MA/M.Sc. GEOGRAPHY
THIRD SEMESTER (SPECIAL REPEAT)
QUANTITATIVE TECHNIQUES
MGE-302
(Use separate answer scripts for Objective & Descriptive)

Duration : 3 hrs.   Full Marks : 70

(PART-A : Objective)

Time : 20 min.   Marks : 20

Choose the correct answer from the following: 1X20=20

1. The ratio between the sum of observations and the number of observations is called:
   a. Mean   b. Median
   c. Mode   d. Standard deviation

2. ....corresponds to the half of the total frequency.
   a. Mean   b. Median
   c. Mode   d. Standard deviation

3. ....is the half of the difference between the third quartile and the first quartile.
   a. Quartile deviation   b. Standard deviation
   c. Range   d. Average deviation

4. Regression equation formula is:
   a. $Y=a+b_1x_1+b_ix_{i...}+b_nx_n$ b. $Y=a+bX$
   c. $Y=\sum Y/n$ d. $Y=a+b/n$

5. Which of the following is **not** a measure of central tendency?
   a. Percentile   b. Quartile
   c. Standard Deviation   d. Mode

6. In scalar matrix all elements other than elements along primary diagonal are:
   a. Equal to zero   b. Equal to two
   c. Equal to three   d. Equal to one

7. In transpose of matrix A, columns of matrix A becomes:
   a. Multiple column   b. Rows
   c. Multiples   d. Divisions

8. Method in which matrix rows are selected and multiply corresponding cofactors to yield determinant is called:
   a. Three factor expansion   b. Co-factor expansion
   c. One factor expansion   d. Two factor expansion

9. According to determinant properties determinant equals to zero if row is:
   a. Multiplied to row   b. Multiplied to column
   c. Divided to row   d. Divided to column

10. Which of the following property does not hold for matrix multiplication?
    a. Associative   b. Distributive
    c. Commutative   d. Additive Inverse

11. Matrix A when multiplied with Matrix C gives the Identity matrix I, what is C?
   a. Identity matrix
   b. Inverse of A
   c. Square of A
   d. Transpose of A

12. As X increases Y also increases. What relationship between X and Y?
   a. Perfectly negative
   b. Perfectly positive
   c. Positive
   d. Negative

13. As the value of X increases, if value of Y decreases, then coefficient of correlation will be:
   a. Positive
   b. Negative
   c. Zero
   d. None of the above

14. In case, coefficient of correlation is positive the curve representing the relation will be:
   a. Upward sloping
   b. Downward sloping
   c. Vertical
   d. Horizontal

15. Karl Pearson's coefficient of correlation is based on the assumption by:
   a. Normality
   b. Platykurtic
   c. Leptokurtic
   d. None of the above

16. Chi- square is symbolically written as:
   a. Ki^2
   b. X^2
   c. Ci^2
   d. None of the above

17. Minimum value of correlation is:
   a. -2
   b. -1.5
   c. -1
   d. 0

18. Dependent variable is represented along:
   a. X axis
   b. Y axis
   c. Z axis
   d. None of the above

19. Census reports used as a source of data is:
   a. Primary
   b. Secondary
   c. Organized data
   d. None

20. If the standard deviation of a population is 9, the population variance is:
   a. 9
   b. 3
   c. 21
   d. 81

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Time : 2 hrs. 40 min.   Marks : 50

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

1. What is a geographical data matrix? Prepare a data matrix with some   4+6=10
   hypothetical data.

2. Explain the following: 5+5=10
   a. Moments in statistics
   b. Kurtosis in statistics

3. a. What is matrix? Give examples and definitions of symmetric,   5+5=10
   diagonal, upper triangular and row matrix.

   b. If $A = \begin{bmatrix} 7 & 3 & -5 \\ 0 & 4 & 2 \\ 1 & 5 & 4 \end{bmatrix}$ and B=3A, C= B + 2A-5I,

   Find matrix D such that D=2A+B+C

4. Find the unknowns in the following simultaneous equations using   10
   matrix solutions.
   $7x + 5y + 2z = 37$
   $2x + 4y - z = 11$
   $3x + 4y + z = 20$

5. Define the concept of regression. Put forward the types and properties   3+7=10
   of regression.

6. Write the concept of rank correlation and briefly explain the types and   4+3+3=10
   properties of correlation.

7. Brief about the uses of Factor analysis in statistics. Write the calculation   3+7=10
   procedure of PCA.

8. What do you mean by Primary and secondary data collection? Explain   5+5=10
   the significance of Group and ungrouped data in geographical research.

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