

2016

M.Sc.

2nd Semester Examination

REMOTE SENSING AND GIS

PAPER—RSG-204

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

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

Illustrate the answers wherever necessary.

Use Separate answer book for each Group.

Group-A

(Fundamental Statistics Concept)

[Marks : 20]

Answer any two questions.

2×10

1. (a) Distinguish between sample and population. What is random sampling?
- (b) Define the following terms:
relative frequency, frequency density and class marks.

(Turn Over)

- (c) Draw the histogram of the distribution given below :

<i>Value of sales :</i>	0-500	500-1000	1000-2500	2500-3500
<i>No. of firms :</i>	15	40	285	60

3+3+4

2. (a) For any two observations prove that GM is the geometric mean of AM and HM.

- (b) Find out the mean, median and mode of the following data :

<i>Temperature (°C)</i>	Less than 35	35-37	38-40	41-42	43 and above
<i>No. of Days</i>	2	8	14	16	10

- (c) Suppose a man travels 12 miles at 4 miles per hour and again 10 miles at 5 miles per hour. What is his average speed ?

3+4+3

3. (a) What are the alternative measures of relative measure of dispersion. What are their uses ?

- (b) Find the standard deviation for the distribution given below :

<i>x :</i>	1	2	3	4	5	6	7
<i>Freq :</i>	10	20	30	35	14	10	2

- (c) The A.M. and S.D. of monthly family income (Rs.) are given below for two villages :

Village	AM	SD
1	552	40
2	615	56

Compare the two villages in respect of disparity in income. 3+4+3

4. (a) What are moments? Distinguish between central moments and moments about zero.
- (b) What do you mean by correlation coefficient? What are its properties?
- (c) In a contest, two judges ranked eight candidates in order of their preference as shown below :

Candidates :	A	B	C	D	E	F	G	H
Judge I	5	2	8	1	4	6	3	7
Judge II	4	5	7	3	2	8	1	6

Find the rank correlation coefficient.

3+3+4

Group-B
(Statistical Application in GIS)

[Marks : 20]

Answer any *two* questions : 2×10

1. (a) What are the differences between global and local measures of spatial autocorrelation ?
- (b) What is the most common measure of spatial autocorrelation and how it differs from simple correlation coefficient ?
- (c) Describe briefly the role of interpolation for spatial data analysis. Specify three examples where spatial interpolation can not be used. 3+3+4

2. Briefly discuss various methods of krigins used in geo-statistics. 10

3. Compare global and local deterministic methods of interpolation.
Explain the process of inverse distance weighting method. 5+5

4. Write short notes on the following topics : $2\frac{1}{2} \times 4$
 - (a) PCA.
 - (b) Mean Centre and weighted mean centre.
 - (c) Correlation coefficient and coefficient of determination.
 - (d) RMSE.