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Name:	
Roll No.:	An Adoption Of Street Safe Start Start
Invigilator's Signature :	

2011 TOTAL QUALITY MANAGEMENT

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP - A (Multiple Choice Type Questions)

1.	Choose t	the (correct	alternatives	for	any	ten	of	the	follow	ing	:
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 $10 \times 1 = 10$

- i) "Customer is the most important visitor in our premises....", who said this?
 - a) Prince Charles
- b) Taguchi
- c) Henry Ford
- d) Lal Bahadur Shastri.
- ii) Kaizen is the word used in relation to quality first in
 - a) US

b) USSR

c) Japan

- d) France.
- iii) The 95% confidence interval means the following % level of significance
 - a) 5

b) - 5

c) 100

d) 0.

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- iv) In Japan, the land of Kaizen, at Nissan Motor Company which was in a financial and operational crisis, a transformational change was brought about by
 - a) Deming
- b) Carlos Ghosn
- c) Taguchi
- d) Juran.
- v) The term "ISO" in quality management system stands for
 - a) International Standard Organisations
 - b) International Safety Organisations
 - c) International Organisation for Standardisation
 - d) Internal Standard Organisations.
- vi) The Quality Control activities lay primary emphasis in
 - a) testing of products to uncover defective products
 - b) an attempt to improve and stabilize production
 - c) develop associated processes, to avoid, or at least to minimize the defective products
 - d) sort out the issues that led to the products which do not meet the customer's needs.
- vii) If the unit cost rises, optimum order quantity will
 - a) increase
 - b) decrease
 - c) either increase or decrease
 - d) none of these.

viii)	SWOT Analysis is a type technique.								
	a)	A	b)	B					
	c)	C	d)	D.					
ix)	The	expected value of X^2 w	here	X is a random variable					
	is								
	a)	mean	b)	process capability					
	c)	standard deviation	d)	variance.					
x)	The circl		es m	aximum to the quality					
	a)	chief of the steering co	mmit	tee					
	b)	departmental head							
	c)	leader							
	d)	coordinator.							
xi)	Pareto analysis is a statistical technique in decision making that is used for								
	a)	selection of a limited r significant overall effect		per of tasks the produce					
	b)	overall examination o	f the	total process for faul					
	c)	a failure mode analysis	3						
	d)	fault tree analysis.							
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- xii) The concept of total quality management includ
 - a) involvement of working personnel only
 - b) involvement of top management only
 - c) involvement of the customers & vendors
 - d) all of (a), (b) & (c).

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following.

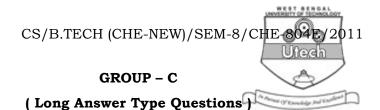
 $3 \times 5 = 15$

- 2. Explain what do you mean by Taguchi's quality loss function.
- 3. Explain the different steps of Pareto analysis.
- 4. Explain the following terms:

$$2\frac{1}{2} + 2\frac{1}{2}$$

- i) Consumers' risk
- ii) Producers' risk.
- 5. Write down the concept of Deming Chain Reaction.
- 6. Using the method of random variables deduce the upper control limit of control chart for proportion defectives.

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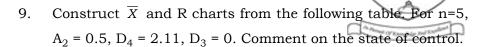


Answer any three of the following.

 $3 \times 15 = 45$

- 7. Determine the single sampling plan for AOQL of 2%, an estimated process average of 1%, and lot size of 200, 1000, and 5000 respectively. What percentage of the product will be subject to sampling inspection with each lot size?
- 8. a) Interpret the patterns of variation on \overline{X} and R chart for the following cases :
 - i) Jumps in process level
 - ii) High proportion of points near or outside the limits.
 - b) An automatic continuous blending process needs to be controlled for the acidity of the output measured in pH. The following samples were taken where process was running smoothly:

Sample No.	Values of pH
1	5.32, 5.29, 5.38, 5.28, 5.41
2	5.40, 5.33, 5.37, 5.30, 5.40
3	5.34, 5.27, 5.29, 5.35, 5.33
4	5.29, 5.32, 5.31, 5.40, 5.39
5	5.31, 5.27, 5.38, 5.36, 5.40
6	5.41, 5.38, 5.33, 5.37, 5.42

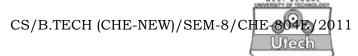


Sample	1	2	3	4	5	6	7	8	9	10	11	12
$\frac{\text{No.}}{\overline{X}}$	69.4	63.4	57.0	64.0	57.4	82.0	85.0	33.4	46.0	112.4	93.6	95.6
R	45	48	62	48	36	81	78	42	69	84	48	75

- 10. A Q.C. was formed in an R & D centre dealing with Biotechnological Processes. In the first meeting an effective brainstorming was conducted and the circle identified a problem pertaining to the same work area. In the next meeting the members identified 20 causes of the selected problem under four sub-heads. Considering you to be the leader of the circle present this case study and draw an Ishikawa diagram.
- 11. State the factors which have enabled the Mumbai Dabbawallahs to achieve the six sigma distinction. A process engineering industry has retained you as a consultant for preparation and ultimate steps for ISO 1400 certification.

 Prepare the basic activity chart for this operation. 6 + 9

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12. Write notes on any two of the following:

- a) TQM
- b) Profit vs Quality
- c) Sampling techniques
- d) Process capability.

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