

Name:	 UPES <small>UNIVERSITY WITH A PURPOSE</small>
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES END Semester Examination Semester: VI	Time: 3 Hrs Max. Marks: 100
Course: BBA (LM & AM) Program: TQM Course code: LSCM3004 Instructions: USE OF CALCULATOR IS PERMITTED	

SECTION A

Q-1	(6* 5 Marks Each =30 Marks)		
-----	-------------------------------------	--	--

I.	The concepts of quality planning, quality control, quality improvement known as 'Trilogy of quality' was introduced by a) Philip B. Crosby b) Edward Deming c) Shewhart d) Dr. Juran	5	
II.	The various definitions of quality do NOT include: a) The value-based approach b) The transcendent approach c) The minimum specification approach d) The manufacturing-based approach	5	
III.	"Yield losses" belongs to which among the four core categories of cost of quality? a) Appraisal Costs b) Prevention Costs. c) External Failure Costs d) Internal Failure Costs	5	
IV.	The outside diameter of a part used in gear assembly is known to be normally distributed with mean 40mm and standard deviation 2.5mm. find the approximate % of products whose diameter is less than 42.5mm a) 84% b) 36% c) 99.97% d) 0.03% e) None of the above	5	
V.	According to ISO 9001:2015, organizational knowledge shall be a) Documented and such documented information shall be maintained b) Available to everybody c) Determined to achieve conformity in products and services d) All of the above e) None of the above	5	

VI.	The upper and lower specification limits for a component are 0.150 cm. and 0.120 cm., with a process target of .135 cm. The process standard deviation is 0.004 cm. and the process average is 0.138 cm. What is the process capability index? a) 1.00 b) 1.25 c) 1.50 d) 1.75	5	
SECTION B (10*5 Marks Each =50 Marks)			
Q-2	Explain Taguchis Loss Function? A production process makes batteries for 9 +/- .25 volts applications at a cost of \$0.75 each. Calculate Loss when a part is made at 9.10 Volt. (3+7=10)	10	
Q-3	Discuss the role of QUALITY FUNCTION DEPLOYMENT in new product and service development. Explain each block of QFD with suitable example. (6+4=10)	10	
Q-4	a) The outside diameter of a part used in gear assembly is known to be normally distributed with mean 40mm and standard deviation 2.5mm. find the % of products whose diameter is more than 42.5mm. b) What do you understand by the term Cost of Quality? What is the difference between APPRAISAL and PREVENTION cost? (6+4=10)	10	
Q-5	a) What are some of the potential benefits of an EMS based on ISO 14001? b) What is risk-based thinking? Explain why has it been introduced into the ISO 9001:2015 standard ? (5+5=10) OR a) Who are internal and external customers? Explain it with the help of example? b) Explain 80-20 rule (Pareto Analysis)? What is the advantage of Pareto Priority Index (PPI) ?. (5+5=10)	10	
Q-6	Write the short notes on the following a) Benchmarking b) FMEA	10	
SECTION-C (1* 20 Marks Each= 20 Marks)			
Q-18	i) Define and explain the eight pillars of traditional model of TPM? Explain six big losses associated with TPM? ii) Write the clauses and sub clauses of ISO 9001:2015 Quality management System (QMS)? Define the role and responsibility of MR in implementation of QMS in an any organization? (10+10=20) OR	20	

What is OEE? Calculate OEE using the data (for one shift) given below

Item	Data
Shift Length	8 hours (8*60=480 Minutes)
Breaks (Tea and Lunch)	60 minute
Downtime	45 Minutes
Ideal Cycle Time	1 piece in EVERY 63 Seconds
Total Count	360 Pieces
Total Time	420 Minutes
Target count	400 Pieces
Reject Quantity	5 Pieces

What is % change in the value of OEE if down time is reduce by 15 minutes?
(12+8=20)

