

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

**SET  
B**

Duration : 3 hrs.

Full Marks : 70

[ **Objective** ]

Time: 30 min.

Marks: 20

*Choose the correct answer from the following:*

**1X20=20**

1. The data presented in the form of frequency data is known as
  - a. Grouped data
  - b. Ungrouped data
  - c. Secondary data
  - d. Calculated data
2. Relation between two variables is determined by
  - a. Dispersion
  - b. Mean
  - c. Correlation
  - d. Regression
3. As X increases Y also increases. What relationship between X and Y?
  - a. Perfectly negative
  - b. Perfectly positive
  - c. Positive
  - d. Negative
4. Coefficient of correlation is independent of
  - a. Change of scale
  - b. Change of origin
  - c. a & b
  - d. None of above
5. Minimum value of correlation is
  - a. -2
  - b. -1.5
  - c. -1
  - d. 0
6. Coefficient of correlation measure
  - a. Direction of relation
  - b. Degree of the relation
  - c. Both a & b
  - d. None of the above
7. If the number of rows are equal to the number of columns, the matrix is known as
  - a. Rectangular Matrix
  - b. Null Matrix
  - c. Square Matrix
  - d. Scalar Matrix
8. The concept of Geographic Data Matrix was developed by:
  - a. Brian J. L Berry
  - b. R. Thomas
  - c. D Smith
  - d. W. Christaller
9. A matrix, whose all the elements are zero is known as
  - a. Scalar Matrix
  - b. Null Matrix
  - c. Unit Matrix
  - d. None of the above

10. A matrix is simply an arrangement of numbers in the following form  
a. Triangular  
b. Oval  
c. Rectangular  
d. None of the above
11. Any square matrix whose all the diagonal elements are equal but all the off diagonal elements are zero is called  
a. Scalar Matrix  
b. Null Matrix  
c. Unit Matrix  
d. None of the above
12. If the standard deviation of a population is 9, the population variance is:  
a. 9  
b. 3  
c. 21  
d. 81
13. ----- is the dependence of a variable on one or more variables.  
a. Regression  
b. Co-relation  
c. Standard deviation  
d. None of these
14. Chi- square is symbolically written as  
a.  $Ki^2$   
b.  $\chi^2$   
c.  $Ci^2$   
d. None of the above
15. In case, coefficient of correlation is positive the curve representing the relation will be  
a. Upward sloping  
b. Downward sloping  
c. Vertical  
d. Horizontal
16. Following is/are the characteristics of statistics-  
a. It should be numerically expressed.  
b. Aggregate of facts.  
c. Affected by multiplicity of causes  
d. All of these
17. Statistics Uses -----to Draw Valid Conclusions.  
a. Numerical Evidence  
b. Mathematical calculations  
c. Sampling techniques  
d. Measures of Central Tendency
18. Following factor(s) may provide analytical error in statistics-  
a. Biased sample  
b. Over generalisation  
c. Causality  
d. a, b &c
19. Populations can include-  
a. People  
b. Universe  
c. Objects  
d. All of these
20. Quantitative variables can be further classified as -----.  
a. discrete  
b. continuous  
c. Both  
d. B only

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**( Descriptive )**

Time : 2 hrs. 30 mins.

Marks : 50

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

1. Write the importance of quantification in geographical research? 5+5=10  
Define Population, Sample and Variables in statistics?
2. Define Measures of Central Tendency? From the following data of marks of MGE 3rd semester, calculate the arithmetic mean by Short cut method: 3+7=10

Marks	No. of students
0-10	5
10-20	15
20-30	25
30-40	35
40-50	20
50-60	12

3. Define Geographic Data Matrix. Explain different types of Matrices. 5+5=10
4. If  $A = \begin{pmatrix} 2 & 3 & 1 \\ 1 & 5 & 3 \\ 4 & 2 & 1 \end{pmatrix}$  Find the Adj A 10
5. What do you mean by Primary and secondary data collection? Explain the significance of Group and ungrouped data in geographical research 5+5=10
6. The% of SC Population to total population (X) and the % of landless agricultural labourers to total agricultural workers (Y) are given below for 12 randomly selected villages of Nagaon District. Does there exist a linear correlation between them in the whole district? Also test the significance of the correlation coefficient at significance level of 0.05 (tabulated value 2.23) 10

Village code	1	2	3	4	5	6	7	8	9	10	11	12
X	2.8	8.6	1.8	4.8	4.8	2.0	6.7	2.2	5.7	7.3	6.3	2.6
Y	38.9	33.7	40.6	22.0	29.5	4.9	37.6	2.6	28.2	33.2	65.8	3.7

7. What do you mean by Principal Component Analysis (PCA)? Explain about the type of error in hypothesis testing. 5+5=10

8. ERD Foundation has deputed four different batches of its employees to four different training programmes (A, B, C and D) to improve their decision making skills. Each batch contained five employees with similar qualification and work experience. After the training programme the office conducted a common examination to test their improvement. The percentage scores are summarized in the following table: 10

A	B	C	D
80	70	65	90
90	60	50	89
96	55	58	85
85	85	55	95
70	90	40	80

Perform ANOVA to check whether there is a significant difference in terms of improving decision making skills of the employees by assuming a significance level of 0.05. ( $F=3.24$ )

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