

**INDUSTRIAL TOTAL QUALITY MANAGEMENT
(CHEN 4126)**

Time Allotted : 2½ hrs

Full Marks : 60

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 4 (four) from Group B to E, taking one from each group.*

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

Group – A

1. Answer any twelve: **12 × 1 = 12**

Choose the correct alternative for the following

- (i) The mid-point of class interval with the highest frequency is called
(a) Range (b) Mean (c) Mode (d) Median
- (ii) Which of the following mentioned standard Probability density functions is applicable to discrete Random Variables?
(a) Gaussian Distribution (b) Poisson Distribution
(c) Rayleigh Distribution (d) Exponential Distribution
- (iii) Which of the following represents India in ISO?
(a) PFRDA (b) FSSAI (c) BIS (d) BCCI
- (iv) Discrete data is also known as
(a) continuous data (b) variable data
(c) attributed data (d) disputed data
- (v) Which of the following is a variable control chart?
(a) P chart (b) nP chart
(c) X-bar chart (d) C chart
- (vi) Dodge – Remig table is related to
(a) Pareto diagram (b) Histogram
(c) Acceptance Sampling (d) Control chart
- (vii) The producer's risk is the probability with which a consumer will
(a) Accept a good lot (b) Accept a bad lot
(c) Reject a good lot (d) Reject a bad lot
- (viii) ISO 9000 series is related to Certification of _____ Standard.
(a) Environmental management (b) Social accountability
(c) Quality management (d) Occupational health & safety

- (ix) Poka –yoka are simple and inexpensive device used in order to
 (a) Ensure the minimum defects are produced by the organisation
 (b) Ensure the zero defects are produced by the organisation
 (c) Ensure the maximum defects are produced by the organisation
 (d) None of these
- (x) Occupational Health & Safety Management standards are detailed in
 (a) ISO 14000 series (b) ISO 45000 series
 (c) ISO 9000 series (d) None of these

Fill in the blanks with the correct word

- (xi) _____ is the most important person in Quality Circle.
- (xii) A variable that can assume any value between two given points is called continuous _____ variable.
- (xiii) In a Quality circle, _____ is responsible to organize internal audit
- (xiv) The PDCA cycle is also known as _____ cycle.
- (xv) In acceptance sampling, the full form of LTPD is _____ .

Group - B

2. (a) Discuss the basic objectives of studying Quality Management. [[CO1](Analyze/IOCQ)]
 (b) What is the Mission of an Organization? [[CO1](Understand/LOCQ)]
 (c) State the Vision of Heritage Institute of Technology. [[CO1](Remember/LOCQ)]
6 + 3 + 3 = 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. [[CO1](Analyze/HOCQ)]
 (b) For a series of data points obeying Binomial Distribution, Prove that, $\mu_{np} = E(r) = np$; where symbols stand for usual notations. [[CO1](Analyze/HOCQ)]
6 + 6 = 12

Group - C

4. (a) Enumerate various control charts used in statistical quality control. [[CO2](Apply/IOCQ)]
 (b) 10 samples each of size 60 of pipe, were inspected in pressure testing. The result of the inspection is given below:

Sample No.	1	2	3	4	5	6	7	8	9	10
No. of Defectives	2	3	3	1	4	2	2	4	3	4

Plot the P chart.

[[CO2](Evaluate/HOCQ)]

4 + 8 = 12

5. (a) Who had invented Pareto Diagram? With example discuss the construction and significance of Pareto diagram. [[CO2](Analyse/HOCQ)]
 (b) Check sheet is an important tool of Total Quality Management – Justify. [[CO2](Remember/LOCQ)]
 (c) How can X bar-R chart be constructed? [[CO2](Apply/IOCQ)]
4 + 4 + 4 = 12

Group - D

6. (a) What do understand by producer's risk and consumer's risk? [[CO3](Analyse/HOCQ)]
 (b) Discuss the effects of parameters (sample size, acceptance no.) on OC curve. [[CO4](Remember/LOCQ)]
 (c) State objectives of a Quality circle. State the functions of leader of Quality circle. [[CO2](Apply/IOCQ)]
4 + 3 + 5 = 12
7. (a) A consignment consisted of 200 items with 3% defectives. If the sample size is 12 and acceptance number is 2, find the probability of acceptance of the consignment. [[CO4](Evaluate/HOCQ)]
 (b) State the structure of a Quality Circle. Mention the functions of Facilitator in a Quality Circle. [[CO4](Remember/LOCQ)]
7 + 5 = 12

Group - E

8. (a) Mention the different parts of ISO 9000 series. Write down the benefits of ISO 9000 series. [[CO4](Analyse/HOCQ)]
 (b) Discuss the differences between ISO 14000 and OSHAS 18000? [[CO4](Remember/LOCQ)]
 (c) State the significance of SA 8000 Certification. [[CO4](Apply/IOCQ)]
5 + 4 + 3 = 12
9. (a) Describe in details the factors which have enabled the Mumbai *Dabbawallahs* to achieve the Six Sigma distinction?. [[CO4](Analyse/IOCQ)]
 (b) Write down brief notes on: i) Hinshitsu-Hozen ii) Hall Mark Gold. [[CO4](Analyse/IOCQ)]
6 + (3 + 3) = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	22.92	35.42	41.66

