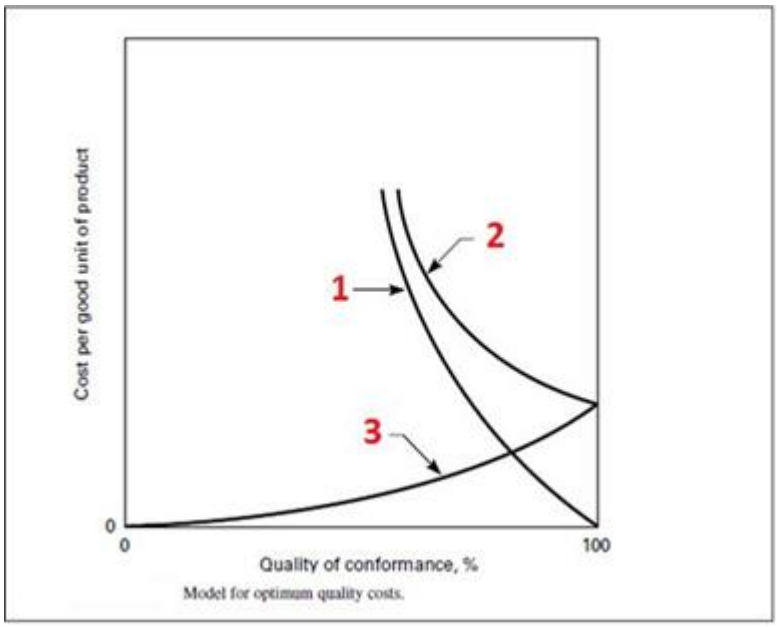
Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
END Semester Examination

Course: BBA (LM) **Semester: VI**
Program: TQM **Time: 3 Hrs**
Course code: LSCM3004 **Max. Marks: 100**
Instructions:
USE OF CALCULATOR IS PERMITTED

SECTION A

Q-1	**(6* 5 Marks Each =30 Marks)**		
I.	From the figure displayed below, identify the curves  Model for optimum quality costs. SOLUTION a) 1- Costs of prevention, 2- Total quality costs,3- Failure costs b) 1- Failure costs, 2-Total quality costs, 3- Costs of appraisal plus prevention c) 1- Total quality costs, 2- Failure costs, 3- Costs of appraisal plus prevention d) 1- Total quality costs, 2- Failure costs, 3- Costs of appraisal	**5**	

II.	Which of these statements are <u>not</u> true: 1. Prior to world war 2nd Japanese products were perceived as poor in quality. 2. 'Prevention cost' is inversely proportional to the sum of failure costs and appraisal costs. 3. There is always a tradeoff between quality and cost. 4. Higher grade implies higher quality. a) all statements are true b) none of the above are true c) only 1 and 2 are true d) only 1 is true e) only 2 and 4 are true	**5**	
III.	Which of the following is the final step in the Quality Trilogy? a) Quality control b) Quality planning c) Quality documentation d) Quality improvement	**5**	
IV.	The outside diameter of aluminum ring is known to be normally distributed with mean 40mm and standard deviation 2.5mm. find the approximate % of products whose diameter is more than 40 mm but less than 42.5mm a) 84% b) 36% c) 99.97% d) none of the above	**5**	
V.	Which of these is not a part of SPC's 7 tools? a) Pareto chart b) Histogram c) Design of Experiments d) Check sheet	**5**	
VI.	Food served at a restaurant should be between 38°C and 49°C when it is delivered to the customer. The process used to keep the food at the correct temperature has a process standard deviation of 2°C and the mean value for these temperatures is 40°c. What is the process capability index of the process? a) 1.5 b) 1	**5**	

	c) 0.33 d) 0.15		
SECTION B **(10*5 Marks Each =50 Marks)**			
Q-2	What is the role of TQM for increasing the profitability in any organization? How it is implement? Write the steps to implement TQM in industry? (3+3+4=10)	**10**	
Q-3	What is QUALITY FUNCTION DEPLOYMENT? Write different stages of QFD and explain each block of QFD with suitable example. (6+4=10)	**10**	
Q-4	The amount of coke dispensed into each bottle varies slightly and assume the amount of coke dispensed into the bottles is *normally distributed.* If at least 99% of the bottles must have between 585 and 595 milliliters of coke, find the value of maximum standard deviation that can be allowed?	**10**	
Q-5	a) What are some of the potential benefits of an EMS based on ISO 14001? b) Write the formula of Taaguchis quadratic loss function. Explain the factors on which the value of constant K depends?(5+5=10) OR a) What is benchmarking? Explain it with suitable example? b) Replacement times for CD players are normally distributed with a mean of 7.1 years and a standard deviation of 1.4 years (data from *Consumer Reports*). What is the probability that a randomly selected CD player will have to be replaced in 8 years or less? (5+5=10)	**10**	
Q-6	Write the short notes on the following a) KAI-ZEN b) JIT	**10**	
SECTION-C **(1* 20 Marks Each= 20 Marks)** ATTEMPT ONLY ONE QUESTION			
Q-7	a) What is the importance of INTERNAL AUDIT in implementation of ISO 9001:2015 QMS? Write the clauses and sub clauses of ISO 9001:2015 Quality management System (QMS) b) What are the SIX Big losses associated with TPM? How traditional model of TPM is different from latest one? Justify your answer with example? (10+10=20) **OR** a) A leading manufacturing unit describe their manufacturing process with following data:- ✓ Run time= 375 min. ✓ Break time = 60 min.	**20**	

	✓ Down time = 30 min. ✓ Setup Time=15 ✓ Total Count = 360 parts. ✓ Rejects = 5 parts. ✓ Target count =400 parts Using these inputs, calculate the following i. Availability, ii. Performance Efficiency, iii. Rate of Quality b) What is the difference between “Variable” and “Attribute” control charts? Write the UCL and LCL of p, c, X-bar & R control Charts? (12+8=20)		