

MA / M.Sc. GEOGRAPHY
THIRD SEMESTER
QUANTITATIVE TECHNIQUES
MGE – 302 [SPECIAL REPEAT]
[USE OMR FOR OBJECTIVE PART]

**SET
A**

Duration : 3 hrs.

Full Marks : 70

(Objective)

Time: 30 min.

Marks: 20

Choose the correct answer from the following:

1X20=20

- One of the techniques of understanding correlation between the variables without any computation is
 - Hythergraph
 - Scattergram
 - Pie Graph
 - Histogram
- What is the highest value of the coefficient correlation?
 - Infinity
 - 1
 - 100
 - 1
- In the regression equation of y on x , $y=6.5 +2.1 x$; what is the value of the intercept of the line?
 - 2.1
 - 1
 - 6.5
 - 0.5
- It is observed in the dataset that the yield of a crop is gradually increased while more and more fertilizer (in kg/ hectare) applied in the field by the farmers. Which one is the independent variable?
 - Application of fertilizer (in kg/ hectare)
 - Field
 - Yield of crop
 - Farmer
- As x increases y also increases. What is the relationship between x and y?
 - Perfectly positive
 - Perfectly negative
 - Positive
 - Negative
- Which one of the following indicates a non-linear relationship?
 - $Y = 5 + 2.5 X$
 - $Y = 10X - 50$
 - $Y = 1.25 X^2$
 - $Y = X - 1$
- Which of the following helps in determining the coefficient of determination?
 - Coefficient of variation
 - Coefficient of correlation
 - Coefficient of skewness
 - Standard deviation
- The coefficient correlation between the variables is 0.85, which of the following is applicable for its interpretation?
 - Perfectly positive relationship
 - Very strong relationship
 - No relationship
 - Strongly positive relationship

9. In which of the following cases the clustering techniques prove helpful?
- | | |
|------------------------------|---------------------------------|
| a. Digital image processing | b. Digital image classification |
| c. Digital Terrain Modelling | d. Computing Image histogram |
10. The ratio of two chi square variables is
- | | |
|-------------------|----------------------|
| a. t-distribution | b. z-distribution |
| c. F-distribution | d. None of the above |
11. While tossing a coin once, the probability of appearing head is
- | | |
|---------|-------|
| a. 100% | b. 1% |
| c. 50% | d. 0% |
12. If ' $>$ ' means ' $-$ ', ' $-$ ' means ' \neq ', ' $+$ ' means ' \times ' and ' \times ' means ' $+$ ', then $17 > 15 - 5 \times 2 + 7 >$
- | | |
|-------|-------|
| a. 16 | b. 18 |
| c. 20 | d. 22 |
13. Marks of five students in statistics are as 15,33,63,83,100; Find out the average marks
- | | |
|---------|---------|
| a. 68.8 | b. 58.8 |
| c. 50.8 | d. 78.8 |
14. From the above marks find out the median
- | | |
|-------|-------|
| a. 53 | b. 63 |
| c. 73 | d. 43 |
15. In a multivariate regression analysis, which one of the following is true?
- | | |
|--|---|
| a. There are many dependent variables | b. There is only one independent variable |
| c. There are many independent variables. | d. There is no independent variable. |
16. If average deviation is 105, and mean is 210, then Coefficient of AD is,
- | | |
|--------|--------|
| a. 1.0 | b. 0.5 |
| c. .99 | d. 0.7 |
17. If sample size is 20 for product A and 18 for product B, then degree of freedom will be,
- | | |
|------------|------------|
| a. 21 & 19 | b. 17 & 19 |
| c. 19 & 17 | d. 16 & 17 |
18. Which is not a measure of central tendency
- | | |
|-------------------|--------------------|
| a. Weighted mean | b. Variance |
| c. Geometric mean | d. Arithmetic mean |
19. 25% of 25% of a quantity is x% of the quantity where x is
- | | |
|----------|----------|
| a. 6.25% | b. 12.5% |
| c. 25% | d. 50% |
20. If in a certain language PUNCTUAL is coded as 16598623, how would ACTUPULN be coded?
- | | |
|-----------|-------------|
| a. 834536 | b. 29861635 |
| c. 834530 | d. 834539 |

(Descriptive)

Time : 2 hrs. 30 mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. Brief about the significance of statistics in applied sciences? Also define Population, Sample and Variables in statistics? 4+2+2+2
= 10

2. Compute Karl Pearson's coefficient of correlation from the following set of data and interpret your result:- 8+2=10

X (Distance in km)	Y (Fare in Rs)
1	2
2	5
3	6
4	8
5	10
6	12

3. Set up the regression equation of Y on X from the following set of data and compute the fare for 10.5 km from the regression equation. 8+2=10

X (Distance in km)	Y (Fare in Rs)
1	2
2	5
3	6
4	8
5	10
6	12

4. What is rank correlation? Explain the process of computing the Spearman's rank correlation coefficient. 2+8=10

5. Draw Histogram, Frequency polygon and Frequency curve from the following set of distribution. Put forward proper definition of each. 2+2+2+4
=10

Experience(in months)	No. of social workers
5 - 10	5
10 -15	6
15 -20	15
20 -25	10
25-30	5
30 -35	4
35 -40	2
40 -45	2

6. Write short notes on *any two*: 2×5=10
- Probability
 - Principal Component Analysis
 - Statistical measures
 - Hypothesis and types of error
 - Clustering

7. If in a normal distribution, variance of the weight of cement bags of a particular company is specified as 0.60 kg, and a sample of 8 cement bags taken and found the variance of the sample is 0.30 kg. Then check the quality at a significance level of 0.01 and draw an inference. Give support of suitable diagram. ($\chi^2=1.239$) 2+4+2+2
=10

8. Energy level of students was tested before and after giving the nourishing food (Horlicks). State H_0 and H_1 and find out whether Horlicks was effective or not from the following scores.(significance level at 0.05, $t=1.734$) 2+4+2+2
=10

Roll no	1	2	3	4	5	6	7	8	9	10
Before	10	04	09	08	07	10	03	0	05	06
After	10	09	10	07	05	08	10	02	03	08

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