

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: MBA (GM-Operations)
Subject: Total Quality Management
Max. Marks: 100
Instructions:

Semester: III
Subject code- LSCM8017
Time: 03 hrs.

SECTION A

S. No.	Attempt all of the following, each question carry two marks.		
Q 1	What is your understanding about total quality management?	2	CO 1
Q 2	Discuss which cost of quality is crucial in manufacturing sector.	2	CO 1
Q 3	How PDCA tool of quality can assess continuous improvement process.	2	CO 1
Q 4	Why there is a need to appraise Quality Assurance deptt. in firms.	2	CO 1
Q 5	Discuss application of Cause & Effect Diagram in service sector.	2	CO 1
Q 6	What is six-sigma quality process.	2	CO 1
Q 7	Why JIT tool is important in electronics products?	2	CO 1
Q 8	How control charts can be used in quality control?	2	CO 1
Q 9	What is continuous improvement process.	2	CO 1
Q 10	What is capability index? How it can assess consistency of production process?	2	CO 1

SECTION B

Attempt any Four

Q 1	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 3σ level?	5	CO2
Q 2	What is Total Productive Maintenance? Describe the TPM process with reference to FMCG sector.	5	CO2
Q 3	How Employee empowerment is helpful in TQM implementation? Explain in details	5	CO2
Q 4	How TQM is different from QM? Discuss with suitable examples.	5	CO3
Q 5	What is Pareto Analysis? Describe its process.	5	CO2

SECTION-C

Attempt any three

Q 1	A bank is employing a call answering service. The main goal in terms of quality is "zero waiting time". How can bank analyze the situation and improve quality using continuous improvements tools.	10	CO3
Q 2	Suppose you want to open new restaurant at Dehradun. How will you do benchmarking process for your new service? What factors you would consider for benchmarking.	10	CO3

Q 3	What is Taguchi's Loss function? Company C received an average of 10 complaints per month last year. In this current month they received 15 complaints (y). Management sets an acceptable level at 2 (tolerance). It costs the company Rs.50 directly per complaint to correct the problems. They determined the cost in lost sales to be Rs.100. Total cost per complaint Rs.150. What is the quality loss to the company C?	5+5	CO2																																																																																																																																												
Q 4	How the Quality Function Deployment process can help in manufacturing industry especially in FMCG sector? What is the design process of it to meet customer demands?	10	CO4																																																																																																																																												
SECTION-D (Case study/Analytical)																																																																																																																																															
Q 1	<p>A Service facility (ABC Ltd.) provides service. The time duration specified for the service is 5 minutes. Every hour, six services are sampled and their timings are measured and recorded. Twenty of these samples of six services are gathered. (Given for n=6; A2= 0.483, D3 = 0, D4 = 2.004)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Sample 1</td><td>5.13</td><td>4.92</td><td>5.01</td><td>4.88</td><td>5.05</td><td>4.97</td></tr> <tr><td>Sample 2</td><td>4.96</td><td>4.98</td><td>4.95</td><td>4.96</td><td>5.01</td><td>4.89</td></tr> <tr><td>Sample 3</td><td>5.21</td><td>4.87</td><td>5.02</td><td>5.08</td><td>5.12</td><td>5.04</td></tr> <tr><td>Sample 4</td><td>5.02</td><td>5.09</td><td>4.99</td><td>5.02</td><td>5.03</td><td>5.01</td></tr> <tr><td>Sample 5</td><td>5.12</td><td>5.08</td><td>5.09</td><td>5.13</td><td>5.06</td><td>5.13</td></tr> <tr><td>Sample 6</td><td>4.98</td><td>5.02</td><td>4.97</td><td>4.99</td><td>4.98</td><td>4.99</td></tr> <tr><td>Sample 7</td><td>4.99</td><td>5.00</td><td>5.00</td><td>5.02</td><td>5.01</td><td>5.01</td></tr> <tr><td>Sample 8</td><td>4.96</td><td>5.01</td><td>5.02</td><td>5.05</td><td>5.04</td><td>5.02</td></tr> <tr><td>Sample 9</td><td>4.96</td><td>5.00</td><td>4.91</td><td>4.87</td><td>4.96</td><td>5.01</td></tr> <tr><td>Sample 10</td><td>5.03</td><td>4.99</td><td>4.96</td><td>5.14</td><td>5.11</td><td>5.04</td></tr> <tr><td>Sample 11</td><td>4.91</td><td>4.93</td><td>5.04</td><td>5.00</td><td>4.90</td><td>4.82</td></tr> <tr><td>Sample 12</td><td>4.97</td><td>4.91</td><td>5.02</td><td>4.93</td><td>4.95</td><td>4.96</td></tr> <tr><td>Sample 13</td><td>5.09</td><td>4.96</td><td>5.05</td><td>5.12</td><td>5.06</td><td>5.01</td></tr> <tr><td>Sample 14</td><td>4.96</td><td>4.99</td><td>4.82</td><td>5.03</td><td>5.00</td><td>4.96</td></tr> <tr><td>Sample 15</td><td>4.99</td><td>4.97</td><td>5.01</td><td>4.98</td><td>4.96</td><td>5.02</td></tr> <tr><td>Sample 16</td><td>5.01</td><td>5.04</td><td>5.09</td><td>5.07</td><td>5.12</td><td>5.13</td></tr> <tr><td>Sample 17</td><td>5.05</td><td>4.97</td><td>5.04</td><td>5.03</td><td>5.09</td><td>5.01</td></tr> <tr><td>Sample 18</td><td>4.96</td><td>4.93</td><td>4.97</td><td>5.01</td><td>4.98</td><td>4.92</td></tr> <tr><td>Sample 19</td><td>4.90</td><td>4.85</td><td>5.02</td><td>5.01</td><td>4.88</td><td>4.86</td></tr> <tr><td>Sample 20</td><td>5.04</td><td>5.03</td><td>4.97</td><td>4.99</td><td>5.05</td><td>5.06</td></tr> </table>	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 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	Sample 15	4.99	4.97	5.01	4.98	4.96	5.02	Sample 16	5.01	5.04	5.09	5.07	5.12	5.13	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	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		
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Q 1	Help ABC Ltd. To construct a \bar{X} and R chart from these data.	10	CO4																																																																																																																																												
Q 2	How does your chart show that the "Service duration of the process" is out-of-control?	10	CO4																																																																																																																																												
Q 3	What action do you recommend for ABC Ltd?	10	CO4																																																																																																																																												