## Name:

## **Enrolment No:**



## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, May 2019

Course: BBA (LM/AM)

Semester: VI

**Subject: TQM** 

Subject code- LSCM3004

Max. Marks: 100 Time: 03 hrs.

Attempt all of the following, each question carry two marks.

**Instructions:** 

S. No.

<b>SECTION</b>	A
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	i v		
Q 1	TQM	2	CO 1
Q 2	EMS	2	CO 1
Q 3	Benchmarking	2	CO 1
Q 4	Quality Assurance	2	CO 1
Q 5	Cause & Effect Diagram	2	CO 1
Q 6	QFD	2	CO 1
Q 7	JIT	2	CO 1
Q 8	Control charts	2	CO 1
Q 9	TPM	2	CO 1
Q 10	Capability Index	2	CO 1
	SECTION B		
	Attempt any Four		
Q 1	What does Total Quality Management encompass?	5	CO3
Q 2	What is ISO 14000?	5	CO2
Q 3	What is six sigma quality? How it can be implemented in logistics sector.	5	CO3
Q 4	What is Quality Loss Function? Discuss in details.	5	CO3
Q 5	Consider the capability of a process that puts pressurized grease in an aerosol can. The design specs call for an average of 70 pounds per square inch (psi) of pressure in each can with an upper tolerance limit of 75 psi and a lower tolerance limit of 65 psi. A sample is taken from production and it is found that the cans average 71 psi with a standard deviation of 2psi. Is the process capable at the 3 $\sigma$ level?	5	СОЗ

		SECTION-C	1		
		Attempt any th	ree		
Q 1	A company produces bond	paper and, at regular inte	ervals, samples of 50 sheets of		
			) sheets of paper each are taken		
			owing numbers of sheets in		
	noncompliance per sample. (				
		-			
	Sample	n	Out of compliance		
	1	50	4		
	2	50	3		
	3	50	1		
	4	50	0		
	5	50	5		
	6	50	2		
	7	50	3	4.0	~~
	8	50	1	10	CO2
	9	50	4		
	10	50	2		
	11	50	2		
	12	50	6		
	13	50	0		
	14	50	2		
	15	50	1		
	16	50	6		
	17	50	2		
	18	50	3		
	19	50	1		
	20	50	5		
Q 2	What is ISO 9000? Describe	the process for ISO 9000		10	CO3
Q 3		intenance? Describe the	TPM process with reference to	10	CO3
0.1	FMCG sector.	^**			
Q 4	<del>-</del>	management'? How thes	e charts can be use in service	10	CO4
	sector.	THE CONTROLL BY CO.			
		SECTION-D (Case study	//Analytical)		

mple 2         4.96         4.98         4.95         4.96         5.01         4.89           mple 3         5.21         4.87         5.02         5.08         5.12         5.04           mple 4         5.02         5.09         4.99         5.02         5.03         5.01           mple 5         5.12         5.08         5.09         5.13         5.06         5.13           mple 6         4.98         5.02         4.97         4.99         4.98         4.99           mple 7         4.99         5.00         5.00         5.02         5.01         5.01           mple 8         4.96         5.01         5.02         5.05         5.04         5.02           mple 9         4.96         5.00         4.91         4.87         4.96         5.01           mple 10         5.03         4.99         4.96         5.14         5.11         5.04           mple 11         4.91         4.93         5.04         5.00         4.90         4.82           mple 12         4.97         4.91         5.02         4.93         4.95         4.96           mple 13         5.09         4.96         5.05         5.12	Sample 1 Sample 2 Sample 3		1.72			5.05	4.97	
mple 3         5.21         4.87         5.02         5.08         5.12         5.04           mple 4         5.02         5.09         4.99         5.02         5.03         5.01           mple 5         5.12         5.08         5.09         5.13         5.06         5.13           mple 6         4.98         5.02         4.97         4.99         4.98         4.99           mple 7         4.99         5.00         5.00         5.02         5.01         5.01           mple 8         4.96         5.01         5.02         5.05         5.04         5.02           mple 9         4.96         5.00         4.91         4.87         4.96         5.01           mple 10         5.03         4.99         4.96         5.14         5.11         5.04           mple 11         4.91         4.93         5.04         5.00         4.90         4.82           mple 12         4.97         4.91         5.02         4.93         4.95         4.96           mple 13         5.09         4.96         5.05         5.12         5.06         5.01           mple 14         4.96         4.99         4.82         5.0			4 98					
mple 4         5.02         5.09         4.99         5.02         5.03         5.01           mple 5         5.12         5.08         5.09         5.13         5.06         5.13           mple 6         4.98         5.02         4.97         4.99         4.98         4.99           mple 7         4.99         5.00         5.00         5.02         5.01         5.01           mple 8         4.96         5.01         5.02         5.05         5.04         5.02           mple 9         4.96         5.00         4.91         4.87         4.96         5.01           mple 10         5.03         4.99         4.96         5.14         5.11         5.04           mple 11         4.91         4.93         5.04         5.00         4.90         4.82           mple 12         4.97         4.91         5.02         4.93         4.95         4.96           mple 13         5.09         4.96         5.05         5.12         5.06         5.01           mple 14         4.96         4.99         4.82         5.03         5.00         4.96           mple 15         4.99         4.97         5.01         4.								
mple 5         5.12         5.08         5.09         5.13         5.06         5.13           mple 6         4.98         5.02         4.97         4.99         4.98         4.99           mple 7         4.99         5.00         5.00         5.02         5.01         5.01           mple 8         4.96         5.01         5.02         5.05         5.04         5.02           mple 9         4.96         5.00         4.91         4.87         4.96         5.01           mple 10         5.03         4.99         4.96         5.14         5.11         5.04           mple 11         4.91         4.93         5.04         5.00         4.90         4.82           mple 12         4.97         4.91         5.02         4.93         4.95         4.96           mple 13         5.09         4.96         5.05         5.12         5.06         5.01           mple 14         4.96         4.99         4.82         5.03         5.00         4.96           mple 15         4.99         4.97         5.01         4.98         4.96         5.02           mple 16         5.01         5.04         5.09         5	Sample 4							
mple 6         4.98         5.02         4.97         4.99         4.98         4.99           mple 7         4.99         5.00         5.00         5.02         5.01         5.01           mple 8         4.96         5.01         5.02         5.05         5.04         5.02           mple 9         4.96         5.00         4.91         4.87         4.96         5.01           mple 10         5.03         4.99         4.96         5.14         5.11         5.04           mple 11         4.91         4.93         5.04         5.00         4.90         4.82           mple 12         4.97         4.91         5.02         4.93         4.95         4.96           mple 13         5.09         4.96         5.05         5.12         5.06         5.01           mple 14         4.96         4.99         4.82         5.03         5.00         4.96           mple 15         4.99         4.97         5.01         4.98         4.96         5.02           mple 16         5.01         5.04         5.09         5.07         5.12         5.13           mple 17         5.05         4.97         5.04	Sample 5	_						
mple 7         4.99         5.00         5.00         5.02         5.01         5.01           mple 8         4.96         5.01         5.02         5.05         5.04         5.02           mple 9         4.96         5.00         4.91         4.87         4.96         5.01           mple 10         5.03         4.99         4.96         5.14         5.11         5.04           mple 11         4.91         4.93         5.04         5.00         4.90         4.82           mple 12         4.97         4.91         5.02         4.93         4.95         4.96           mple 13         5.09         4.96         5.05         5.12         5.06         5.01           mple 14         4.96         4.99         4.82         5.03         5.00         4.96           mple 15         4.99         4.97         5.01         4.98         4.96         5.02           mple 16         5.01         5.04         5.09         5.07         5.12         5.13           mple 17         5.05         4.97         5.04         5.03         5.09         5.01           mple 18         4.96         4.93         4.97 <td< td=""><td>Sample 6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Sample 6							
mple 8       4.96       5.01       5.02       5.05       5.04       5.02         mple 9       4.96       5.00       4.91       4.87       4.96       5.01         mple 10       5.03       4.99       4.96       5.14       5.11       5.04         mple 11       4.91       4.93       5.04       5.00       4.90       4.82         mple 12       4.97       4.91       5.02       4.93       4.95       4.96         mple 13       5.09       4.96       5.05       5.12       5.06       5.01         mple 14       4.96       4.99       4.82       5.03       5.00       4.96         mple 15       4.99       4.97       5.01       4.98       4.96       5.02         mple 16       5.01       5.04       5.09       5.07       5.12       5.13         mple 17       5.05       4.97       5.04       5.03       5.09       5.01         mple 18       4.96       4.93       4.97       5.01       4.98       4.92         mple 19       4.90       4.85       5.02       5.01       4.88       4.86	Sample 7							
mple 9         4.96         5.00         4.91         4.87         4.96         5.01           mple 10         5.03         4.99         4.96         5.14         5.11         5.04           mple 11         4.91         4.93         5.04         5.00         4.90         4.82           mple 12         4.97         4.91         5.02         4.93         4.95         4.96           mple 13         5.09         4.96         5.05         5.12         5.06         5.01           mple 14         4.96         4.99         4.82         5.03         5.00         4.96           mple 15         4.99         4.97         5.01         4.98         4.96         5.02           mple 16         5.01         5.04         5.09         5.07         5.12         5.13           mple 17         5.05         4.97         5.04         5.03         5.09         5.01           mple 18         4.96         4.93         4.97         5.01         4.98         4.92           mple 19         4.90         4.85         5.02         5.01         4.88         4.86	Sample 8	_						
mple 10         5.03         4.99         4.96         5.14         5.11         5.04           mple 11         4.91         4.93         5.04         5.00         4.90         4.82           mple 12         4.97         4.91         5.02         4.93         4.95         4.96           mple 13         5.09         4.96         5.05         5.12         5.06         5.01           mple 14         4.96         4.99         4.82         5.03         5.00         4.96           mple 15         4.99         4.97         5.01         4.98         4.96         5.02           mple 16         5.01         5.04         5.09         5.07         5.12         5.13           mple 17         5.05         4.97         5.04         5.03         5.09         5.01           mple 18         4.96         4.93         4.97         5.01         4.98         4.92           mple 19         4.90         4.85         5.02         5.01         4.88         4.86	Sample 9							
mple 11     4.91     4.93     5.04     5.00     4.90     4.82       mple 12     4.97     4.91     5.02     4.93     4.95     4.96       mple 13     5.09     4.96     5.05     5.12     5.06     5.01       mple 14     4.96     4.99     4.82     5.03     5.00     4.96       mple 15     4.99     4.97     5.01     4.98     4.96     5.02       mple 16     5.01     5.04     5.09     5.07     5.12     5.13       mple 17     5.05     4.97     5.04     5.03     5.09     5.01       mple 18     4.96     4.93     4.97     5.01     4.98     4.92       mple 19     4.90     4.85     5.02     5.01     4.88     4.86	Sample 10	5.03	4.99	4.96	5.14	5.11	5.04	
mple 12       4.97       4.91       5.02       4.93       4.95       4.96         mple 13       5.09       4.96       5.05       5.12       5.06       5.01         mple 14       4.96       4.99       4.82       5.03       5.00       4.96         mple 15       4.99       4.97       5.01       4.98       4.96       5.02         mple 16       5.01       5.04       5.09       5.07       5.12       5.13         mple 17       5.05       4.97       5.04       5.03       5.09       5.01         mple 18       4.96       4.93       4.97       5.01       4.98       4.92         mple 19       4.90       4.85       5.02       5.01       4.88       4.86	Sample 11	4.91	4.93	5.04	5.00	4.90		
mple 14     4.96     4.99     4.82     5.03     5.00     4.96       mple 15     4.99     4.97     5.01     4.98     4.96     5.02       mple 16     5.01     5.04     5.09     5.07     5.12     5.13       mple 17     5.05     4.97     5.04     5.03     5.09     5.01       mple 18     4.96     4.93     4.97     5.01     4.98     4.92       mple 19     4.90     4.85     5.02     5.01     4.88     4.86	Sample 12	4.97	4.91	5.02	4.93	4.95	4.96	
mple 15     4.99     4.97     5.01     4.98     4.96     5.02       mple 16     5.01     5.04     5.09     5.07     5.12     5.13       mple 17     5.05     4.97     5.04     5.03     5.09     5.01       mple 18     4.96     4.93     4.97     5.01     4.98     4.92       mple 19     4.90     4.85     5.02     5.01     4.88     4.86	Sample 13	5.09	4.96	5.05	5.12	5.06	5.01	
mple 16     5.01     5.04     5.09     5.07     5.12     5.13       mple 17     5.05     4.97     5.04     5.03     5.09     5.01       mple 18     4.96     4.93     4.97     5.01     4.98     4.92       mple 19     4.90     4.85     5.02     5.01     4.88     4.86	Sample 14	4.96	4.99	4.82	5.03	5.00	4.96	
mple 17     5.05     4.97     5.04     5.03     5.09     5.01       mple 18     4.96     4.93     4.97     5.01     4.98     4.92       mple 19     4.90     4.85     5.02     5.01     4.88     4.86	Sample 15	4.99	4.97	5.01	4.98	4.96	5.02	
mple 18     4.96     4.93     4.97     5.01     4.98     4.92       mple 19     4.90     4.85     5.02     5.01     4.88     4.86	Sample 16	5.01	5.04	5.09	5.07	5.12	5.13	
mple 19 4.90 4.85 5.02 5.01 4.88 4.86	Sample 17	5.05	4.97	5.04	5.03	5.09	5.01	
	Sample 18	4.96	4.93	4.97	5.01	4.98	4.92	
mple 20   5.04   5.03   4.97   4.99   5.05   5.06	Sample 19	4.90	4.85	5.02	5.01	4.88	4.86	
	Sample 20	5.04	5.03	4.97	4.99	5.05	5.06	
p ABC Ltd. construct a x chart from these data.	Help ABC Ltd. cons	struct a x o	chart from	these data.				4.0

Name:

**Enrolment No:** 



## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, May 2019

Course: BBA (LM/AM)

Semester: VI

Subject: TQM
Max. Marks: 100

Subject code- LSCM3004

Time: 03 hrs.

Max. N	farks: 100 Time	e: 03 hrs.	
Instruc			
	SECTION A		
S. No.	Attempt all of the following, each question carry two marks.		
Q 1	SPC	2	CO 1
Q 2	Six Sigma	2	CO 1
Q 3	Benchmarking	2	CO 1
Q 4	Quality Assurance	2	CO 1
Q 5	Benchmarking	2	CO 1
Q 6	QFD	2	CO 1
Q 7	Accuracy	2	CO 1
Q 8	UTL	2	CO 1
Q 9	TPM	2	CO 1
Q 10	Capability Index	2	CO 1
	SECTION B		
	Attempt any Four		
Q 1	What does Total Quality Management encompass?	5	CO3
Q 2	What is ISO 9000?	5	CO2
Q 3	What is six sigma quality? How it can be implemented in logistics sector.	5	CO3
Q 4	What is JIT system? Discuss in details.	5	CO3
Q 5	Consider the capability of a process that puts pressurized grease in an aerosol of The design specs call for an average of 70 pounds per square inch (psi) of pressure each can with an upper tolerance limit of 75 psi and a lower tolerance limit of 65 psi A sample is taken from production and it is found that the cans average 71 psi with standard deviation of 2psi. Is the process capable at the 3 $\sigma$ level?	in osi. 5	CO3
	SECTION-C		
	Attempt any three		

	Sample 1 2	n 50 50	Out of compliance 4 3		
	3	50 50	0		
	5	50	5		
	6	50	2		
	7	50	3		
	8	50	1	10	CO2
	9	50	4		
	10	50	2		
	11	50	2		
	12	50	6		
	13	50	0		
	14	50	2		
	15	50	1		
	16	50	6		
	17	50	2		
	18	50	3		
	19	50	1		
	20	50	5		
Q 2	What is ISO 14000? Describ	What is ISO 14000? Describe the process for ISO 14000.			
Q 3	What is Total Productive Market FMCG sector.	aintenance? Describe the	ΓPM process with reference to	10	CO3
Q 4	What is SPC chart for qualit sector.	y management? How thes	e charts can be use in service	10	CO4

Sample 1         5.13         4.92         5.01         4.88         5.05         4.97           Sample 2         4.96         4.98         4.95         4.96         5.01         4.89           Sample 3         5.21         4.87         5.02         5.08         5.12         5.04           Sample 4         5.02         5.09         4.99         5.02         5.03         5.01           Sample 5         5.12         5.08         5.09         5.13         5.06         5.13           Sample 6         4.98         5.02         4.97         4.99         4.98         4.99           Sample 7         4.99         5.00         5.00         5.02         5.01         5.01           Sample 8         4.96         5.01         5.02         5.05         5.04         5.02           Sample 9         4.96         5.00         4.91         4.87         4.96         5.01           Sample 10         5.03         4.99         4.96         5.14         5.11         5.04           Sample 11         4.91         4.93         5.04         5.00         4.90         4.82           Sample 13         5.09         4.96         5.0	4.96       4.98       4.95       4.96       5.01       4.89         5.21       4.87       5.02       5.08       5.12       5.04         5.02       5.09       4.99       5.02       5.03       5.01         5.12       5.08       5.09       5.13       5.06       5.13         4.98       5.02       4.97       4.99       4.98       4.99         4.99       5.00       5.00       5.02       5.01       5.01         4.96       5.01       5.02       5.05       5.04       5.02         4.96       5.00       4.91       4.87       4.96       5.01         5.03       4.99       4.96       5.14       5.11       5.04         1       4.91       4.93       5.04       5.00       4.90       4.82         2       4.97       4.91       5.02       4.93       4.95       4.96         3       5.09       4.96       5.05       5.12       5.06       5.01         4       4.96       4.99       4.82       5.03       5.00       4.96         5       4.99       4.82       5.03       5.00       4.96         5 <th></th> <th>5.05</th> <th></th> <th>5.01</th> <th>4.92</th> <th>5.13</th> <th>Sample 1</th>		5.05		5.01	4.92	5.13	Sample 1
Sample 3         5.21         4.87         5.02         5.08         5.12         5.04           Sample 4         5.02         5.09         4.99         5.02         5.03         5.01           Sample 5         5.12         5.08         5.09         5.13         5.06         5.13           Sample 6         4.98         5.02         4.97         4.99         4.98         4.99           Sample 7         4.99         5.00         5.00         5.02         5.01         5.01           Sample 8         4.96         5.01         5.02         5.05         5.04         5.02           Sample 9         4.96         5.00         4.91         4.87         4.96         5.01           Sample 10         5.03         4.99         4.96         5.14         5.11         5.04           Sample 11         4.91         4.93         5.04         5.00         4.90         4.82           Sample 13         5.09         4.96         5.05         5.12         5.06         5.01           Sample 14         4.96         4.99         4.82         5.03         5.00         4.96	5.21         4.87         5.02         5.08         5.12         5.04           5.02         5.09         4.99         5.02         5.03         5.01           5.12         5.08         5.09         5.13         5.06         5.13           4.98         5.02         4.97         4.99         4.98         4.99           4.99         5.00         5.00         5.02         5.01         5.01           4.96         5.01         5.02         5.05         5.04         5.02           4.96         5.00         4.91         4.87         4.96         5.01           5.03         4.99         4.96         5.14         5.11         5.04           6         5.03         4.99         4.96         5.14         5.11         5.04           1         4.91         4.93         5.04         5.00         4.90         4.82           2         4.97         4.91         5.02         4.93         4.95         4.96           3         5.09         4.96         5.05         5.12         5.06         5.01           4         4.96         4.99         4.82         5.03         5.00         4.96 </td <td></td> <td>5.01</td> <td></td> <td></td> <td></td> <td></td> <td></td>		5.01					
Sample 4         5.02         5.09         4.99         5.02         5.03         5.01           Sample 5         5.12         5.08         5.09         5.13         5.06         5.13           Sample 6         4.98         5.02         4.97         4.99         4.98         4.99           Sample 7         4.99         5.00         5.00         5.02         5.01         5.01           Sample 8         4.96         5.01         5.02         5.05         5.04         5.02           Sample 9         4.96         5.00         4.91         4.87         4.96         5.01           Sample 10         5.03         4.99         4.96         5.14         5.11         5.04           Sample 11         4.91         4.93         5.04         5.00         4.90         4.82           Sample 13         5.09         4.96         5.05         5.12         5.06         5.01           Sample 14         4.96         4.99         4.82         5.03         5.00         4.96	5.02         5.09         4.99         5.02         5.03         5.01           5.12         5.08         5.09         5.13         5.06         5.13           4.98         5.02         4.97         4.99         4.98         4.99           4.99         5.00         5.00         5.02         5.01         5.01           4.96         5.01         5.02         5.05         5.04         5.02           4.96         5.00         4.91         4.87         4.96         5.01           5.03         4.99         4.96         5.14         5.11         5.04           1         4.91         4.93         5.04         5.00         4.90         4.82           2         4.97         4.91         5.02         4.93         4.95         4.96           3         5.09         4.96         5.05         5.12         5.06         5.01           4         4.96         4.99         4.82         5.03         5.00         4.96           5         4.99         4.97         5.01         4.98         4.96         5.02           5         5.01         5.04         5.09         5.07         5.12							
Sample 5         5.12         5.08         5.09         5.13         5.06         5.13           Sample 6         4.98         5.02         4.97         4.99         4.98         4.99           Sample 7         4.99         5.00         5.00         5.02         5.01         5.01           Sample 8         4.96         5.01         5.02         5.05         5.04         5.02           Sample 9         4.96         5.00         4.91         4.87         4.96         5.01           Sample 10         5.03         4.99         4.96         5.14         5.11         5.04           Sample 11         4.91         4.93         5.04         5.00         4.90         4.82           Sample 12         4.97         4.91         5.02         4.93         4.95         4.96           Sample 13         5.09         4.96         5.05         5.12         5.06         5.01           Sample 14         4.96         4.99         4.82         5.03         5.00         4.96	5.12         5.08         5.09         5.13         5.06         5.13           4.98         5.02         4.97         4.99         4.98         4.99           4.99         5.00         5.00         5.02         5.01         5.01           4.96         5.01         5.02         5.05         5.04         5.02           4.96         5.00         4.91         4.87         4.96         5.01           5.03         4.99         4.96         5.14         5.11         5.04           1         4.91         4.93         5.04         5.00         4.90         4.82           2         4.97         4.91         5.02         4.93         4.95         4.96           3         5.09         4.96         5.05         5.12         5.06         5.01           4         4.96         4.99         4.82         5.03         5.00         4.96           5         4.99         4.82         5.03         5.00         4.96           6         5.01         5.04         5.09         5.07         5.12         5.13           7         5.05         4.97         5.04         5.03         5.09							
Sample 6         4.98         5.02         4.97         4.99         4.98         4.99           Sample 7         4.99         5.00         5.00         5.02         5.01         5.01           Sample 8         4.96         5.01         5.02         5.05         5.04         5.02           Sample 9         4.96         5.00         4.91         4.87         4.96         5.01           Sample 10         5.03         4.99         4.96         5.14         5.11         5.04           Sample 11         4.91         4.93         5.04         5.00         4.90         4.82           Sample 12         4.97         4.91         5.02         4.93         4.95         4.96           Sample 13         5.09         4.96         5.05         5.12         5.06         5.01           Sample 14         4.96         4.99         4.82         5.03         5.00         4.96	4.98       5.02       4.97       4.99       4.98       4.99         4.99       5.00       5.00       5.02       5.01       5.01         4.96       5.01       5.02       5.05       5.04       5.02         4.96       5.00       4.91       4.87       4.96       5.01         5.03       4.99       4.96       5.14       5.11       5.04         1       4.91       4.93       5.04       5.00       4.90       4.82         2       4.97       4.91       5.02       4.93       4.95       4.96         3       5.09       4.96       5.05       5.12       5.06       5.01         4       4.96       4.99       4.82       5.03       5.00       4.96         5       4.99       4.97       5.01       4.98       4.96       5.02         5       5.01       5.04       5.09       5.07       5.12       5.13         7       5.05       4.97       5.04       5.03       5.09       5.01         8       4.96       4.93       4.97       5.01       4.98       4.92         9       4.90       4.85       5.02							
Sample 7       4.99       5.00       5.00       5.02       5.01       5.01         Sample 8       4.96       5.01       5.02       5.05       5.04       5.02         Sample 9       4.96       5.00       4.91       4.87       4.96       5.01         Sample 10       5.03       4.99       4.96       5.14       5.11       5.04         Sample 11       4.91       4.93       5.04       5.00       4.90       4.82         Sample 12       4.97       4.91       5.02       4.93       4.95       4.96         Sample 13       5.09       4.96       5.05       5.12       5.06       5.01         Sample 14       4.96       4.99       4.82       5.03       5.00       4.96	4.99     5.00     5.00     5.02     5.01     5.01       4.96     5.01     5.02     5.05     5.04     5.02       4.96     5.00     4.91     4.87     4.96     5.01       5.03     4.99     4.96     5.14     5.11     5.04       1     4.91     4.93     5.04     5.00     4.90     4.82       2     4.97     4.91     5.02     4.93     4.95     4.96       3     5.09     4.96     5.05     5.12     5.06     5.01       4     4.96     4.99     4.82     5.03     5.00     4.96       5     4.99     4.97     5.01     4.98     4.96     5.02       5     5.01     5.04     5.09     5.07     5.12     5.13       7     5.05     4.97     5.04     5.03     5.09     5.01       8     4.96     4.93     4.97     5.01     4.98     4.92       9     4.90     4.85     5.02     5.01     4.88     4.86							
Sample 8       4.96       5.01       5.02       5.05       5.04       5.02         Sample 9       4.96       5.00       4.91       4.87       4.96       5.01         Sample 10       5.03       4.99       4.96       5.14       5.11       5.04         Sample 11       4.91       4.93       5.04       5.00       4.90       4.82         Sample 12       4.97       4.91       5.02       4.93       4.95       4.96         Sample 13       5.09       4.96       5.05       5.12       5.06       5.01         Sample 14       4.96       4.99       4.82       5.03       5.00       4.96	4.96     5.01     5.02     5.05     5.04     5.02       4.96     5.00     4.91     4.87     4.96     5.01       5.03     4.99     4.96     5.14     5.11     5.04       1     4.91     4.93     5.04     5.00     4.90     4.82       2     4.97     4.91     5.02     4.93     4.95     4.96       3     5.09     4.96     5.05     5.12     5.06     5.01       4     4.96     4.99     4.82     5.03     5.00     4.96       5     4.99     4.97     5.01     4.98     4.96     5.02       5     5.01     5.04     5.09     5.07     5.12     5.13       7     5.05     4.97     5.04     5.03     5.09     5.01       8     4.96     4.93     4.97     5.01     4.98     4.92       9     4.90     4.85     5.02     5.01     4.88     4.86							
Sample 9       4.96       5.00       4.91       4.87       4.96       5.01         Sample 10       5.03       4.99       4.96       5.14       5.11       5.04         Sample 11       4.91       4.93       5.04       5.00       4.90       4.82         Sample 12       4.97       4.91       5.02       4.93       4.95       4.96         Sample 13       5.09       4.96       5.05       5.12       5.06       5.01         Sample 14       4.96       4.99       4.82       5.03       5.00       4.96	4.96     5.00     4.91     4.87     4.96     5.01       5.03     4.99     4.96     5.14     5.11     5.04       1     4.91     4.93     5.04     5.00     4.90     4.82       2     4.97     4.91     5.02     4.93     4.95     4.96       3     5.09     4.96     5.05     5.12     5.06     5.01       4     4.96     4.99     4.82     5.03     5.00     4.96       5     4.99     4.97     5.01     4.98     4.96     5.02       6     5.01     5.04     5.09     5.07     5.12     5.13       7     5.05     4.97     5.04     5.03     5.09     5.01       8     4.96     4.93     4.97     5.01     4.98     4.92       9     4.90     4.85     5.02     5.01     4.88     4.86							
Sample 10       5.03       4.99       4.96       5.14       5.11       5.04         Sample 11       4.91       4.93       5.04       5.00       4.90       4.82         Sample 12       4.97       4.91       5.02       4.93       4.95       4.96         Sample 13       5.09       4.96       5.05       5.12       5.06       5.01         Sample 14       4.96       4.99       4.82       5.03       5.00       4.96	1     4.91     4.93     5.04     5.00     4.90     4.82       2     4.97     4.91     5.02     4.93     4.95     4.96       3     5.09     4.96     5.05     5.12     5.06     5.01       4     4.96     4.99     4.82     5.03     5.00     4.96       5     4.99     4.97     5.01     4.98     4.96     5.02       5     5.01     5.04     5.09     5.07     5.12     5.13       7     5.05     4.97     5.04     5.03     5.09     5.01       8     4.96     4.93     4.97     5.01     4.98     4.92       9     4.90     4.85     5.02     5.01     4.88     4.86							
Sample 11       4.91       4.93       5.04       5.00       4.90       4.82         Sample 12       4.97       4.91       5.02       4.93       4.95       4.96         Sample 13       5.09       4.96       5.05       5.12       5.06       5.01         Sample 14       4.96       4.99       4.82       5.03       5.00       4.96	1     4.91     4.93     5.04     5.00     4.90     4.82       2     4.97     4.91     5.02     4.93     4.95     4.96       3     5.09     4.96     5.05     5.12     5.06     5.01       4     4.96     4.99     4.82     5.03     5.00     4.96       5     4.99     4.97     5.01     4.98     4.96     5.02       5     5.01     5.04     5.09     5.07     5.12     5.13       7     5.05     4.97     5.04     5.03     5.09     5.01       8     4.96     4.93     4.97     5.01     4.98     4.92       9     4.90     4.85     5.02     5.01     4.88     4.86	5.04	5.11	5.14	4.96	4.99	5.03	
Sample 13     5.09     4.96     5.05     5.12     5.06     5.01       Sample 14     4.96     4.99     4.82     5.03     5.00     4.96	3         5.09         4.96         5.05         5.12         5.06         5.01           4         4.96         4.99         4.82         5.03         5.00         4.96           5         4.99         4.97         5.01         4.98         4.96         5.02           5         5.01         5.04         5.09         5.07         5.12         5.13           7         5.05         4.97         5.04         5.03         5.09         5.01           8         4.96         4.93         4.97         5.01         4.98         4.92           9         4.90         4.85         5.02         5.01         4.88         4.86	4.82	4.90	5.00	5.04	4.93	4.91	Sample 11
Sample 14 4.96 4.99 4.82 5.03 5.00 4.96	4     4.96     4.99     4.82     5.03     5.00     4.96       5     4.99     4.97     5.01     4.98     4.96     5.02       6     5.01     5.04     5.09     5.07     5.12     5.13       7     5.05     4.97     5.04     5.03     5.09     5.01       8     4.96     4.93     4.97     5.01     4.98     4.92       9     4.90     4.85     5.02     5.01     4.88     4.86	4.96	4.95	4.93	5.02	4.91	4.97	
	5     4.99     4.97     5.01     4.98     4.96     5.02       5     5.01     5.04     5.09     5.07     5.12     5.13       7     5.05     4.97     5.04     5.03     5.09     5.01       8     4.96     4.93     4.97     5.01     4.98     4.92       9     4.90     4.85     5.02     5.01     4.88     4.86	5.01	5.06	5.12	5.05	4.96	5.09	Sample 13
Sample 15 4.99 4.97 5.01 4.98 4.96 5.02	5     5.01     5.04     5.09     5.07     5.12     5.13       7     5.05     4.97     5.04     5.03     5.09     5.01       8     4.96     4.93     4.97     5.01     4.98     4.92       9     4.90     4.85     5.02     5.01     4.88     4.86	4.96	5.00	5.03	4.82	4.99	4.96	Sample 14
	7     5.05     4.97     5.04     5.03     5.09     5.01       8     4.96     4.93     4.97     5.01     4.98     4.92       9     4.90     4.85     5.02     5.01     4.88     4.86	5.02	4.96	4.98	5.01	4.97	4.99	Sample 15
Sample 16   5.01   5.04   5.09   5.07   5.12   5.13	3     4.96     4.93     4.97     5.01     4.98     4.92       9     4.90     4.85     5.02     5.01     4.88     4.86	5.13	5.12	5.07	5.09	5.04	5.01	Sample 16
Sample 17 5.05 4.97 5.04 5.03 5.09 5.01	9 4.90 4.85 5.02 5.01 4.88 4.86	5.01	5.09	5.03	5.04	4.97	5.05	Sample 17
Sample 18 4.96 4.93 4.97 5.01 4.98 4.92		4.92	4.98	5.01	4.97	4.93	4.96	Sample 18
Sample 19 4.90 4.85 5.02 5.01 4.88 4.86	)   504   502   407   400   505   506	4.86	4.88	5.01	5.02	4.85	4.90	Sample 19
Sample 20 5.04 5.03 4.97 4.99 5.05 5.06	)   3.04   3.05   4.97   4.99   3.05   3.00	5.06	5.05	4.99	4.97	5.03	5.04	Sample 20
	Ltd. construct a x chart from these data.				these data.	chart from t	onstruct a x o	Help ABC Ltd. co