Name: **Enrolment No:**	

UPES

End Semester Examination, May 2025

Course: Total Quality Management **Semester: IV**

Program: BBA-CORE-IV-B5/INT-BBA-MBA-IV **Time: 03 hrs.**

Course Code: LSCM2019 **Max. Marks: 100**

SECTION A

10Qx2M=20Marks

S. No.		Marks	CO
Q 1	Statement of question		
1.1	Which of the following is not a part of Quality philosophy? a) Constancy of purpose. b) Increases fear of Performance c) Management by objectives d) Abolish quotas	**2**	**CO1**
1.2	_____in product quality should be minimised as part of achieving consistency, which is an essential goal of quality.	**2**	**CO1**
1.3	A _____ is a histogram or bar chart combined with a line graph that groups the frequency or cost of different problems to show their relative significance. Pareto chart Fishbone diagram Scatter plot Failure mode and effects analysis (FMEA)	**2**	**CO1**
1.4	A product design QFD shows an interrelationship matrix between customer VOC and CTQ. If a row in the QFD relationship matrix shows no association with any of the columns, then it means: a) A VOC is unnecessary and can be dropped from QFD b) A VOC is not addressed in the design prototype c) A CTQ is unnecessary and does not address any VOC d) None of these	**2**	**CO1**
1.5	Failure mode and effect analysis (FMEA) provide a checklist procedure. Which of the following questions is NOT likely to feature on the checklist? What would be the consequences of the failure be? What would be the cost of avoiding failure be? How likely is such a failure to be detected before it affects the customer? What is the likelihood that the failure may occur?	**2**	**CO1**
1.6	Which of the following is NOT a category of customer needs according to the Kano Model? a) Must-be b) Performance	**2**	**CO1**

	c) Excitement d) Indifferent		
1.7	Six Sigma is a framework commonly used for: A. Ensuring timely healthcare services B. Reducing variation and defects C. Maximizing profits in healthcare D. Increasing the complexity of healthcare processes	**2**	**CO1**
1.8	The term "voice of the customer" is associated with: a. Concurrent engineering. b. The Taguchi approach. c. Service blueprinting. d. Quality function deployment.	**2**	**CO1**
1.9	A Process is stated as 'Out-of-control' if it has a) Only common cause of variation b) Only assignable cause of variations c) Only systematic cause of variations d) All of these	**2**	**CO1**
1.10	For the last 30 days, the number of mistakes on the daily report has averaged 4.5. What would the UCL be if a 3-sigma c-chart was constructed?	**2**	**CO1**
SECTION B **4Qx5M= 20 Marks**			
Q 2	Statement of question	**Marks**	**CO**
2.1	Explain the difference between specification limits and control limits. Is there a desired relationship between the two?	**5**	**CO2**
2.2	How might the different perspectives of quality apply to your university? Provide some specific examples.	**5**	**CO2**
2.3	Select a service activity with which you are familiar. What might be some critical to quality (CTQ) characteristics associated with it?	**5**	**CO2**
2.4	A customer service department receives 20,000 calls per month, with an average of 80 calls containing errors. Each call has 3 opportunities for error. a. Calculate the DPMO for the customer service process. b. Determine the corresponding sigma level.	**5**	**CO2**
SECTION-C **3Qx10M=30 Marks**			
Q 3	Statement of question	**Marks**	**CO**
3.1	For a regional hospital in a metropolitan area, what are some of the internal failure and external failure costs? How might they be reduced?	**10**	**CO3**
3.2	Compare and contrast Taguchi's loss functions for the situations target is best, smaller is better, and larger is better. Give examples in the hospitality industry.	**10**	**CO3**
3.3	The management of the Dinners Delight franchised restaurant chain is in the process of establishing quality control charts for the time that its service	**10**	**CO3**

people give to each customer. Management thinks the length of time that each customer is given should remain within certain limits to enhance service quality. A sample of six service people was selected, and the customer service they provided was observed four times. The activities that the service people were performing were identified, and the time to service one customer was recorded:

Service Time, Sec				
Service Person	Sample 1	Sample 2	Sample 3	Sample 4
1	200	150	175	90
2	120	85	105	75
3	83	93	130	150
4	68	150	145	175
5	110	90	75	105
6	115	65	115	125

Draw the appropriate chart and comment on the result.

SECTION-D
2Qx15M= 30 Marks

Q 4	Statement of question	**Marks**	**CO**
4.1	A smartphone manufacturer tests the battery capacity of its latest model. The target specification is 4000 mAh ± 200 mAh. Recent test data shows the process has a mean battery capacity of 4100 mAh and a standard deviation of 60 mAh. a. Calculate the Cp and Cpk for the battery capacity process and comment on the results. b. Estimate the percentage of units likely to fall outside the specifications and comment on the sigma level for the current process capability. c. Discuss whether this sigma level is adequate for meeting quality standards in consumer electronics manufacturing.	**15**	**CO4**
4.2	Consider the airline transportation industry. Develop a house of quality showing customer requirements and technical descriptors.	**15**	**CO4**