SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF MATHEMATICS

21MAB301T – PROBABILITY AND STATISTICS

(AY 2022-23, EVEN SEMESTER)

Assignment - 2

1. Find the correlation coefficient and obtain the lines of regression from the data given below.

X	65	66	67	67	68	69	70	72
Y	67	68	65	68	72	72	69	71

2. Perform a two-way ANOVA for the following data.

Varieties	**Blocks**			
	1	2	3	4
A	6	4	8	6
B	7	6	6	9
C	8	5	10	9

3. Given below are the values of sample mean $\bar{X}$ and sample Range **R** for 10 samples each of size 5. Draw the appropriate mean and Range chats and comment on the state of control of the process.

Sample no.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
***S*ample Mean**	52	50	50	51	47	52	49	54	51	54
Range	6	7	6	5	6	9	8	7	7	4

4. The values of sample mean $\bar{X}$ ans sample SD ‘s’ for 15 samples each of size 4, drawn from a production process are given below. Draw the appropriate control chart for the process average and process variability. Comment on the state of control.

Sample	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Mean	15	10	12.5	13	12.5	13	13.5	11.5
SD	3.1	2.4	3.6	2.3	5.2	5.4	6.2	4.3
Sample	**9**	**10**	**11**	**12**	**13**	**14**	**15**	
Mean	13.5	13	14.5	9.5	12	10.5	11.5	
SD	3.4	4.1	3.9	5.1	4.7	3.3	3.3	

5. 10 samples each of size 50 were inspected and the number of defectives in the inspection were 2, 1, 1, 2, 3, 5, 5, 1, 2, 3. Draw the number of defective (np) and the proportion of defective (p) control charts. Comment on the results.

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