

Roll No.

Total no. of printed pages 2

Total no. of questions 6

Max. marks 60

Duration – 3 hours.

Notes**1) Attempt any 5 questions****2) The bracketed figures in the right indicate the marks.**

Q 1a) Different approaches to product quality focus implicitly on different dimensions of quality. What are the different dimensions of quality? Explain any 5 dimensions (10)

Q1b) What are the Producer's risks & Consumer's risks as applicable to sampling inspection? (2)

Q2) "It is more difficult to control quality in service business than in product business" – Discuss this statement on the background of different parameters used for measuring service quality. (12)

Q3 a) What was the traditional view of quality ? How does the modern view differ from traditional view? (6)

Q 3 b) Briefly describe the process of evolution of TQM concept starting from inspection stage. (6)

Q4) Write short notes on any 3 (12)

- i) Process capability C_p & Process Capability index C_{pk}
- ii) Cost of Quality.
- iii) Name 7 QC tools & explain any two of them.
- iv) Statistical Process Control

Q 5) With reference to Deming cycle & Juran's Quality Trilogy, explain the contribution of Dr. Deming & Juran to

Quality movement in industry.

(12)

Q6) It is required to set up X bar & R charts to control the diameter of the gear blanks produced by a machine. Every hour a random sample of four blanks is subjected to inspection. The table below gives the diameters of 40 gear blanks inspected in 10 samples of four each. Use this data to draw the X bar & R charts. Is the process under control? (12)

Sample No.	Observed			Diameters
1	85.500	85.500	85.400	85.430
2	85.360	85.500	85.500	85.430
3	85.449	85.460	85.580	85.500
4	85.430	85.420	85.580	85.470
5	85.529	85.400	85.420	85.520
6	85.330	85.400	85.520	85.380
7	85.400	85.440	85.550	85.400
8	85.380	85.530	85.580	85.400
9	85.440	85.380	85.419	85.600
10	85.450	85.480	85.450	85.570

Control Charts for Variables

(control chart factors)

Sample size n	A2	D3	D4
2	1.88	0.00	3.27
3	1.02	0.00	2.57
4	0.73	0.00	2.28
5	0.58	0.00	2.11
6	0.48	0.00	2.00
7	0.42	0.08	1.92
8	0.37	0.14	1.86
9	0.34	0.18	1.81
10	0.31	0.223	1.78
15	0.223	0.348	1.652
20	0.180	0.414	1.586
25	0.153	0.459	1.541