Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY ME - SEMESTER-IV • EXAMINATION- WINTER • 2015

Subject Code: 745001Date: 05/12/2015Subject Name: QUALITY ENGINEERING IN MANUFACTURING

Tir Inst	ne: 2 ructio	:30 PM TO 5:00 PM Total Marks: 70	
	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	Explain the steps involved in Design of Experiment process.	07
	(b)	Explain (a) Better test strategies and (b) Efficient test strategies.	07
Q.2	(a)	What is the need and application of ISO 9000?	07
	(b)	Explain the procedure for One way ANOVA problem.	07
	(b)	OR Explain L4 Orthogonal array with suitable example.	07
Q.3	(a)	Develop the equation for Taguchi Loss Function.	07
	(b)	Explain different types of S/N ratios.	07
Q.3	(a)	What is F Test? Give its importance and critique in ANOVA.	07
	(b)	Explain the concept of Tolerance design using the Taguchi Loss function.	07
Q.4	(a) (b)	Explain the concept of Multi Level Experiments. Explain the Measurement System of Parameter Design. OR	07 07
Q.4	(a)	Write Short Notes on (a) Quality Circles (b) Six Sigma	07
	(b)	What is a Bench Marking? How Bench Marking is carried out?	07
Q.5	(a) (b)	Explain the Quality Engineering in Product Design.	07

(b) Suppose The National Transportation Safety Board (NTSB) wants to examine the safety of compact cars, Mid size cars and full size cars. It collects a sample of three for each of the treatments (car types). Using the hypothetical data provided below; test whether the mean pressure applied to the driver's head during a crash test is equal for each types of car. Use $\alpha = 5 \%$

Compact Cars	Mid Size Cars	Full Size Cars
643	469	484
655	427	456
702	525	402
S = 31.18	S = 49.17	S = 41.68

OR

Q.5 (a) How the tolerances and economics of production are inter related?(b) Explain Business Process Re Engineering (BPR).

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