Ministry of Higher Education & Scientific Research
Salahaddin University – Erbil - College of Administration & Economics
Department: Statistics & information
Stage: Three - First Semester (2022-2023)
Lecturer: Zainab Abdulla M.

Question Bank: (Quality Control)

Q_1/ What are the Objective of Control Charts?

Q_2/ For the following data:

Sample Number	1	2	3	4	5	6	7	8	9	10
$\bar{X}$	103	102	104	105	104	106	102	105	106	104
R	4	5	2	11	4	3	7	2	4	3
Sample Number	11	12	13	14	15	16	17	18	19	20
$\bar{X}$	105	103	102	105	104	105	106	102	105	103
R	4	2	3	4	5	3	5	2	4	2

Draw X-Bar chart and R- chart, and explain the results:

Q_3/ Write only the Types of Variable Quality Control Charts.

Q_4/ From the following data (n=16), Draw P - chart and explain the result:

No. Sample	1	2	3	4	5	6	7	8	9	10
Percent	0.6	0.4	0.5	0.3	0.1	0.9	0.2	0.4	0.3	0.7

Q_5/ Explain the following Objects:

1. Control Charts Errors.
2. P - Chart.

Q_6/ Draw X-bar chart from this data.

Sample	X-bar	Sample	X-bar	Sample	X-bar
1	55.6	11	51.2	21	50.0
2	61.0	12	49.4	22	47.0
3	45.2	13	44.0	23	50.6
4	46.2	14	51.6	24	48.8
5	46.8	15	53.2	25	44.6
6	49.8	16	52.4	26	46.8
7	46.8	17	50.6	27	49.2
8	44.2	18	56.0	28	45.6
9	50.8	19	50.2	29	57.6
10	48.4	20	44.0	30	51.4

Q_7/ 15 random observation of cigarettes was taken and the percentage of nicotine was :

$$x_i = 18, 16, 20, 19, 18, 19, 18, 18, 17, 17.3, 18.6, 20.3, 21, 19.7, 16.4$$

Draw individual values- chart.

Q_8/ Define:

1. Quality Control.
2. Center (Target) line.

Q_9/ For the following data:

Subgroup	Sample Size					X-bar	R
	1	2	3	4	5		
1	13	9	12	10	11		
2	10	11	13	12	14		
3	16	13	10	11	14		
4	12	14	15	13	16		
5	11	13	17	14	13		
6	15	13	14	12	10		
7	14	12	13	11	9		
8	10	12	16	13	12		
9	11	13	14	12	15		
10	15	12	9	10	13		

Plot an X-bar chart and R chart. Is the process in statistical control? Use the following table Values:
(A2 , n = 5) = 0.58 , (A2 , n =10) = 0.31, (D4 , n=5) = 2.11 ,(D4 , n=10) = 1.78 ,(D3 , n=5) = 0 ,(D3 ,n=10)= 0.22.

Q_{10}/ Explain the quality characteristics in detail.

Q_{11}/ From the following data:

NO.	x_1	x_2	x_3	x_4	$\bar{x}_i$	R
1	5	1	2	4		
2	4	2	1	1		
3	8	4	3	5		
4	2	1	1	4		
5	7	5	4	8		
6	2	3	5	2		
7	1	1	1	5		
8	3	8	7	2		

Draw X-Bar chart and R- chart by using the table values (A2 = 0.729, D3 = 0, D4 = 2.282) and explain the results:

Q_{12}/ The Constructing Control Charts are?