



- 2 (a) Explain process limits and Revised limits. 3  
 (b) Draw  $\bar{X}$ -chart for the following data. State your conclusion about the production process : 7

Sample No.	1	2	3	4	5	6	7	8	9	10	
Observations	$x_1$	73	75	88	75	79	73	72	75	79	72
	$x_2$	71	74	75	76	76	80	76	77	73	70
	$x_3$	70	75	79	77	74	75	73	79	74	80
	$x_4$	73	75	76	75	78	75	77	78	73	78
	$x_5$	71	76	77	77	81	76	76	74	76	78

- (c) Obtain the control limits for the following data : 3

No. of defectives per unit	0	1	2	3	4
Observed items	110	20	40	20	10

- 3 (a) In which chart, Poisson distribution is applied ? State the uses of that chart. 2  
 (b) Explain : Standard Error and Power of the test. 3  
 (c) The Financial company's head office is at Mumbai and its branch office is at Surat. The CEO wants to introduce a new method of working; for this purpose, a survey is conducted. It is observed that, in Mumbai, out of 500 Employees, 38% of employees oppose the new method, while in Surat out of 400 employees, 59% of the employees favour the new method of working. Is the difference between their attitude towards the new method of working significant ? Use 5% level of significance. 4  
 (d) If the standard Error for the difference between two standard deviations of two samples of size 150 and 300 is 0.50. Then obtain the value of the population variance. 3

- 4 (a) Explain the test of significance of sample coefficient of correlation. 3
- (b) From the past data, it is observed that the average marks of the students was 65 marks with standard deviation 16 marks. After adopting new method of teaching, a random sample of 64 students is taken for the inspection. 5
- It is found that the average marks of the 64 students was 69. Is the new method of teaching effective ? Use 1% level of significance. Also obtain 95.45% confidence limits for the population mean.
- (c) The mean yield and the variance of the yield of vegetables in the two plots are given below. Is the difference between their dispersion significant ? Use 5% level of significance : 4

	90 Group of plots	100 Group of plots
Mean yield per plot	1600 kg.	1575 kg.
Variance per plot	900 kg.	729 kg.