG-303/18

M.Sc. 3rd Semester Examination, 2018

REMOTE SENSING AND GIS

PAPER – RSG-303 (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

[Option-3 : *Geoinformatics in Earth Sciences*]

GROUP–A

(*Fundamentals of Earth System*)

[*Marks* : 20]

Answer any **two** questions : 10×2

1. In remote sensing data how do you distinguish the following rock types. $2\frac{1}{2} \times 4$

   (*i*) Granite and Sandstone.

   (*ii*) Granite gneiss and Schist

   (*iii*) Limestone and shale

   (*iv*) Clay and phyllite.

2. (*a*) What are the geological structural features easily discernible from remote sensing data ?

   (*b*) Explain with examples the interpretation elements for lithological mapping. $5 + 5$

3. (*a*) Define 'plate tectonics'.

   (*b*) Illustrate different types of plate boundary with suitable diagram. $2 + 8$

4. (*a*) Define "Topography and Landforms".

(*b*) Discuss very briefly about first order, second order and third order relief of earth crust.

(*c*) Briefly describe constructive and destructive processes of landforms. 2 + 4 + 4

[Option-3 : *Geoinformatics in Earth Sciences*]

GROUP–B

(*Application of Geoinformatics in Earth Science*)

[*Marks* : 20]

Answer any **two** questions : 10 × 2

1. (*a*) How does DEM facilitate us to evaluate environmental geological aspects.

   (*b*) In which way kriging techniques or algorithms influences on helps in mineral exploration. 5 + 5

2. (*a*) What is erosion of rocks and how it is different to weathering ?

(*b*) "Sediments are also produced by Living Organisms and Evaporation" – Name rocks or minerals produced by each of these processes.

(*c*) Explain with examples the difference between hazard, and vulnerability. How does capacity influence vulnerability ? 3 + 2 + 5

3. (*a*) What are the different sources of diamonds and their relations with lithological and structural parameters ?

(*b*) Name parameters you like to consider for landslide susceptibility mapping.

(*c*) What is the difference between Magnitude and Intensity of an earthquake ?

(*d*) Write a note on factors that control ground shaking ? 3 + 2 + 2 + 3

4. Write short notes on : 2 + 2 + 2 + 2 + 2

(*i*) Ore, Minerals and rocks.

(*ii*) Fractional crystallization and Partial melting of rocks in ore genesis processes.

(*iii*) Main causes and major triggers of landslides.

(*iv*) Endogeneous and exogeneous processes of ore genesis ?

(*v*) Condition necessary for hydrothermal deposits.
