

**TOTAL QUALITY MANAGEMENT
(CHEN 4242)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 5 (five) from Group B to E, taking at least one from each group.*

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

**Group – A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**

- (i) In TQM Kaizen means
 - (a) deplorable condition
 - (b) corporate planning
 - (c) continuous improvement
 - (d) charitable movement
- (ii) The Deming Cycle also means
 - (a) PDCA Cycle
 - (b) Linde Cycle
 - (c) Carnot Cycle
 - (d) Kaizen
- (iii) ISO 14000 series is related to Certification of ____ Standard.
 - (a) Social accountability
 - (b) Environmental management
 - (c) Quality management
 - (d) Occupational health & safety
- (iv) In TQM Muda (無駄) means
 - (a) Futility
 - (b) Value addition
 - (c) Beautiful
 - (d) Expensive
- (v) The normal distribution is a _____ distribution.
 - (a) Discrete
 - (b) Continuous
 - (c) Virtual
 - (d) Skewed
- (vi) In R- chart D_3 values are _____ for n (sample size) ≤ 6 .
 - (a) 1
 - (b) 0
 - (c) ∞
 - (d) 5
- (vii) Identify the Scientist who was not associated with TQM.
 - (a) Deming
 - (b) Juran
 - (c) Shewhart
 - (d) Chomsky
- (viii) Identify the synonym of Type I error
 - (a) Consumer's Risk
 - (b) Producer's Risk
 - (c) Quality Control Professional's Risk
 - (d) Benefit of Everyone

- (ix) Identify the Plan not related to Acceptance Sampling
 (a) Dodge -- Romig (b) Mil—Std 105
 (c) PPP (d) ChSP
- (x) Ishikawa diagram is another name of
 (a) Fish-bone diagram (b) Network diagram
 (c) TQM diagram (d) Pareto diagram

Group – B

2. (a) How to set your Organizational Goal? Explain with examples.
 (b) What is Kaizen? Discuss the salient aspects of Gemba principles

6 + (1 + 5) = 12

3. (a) A random variable X is distributed at random between the values 0 and 1 so that its probability density function is $f(x) = kx^2(1-x^3)$, where k is a constant. Find the value of k , the mean and standard deviation of the distribution.
 (b) For a series of data points obeying Binomial Distribution, Prove that, $\mu_{np} = E(r) = np$ where symbols stand for usual notations.

6 + 6 = 12**Group – C**

4. A soft-drink bottling company has an automatic continuous blending process which needs to be controlled for the acidity of the output measured in pH. The following 20 samples were taken:

Sample no	pH	Sample no	pH	Sample no	pH	Sample no	pH
1	5.32	6	5.74	11	5.62	16	5.82
2	5.27	7	5.82	12	5.48	17	6.14
3	5.61	8	6.10	13	5.51	18	6.03
4	5.86	9	6.12	14	5.42	19	5.82
5	5.57	10	5.68	15	5.66	20	5.64

Construct suitable process mean and range charts for the system with the help of the following table:

Sample Subgr. Size	A_1	A_2	D_3	D_4
2	3.76	1.88	0	3.27
5	1.60	0.58	0	2.11

12

5. Sarita Electronics uses a single sampling plan of (256,4) for the purchase of connectors. Using the Poisson table of approximation, calculate the AOQL for Sarita.

12

Group – D

6. What is the role of a leader in a Quality Circle? A Q.C. was formed in a manufacturing unit of a Refinery. In the first meeting an effective brainstorming was conducted and the circle identified a problem pertaining to the same work area. In a next meeting the members identified 24 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.
- (2 + 10) = 12**
7. Enumerate four tools and techniques for improvement in TQM. Discuss the need for carrying out SWOT analysis in an organization. What are its operational guidelines?
- (4 + 3 + 5) = 12**

Group – E

8. ISO 9000:2015 standards are based upon seven quality management principles, that senior management can apply for organizational improvement—discuss critically
- 12**
9. (a) Discuss the targets and objectives of ISO 14000 certification.
(b) How does ISO 14000 differ from ISO 9000?
- 6 + 6 = 12**

Department & Section	Submission Link
CHE	https://classroom.google.com/c/Mjk5ODExMTY5NDg5/a/MzYwMDQ4Mzg5NTQ0/details