

**\* ANDHRA PRADESH \***

**Max. Marks : 75**

Time : 3 Hours

**Date: 24-03-2020**

**I Answer any Five questions:**

**5x 5 = 25 M**

1. Define classification and explain the types of classification?
2. Define Harmonic mean, write its merits and de merits
3. Calculate rank correlation to the following data

X	9	3	1	2	7	4	8	5	6
Y	6	5	4	3	7	1	9	2	8

4. Define regression and write the properties of regression
5. What is power set? give example
6. Use both rule method and tabular method to specify the following set. The set of all prime numbers less than 20
7. If  $A = \begin{bmatrix} 2 & 7 & 3 \\ 4 & -5 & 6 \end{bmatrix}$  then show that  $(A^T)^T = A$
8. Explain the types of Matrices.

## II. Answer the following questions:

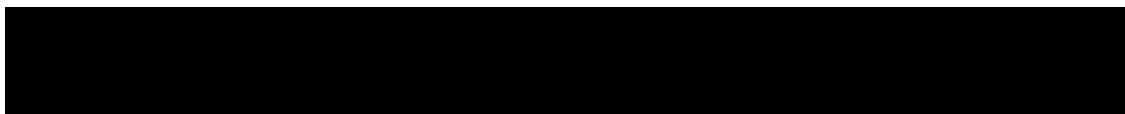
**5 x 10 = 50 M**

9. (a) Define Primary & Secondary Data? Explain various methods of collecting primary Data?

**(Or)**

- b) Explain the importance and limitations statistics

10. a) Calculate mean and median and for the following data



(Or)

- b) Calculate Co-efficient of variation for the following data.

C.I	0-5	5-10	10-15	15-20	20-25	25-30
F	9	14	24	21	15	7

11. a) Calculate coefficient of correlation to the following data

x	15	20	23	19	16	21	25	24
y	11	19	14	25	21	24	30	25

(Or)

- b) Obtain the regression lines to the following data

X	10	19	20	15	14	20	18
Y	12	14	11	15	20	22	16

12. In a group of 250 college students 77 takes English, 109 takes Economics, 75 takes Sociology, 26 take English as well as Economics, 24 take English as Sociology, 30 takes Economics as well as Sociology and 11 take all the three subjects. How many of the 250 Students are not taking any of these subjects?

(Or)

- b) If  $S = \{1,2,3,4,5,6,7,8,9\}$ ,  $A = \{1,2,3,4,5\}$ ,  $B = \{1,4,5\}$  Apply De Morgan Laws to set theory

13. a) Find the Inverse of a matrix  $A = \begin{bmatrix} 3 & 4 & 6 \\ 1 & 2 & 3 \\ 8 & 5 & 10 \end{bmatrix}$

(Or)

- b) Solve the Equations by Using Cramer's Rule.

$$2x + y - z = 3$$

$$x + y + z = 1$$

$$x - 2y - 3z = 4$$