UPES
End Semester Examination, May 2024

Program: INT-BBA-MBA **Semester: VI**

Subject/Course: Total Quality Management **Max. Marks: 100**

Course Code: LSCM3004 **Duration: 180 Minutes**
Instructions:

SECTION A
10Qx2M=20Marks

S. No.	Statement of question	Marks	CO
			CO1
A1	Which of the following statements are wrong? I Natural variation exceeds design specifications: process is not capable of meeting specification all the time. II Design specification and natural variations are same: process is capable of meeting specification most of the time. a) Only I b) Only II c) Both I and II d) None of these	2	CO1
A2	Situations where acceptance sampling is likely to be useful I. when testing is destructive. II. when the cost of 100% inspection is extremely high. III. when 100% inspection is not technologically feasible or would require so much calendar time that production scheduling would be seriously impacted. IV. when the supplier has an excellent quality history, and some reduction in inspection from 100% is desired, but the supplier's process capability is sufficiently low as to make no inspection an unsatisfactory alternative.	2	CO1

	A. I and II		
	B. II, III and IV		
	C. I, II, III and IV		
	D. I, II and III		
A3	Juran Trilogy has three components. They are: Quality Leadership, Improvement and Organizational Commitment Planning, Quality Technology and Organizational Commitment Planning, Control and Improvement Planning, Control and Quality Technology	2	CO2
A4	Which of the following statement is correct? Under three sigma, the parts per million defective is 0.002 when the process is centered and normally distributed. Under six sigma, the parts per million defective is 0.002 when the process is centered and normally distributed. Under six sigma, the parts per million defective is 3.4 when the process is centered and normally distributed. None of the above	2	CO1
A5	Obstacles to implementing Quality management program are Lack of companywide definition of quality Lack of customer focus Lack of leadership, strong motivation All of the above	2	CO2
A6	Which of the following statements correctly describes the difference between inspection by attributes and inspection by variables? In inspection by attributes results can be Yes or No; whereas inspection by variables gives the numerical value of the inspected characteristics. Inspection by attributes is quick, less expensive, and less informative; whereas inspection by variables is slow, costly, and more informative.	2	CO1

	Inspection by attributes is simple and requires use of unskilled labour; whereas inspection by variables is complex and requires use of skilled labour.		
	All of these.		
A7	Cite two examples of a 'discrete' random data	2	CO4
	Number of defects on a metal sheet and the length of a shaft.		
	Colour density of television screen and weight of an object.		
	Surface finish of a metal sheet and number of persons waiting at an ATM counter.		
	Number of nonconforming containers and number of persons appearing in CAT course examination.		
A8	Which type of control chart should be used when it is possible to have more than one mistake per item?	2	CO3
	c-chart		
	p-chart		
	x-bar chart		
	R-chart		
A9	A customer service hotline has received an average of 7 complaints a day for the last 25 days. What type of control chart should be used to monitor this hotline?	2	CO1
	c-chart		
	p-chart		
	R-chart		
	X-bar chart		
A10	Mean control chart are sensitive to	2	CO4
	Change in process dispersion		
	Shift in process mean		
	Average range of different samples		
	All of the above		
SECTION B **4Qx5M= 20 Marks**			

Q	Statement of question		
B1	Select a product or service and describe how the dimensions of quality influence its acceptance.	**5**	**CO1**
B2	In what ways is Six Sigma different from other quality initiatives? Discuss.	**5**	**CO3**
B3	Give three examples of mistake-proofing devices that can be found in everyday life. For each, indicate whether the mistake-proofing feature is a control or warning, or if it eliminates the mistake.	**5**	**CO2**
B4	What are the four general categories of quality costs? Discuss	**5**	**CO3**

SECTION-C
3Qx10M=30 Marks

Q			
C1	Should a very pricey hand-crafted object of beauty, use automated equipment for manufacturing some of its component parts needed for assembling the object? Do you think it is a mistake to use automation in this way?	**10**	**CO2**
C2	Mechanical products, such as cars, break down. Cars often are serviced by the car dealer. How can a car dealer use the service department to encourage future car sales? Discuss in detail	**10**	**CO4**
C3	"You don't inspect quality into a product; you have to build it in." Discuss the implications of this statement.	**10**	**CO3**

SECTION-D
2Qx15M= 30 Marks

Q	Statement of question		
D1	Nocaf Drinks, Inc., a producer of decaffeinated coffee, bottles Nocaf. Each bottle should have a net weight of 4 ounces. The machine that fills the bottles with coffee is new, and the operations manager wants to make sure that it is properly adjusted. The operations manager takes a sample of $n = 8$ bottles and records the average and range in ounces for each sample. The data for several samples are given in the following table. Note that every sample consists of 8 bottles (A2=0.373, D4=1.864, D3=0.136) 	**15**	

Sample	Sample Range	Sample Average
A	0.41	4
B	0.55	4.16
C	0.44	3.99
D	0.48	4
E	0.56	4.17
F	0.62	3.93
G	0.54	3.98
H	0.44	4.01

Is the machine properly adjusted and in control? Discuss your finding.

D2	A manufacturing company has been inspecting units of output from a process. Each product inspected is evaluated on five criteria. If the unit does not meet standards for the criteria, it counts as a defect for the unit. Each unit could have as few as zero defects, and as many as five. After inspecting 2,000 units, they discovered 33 defects. What is the DPMO measure for this process? Discuss your finding. OR 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?	**15**	**CO4**