UPES
End Semester Examination, Dec 2024

Course: Total Quality Management   **Semester: III**
Program: MBA-CORE-III-B5   **Time: 03 hrs.**
Course Code: LSCM8017   **Max. Marks: 100**

SECTION A
10Qx2M=20Marks

S. No.		Marks	CO
Q 1	Statement of question		
1.1	Improving quality through small, incremental improvements is a characteristic of what type of quality management system? Just in time Six Sigma Total Quality Management Kaizen	2	CO1
1.2	When performing a root cause investigation, which of the following should you work hard to avoid? Determining what process was not adequate and why? Assigning the personal blame Assuming the first reason that comes to mind is the ultimate root cause B and C	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 _____ sorts possible causes into various categories that branch off from the original problem. Also called a cause-and-effect or Ishakawa diagram. Scatter Plot Diagram Pareto Chart Fishbone Diagram Failure mode and effects analysis (FMEA)	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?	2	CO1

	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?		
1.6	Six Sigma can best be defined as- a. A management methodology that uses only statistical tools to improve the customer experience. b. A customer-focused problem solving methodology that uses powerful statistical tools to reduce variation and improve processes. c. A management methodology that is primarily focused on achieving financial results. d. A customer-focused problem solving methodology used exclusively within the manufacturing sector.	2	CO1
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	Match the following **Hint: Here y is output value and m is the target of the process specification** 	Concept	The loss function
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A. Larger is better	1. $L(y)=k(y-m)^2$
B. Smaller is better	2. $L(y)=ky^2$
C. Nominal is best	3. $L(y)=k\left[\dfrac{1}{y^2}\right]$ | a. A-3, B-2, C-1 b. A-3, B-1, C-2 c. A-2, B-3, C-1 d. A-2, B-1, C-3	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? a. 7.5 b. 10.86 c. 18 d. 2.12	2	CO1
SECTION B **4Qx5M= 20 Marks**			
Q 2	Statement of question	**Marks**	**CO**

2.1	The management of the Dinners Delight franchised restaurant chain is in the process of establishing quality control charts for the time that its service 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:	5	CO2

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

Determine the upper and lower control limits for an R -chart with a sample size of six.

2.2	How might the different perspectives of quality apply to your college or 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	Maintaining accuracy of books on the shelves in a college library is an important task. Consider the following problems that are often observed. a. Books are not placed in the correct shelf position. This process includes those books that have been checked out and returned, as well as those taken off the shelves for use within the library by patrons. b. New or returned books are not checked in and consequently, the online catalog does not show their availability. What procedures or poka-yokes might you suggest for mitigating these problems? You might wish to talk to some librarians or administrators at your college library to see how they address such problems.	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 quality assurance manager is assessing the capability of a process that puts pressurized grease in an aerosol can. The design specifications call for an average of 60 pounds per square inch (psi) of pressure in each can, with an upper specification limit of 65 psi and a lower specification limit of 55 psi. A sample is taken from production, and it is found that the cans average 61 psi, with a standard deviation of 2 psi. What is the capability of the process? What is the probability of producing a defect?	**10**	**CO3**

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SECTION-D
2Qx15M= 30 Marks

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Q 4	Statement of question	**Marks**	**CO**
4.1	A pharmaceutical company measures the potency of a drug with a target specification of 50 mg ± 3 mg. Recent data shows the process has a mean potency of 51 mg and a standard deviation of 0.9 mg. c. Calculate the Cp, Cpk, and for the process and comment on results. d. Estimate the percentage of parts that are likely to fall outside the specifications and comment on sigma level for the current process capability. e. Discuss whether this sigma level is adequate for meeting quality standards in pharmaceuticals.	**15**	**CO4**
4.2	A luxury hotel wants to improve its guest experience with a focus on room cleanliness, staff responsiveness, check-in speed, in-room amenities, and security. Develop a House of Quality (HoQ) to map these customer needs to service design specifications, such as staff training, room maintenance, and security protocols. Suggest two key areas for improvement to enhance guest satisfaction.	**15**	**CO4**