



**SASTRA**  
DEEMED TO BE UNIVERSITY  
(U-53 OF THE UGC ACT, 1956)

School of Arts Science & Humanities, Edappadi  
Session 2021-22  
Course Code: SAS 301  
Course No: 301  
Duration: 90 Minutes  
Maximum Marks: 50

Answer all the questions.

**PART A**  $5 \times 2 = 10$  Marks

- 1 In a certain office a letter is typed by A in 4 minutes. The same letter is typed by B, C and D in 5, 6, 10 minutes respectively. What is the average time taken in completing one letter? How many letters do you expect to be typed in one day comprising of 12 working hours?
- 2 The coefficient of rank correlation of the marks obtained by 10 students in two subjects was found to be 0.5. It was then detected that the difference in ranks in the two subjects obtained by one of the student was wrongly taken as 3 in the place of 7. What should be the correct rank correlation coefficient?
- 3 State the nature of the following correlations (positive, negative or no correlation):  
(i) Sale of woollen garments and the day temperature;  
(ii) The colour of the saree and the intelligence of the lady who wears it.
- 4 If  $\rho > 0$  then what can you say about Regression coefficients Explain it.
- 5 Define Regression lines.

Answer any Four questions. **PART B**

$4 \times 10 = 40$  marks

Find the median for the following frequency distribution

Number of days absent	Number of students
Less than 5	29
Less than 10	224
Less than 15	465
Less than 20	582
Less than 25	634
Less than 30	644
Less than 35	650
Less than 40	653
Less than 45	655

(b) The expenditure of 1000 families is given below

Expenditure	40-59	60-79	80-99	100-119	120-139
No. of families	50	?	500	?	50

The median and mean for the distribution are both 87.5 respectively. Find missing frequencies.

523.6

A factory produces two types of electric bulbs A and B. in an experiment relating to their life, following results were obtained

Length of life (in hours)	No of bulbs	
	A	B
500-700	5	4
700-900	11	30
900-1100	26	12
1100-1300	10	8
1300-1500	8	6

Compare the variability of the two varieties using the coefficient of variation.

In a laboratory experiment on correlation research study, the equation of two regression line were found to be  $2x - y + 1 = 0$  and  $3x - 2y + 7 = 0$ . Find the means, Correlation.

Find Quartiles, Quartile deviation, coefficient of quartile deviation

Mid Value	Frequency
21	18
27	22
33	40
39	50
45	38
51	12
57	4

An investigation was conducted by a company on the value of educational and aptitude tests as assessment methods for recruiting employees. It is the present practice of the company to give recruits such tests when they apply for the posts. The following data give the educational and aptitude test scores, together with assessment score by the personnel department of their ability one year after joining the company. 1 is low score and 20 is a high score

Employee	Educational Test	Aptitude	Assessment by officer
A	9	17	12
B	10	14	14
C	15	12	16
D	14	13	15
E	16	10	17
F	11	15	10
G	12	12	11
H	17	16	18

Then find

- Rank of Each set of data
- Calculate 2 appropriate rank correlation coefficients
- Write brief report on your findings.