PG/IIIS/RSG-301/18

M.Sc. 3rd Semester Examination, 2018

REMOTE SENSING AND GIS

PAPER – RSG-301 (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

GROUP—A

[*Marks* : 20]

Answer any **two** questions : 10 × 2

1. What are the differences between Natural event, Hazard and disaster ? What do you mean by

'prepardness'. How it helps to reduce the losses in disaster ? Write down the disaster management techniques of a land slide affected area in a mountanious region ? 4 + 3 + 3

2. Elaborate the hydro-morpho-geologic interpretation techniques for targetting ground water potential zones. What is the role of Remote Sensing in targetting ground water ? 6 + 4

3. What are the factors that control site suitability for reservoir construction ? How does geoinformatics helps in this regard ? Discuss the role of morphometry in canal alignment ? 3 + 4 + 3

4. Why watershed is considered as the basic scientific unit for Land and water management studies ? How does Landuse pattern control run-off volume ? Explain with the help of an emperical model how satellite image, soil map and rainfall data can be used to estimate the annual run-off from a watershed ? 2 + 3 + 5

(*Continued*)

GROUP–B

(*Spatial Decision Support System*)

[*Marks* : 20]

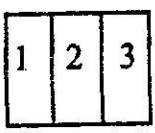
Answer any **two** questions : 10×2

1. Derive the weights and CR value to find the suitable areas for cropland expansion with the following variables : temperature, soil depth, slope, and land use and land cover. 10

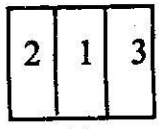
2. What is the basic difference in discrete and continuous data ? Give an example. Write the equation of linear scaling. On which data, you should apply scaling ? In a task of suitable site selection for tea plantation, how the discrete method can be applied with following variables : temperature, precipitation and slope ? $2 + 1 + 1 + 6$

3. Write the equations and perform linear and weighted overlay analysis with the following data weights of theme $A = 20\%$, $B = 30\%$ and $C = 50\%$.

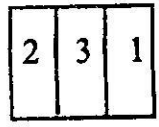
Data of variables (theme) given inside box



A



B



C

Write a code to execute linear and weighted overlay in *R* software. 5 + 5

4. Write a short note on SDSS and MCDA. Explain the methodology with input data and expected outcome with the particular applications as suitable site selection for

(*a*) Road/Rail network

(*b*) Health centre. 4 + 6