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UG/1st Sem/STAT(H)/T/19

2019

B.Sc.

1st Semester Examination  
**STATISTICS (Honours)**  
Paper - GE 1-T  
(Statistical Methods)

Full Marks : 40

Time : 2 Hours

*The figures in the margin indicate full marks.  
Candidates are required to give their answers  
in their own words as far as practicable.*

1. Answer any *five* questions of the following :

5×2=10

- |                                                                    |   |
|--------------------------------------------------------------------|---|
| (a) Define ratio scale of measurement.                             | 2 |
| (b) What is decile ?                                               | 2 |
| (c) What is frequency curve ?                                      | 2 |
| (d) What do you mean by “consistency” in a 2×2 contingency table ? | 2 |

[ Turn Over ]

(e) What do you mean by rank correlation ? 2

(f) Give moment measure of kurtosis. What is its range ? 2

(g) Give the scatter diagram in the following cases. 2

(i)  $r = +1$

(ii)  $r = -1$

(h) Give one merit and demerit of median over arithmetic mean. 2

2. Answer any *four* questions. 4×5

(a) Discuss about different measures of relative dispersion ? Indicate its uses. 5

(b) Given two variables, obtain the acute angle between two regression lines. 5

(c) Distinguish between the following pairs :

(i) Attribute vs. Variable

(ii) Nominal data vs. Ordinal data 2.5+2.5

(d) How do you fit an exponential curve to a bivariate data least square method ? 5

(e) Define Bowley's measure of skewness. Show that its lies between  $-1$  and  $1$ . 2+3

(f) Show that, the value of the correlation coefficient does not depend on the change of origin and scale of the variables. 5

3. Answer any *one* question. 1×10=10

(a) What do you mean by the tern "regression" ? How do you fit a linear regression equation to a bivariate data ? 2+8=10

(b) (i) Show that,

$$\frac{R^2}{2n} \leq s^2 \leq \frac{R^2}{2}$$

Where  $s$  and  $R$  are the standard deviation and range of the  $n$  observations respectively.

(ii) Show that,  $b_2 \geq b_1 + 1$  (Symbols have their usual meaning) 5+5=10

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