Total No. of printed pages = 4

BA 172402

Roll No. of candidate

17/6/22

2022

M.B.A. 4th Semester End-Term Examination

QUALITY CONTROL AND MANAGEMENT

(New Regulation)

Full Marks – 70   Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question No.1 and any *four* from the rest

1.   Answer the following: (MCQ/fill in the blanks)   (10 × 1 = 10)

   (i)   Process control is carried out:

      (a)   Before production

      (b)   During production

      (c)   After production

      (d)   All of the above

   (ii)   Low cost, higher volume items requires

      (a)   No inspection

      (b)   Little inspection

      (c)   Intensive inspection

      (d)   100% inspection

   (iii)   High cost, low volume items require

      (a)   No inspection

      (b)   Little inspection

      (c)   Intensive inspection

      (d)   100% inspection

[Turn over

(iv) The mean of sample distribution is

    (a) Less than mean of process distribution

    (b) More than mean of process distribution

    (c) Equal to mean of process distribution

    (d) Any of the above

(v) The percent of the sample means will have values that are within +/-3 standard deviations of the distribution mean is

    (a) 95.5

    (b) 96.7

    (c) 97.6

    (d) 99.7

(vi) The dividing lines between random and non-random deviations from mean of the distribution are known as

    (a) Upper control limit

    (b) Lower control limit

    (c) Control limits

    (d) Two sigma limits

(vii) The chart used to monitor variability is

    (a) Range chart

    (b) P-chart

    (c) C-chart

    (d) All of the above

(viii) The chart used to monitor attributes is

    (a) Range chart

    (b) Mean chart

    (c) P-chart

    (d) All of the above

(ix) Central tendency of a process is monitored in

    (a)   Range chart

    (b)   Mean chart

    (c)   P-chart

    (d)   C-chart

(x) Dispersion of process is monitored in

    (a)   Range chart

    (b)   Mean chart

    (c)   P-chart

    (d)   C-chart

2. (a) What is quality? Briefly discuss the basic concept of Total Quality Management.   (3+4)

    (b) Discuss the four basic costs of poor quality.   (8)

3. (a) What is Kaizen? Briefly discuss the various segments of Kaizen.   (3+4)

    (b) How is statistical process control different from acceptance sampling?   (8)

4. (a) Discuss the contribution of Deming and Juran towards the development of Quality management.   (7)

    (b) Write short note on *any two* of the following.   (4+4)

       (i)   Pareto Chart

       (ii) Cause and effect diagram

       (iii) Histogram

       (iv) Check sheet

5. (a) Briefly discuss the C_p and C_{pk} indices of Process capability studies. (7)

    (b) Briefly discuss type I and type II errors.   (8)

6. (a) Surface defects have been counted on 10 rectangular steel plates and the data are shown in table below. Draw a C-chart for non-conformities using this data.   (7)

Sheet No.	1	2	3	4	5	6	7	8	9	10
No. of defects	2	3	1	4	4	0	2	1	4	2

(b) Below table refers to the data on visual defects found in the inspection of the first 10 samples of size 400. Use the data to obtain upper and lower control limits for percentage defectives in samples of size 400. Draw a np chart. (8)

Table: Data showing number of non-conformities

1	2	3	4	5	6	7	8	9	10
17	15	14	26	09	04	19	12	09	15

7. Below table provides the measurements of the axles of bicycle wheels. Twelve samples with each sample consisting of the measurements of four axles were taken.

Sample No.	Sample Values	Total	Sample Mean (X)	Sample Range (R)
1	139,140,145,144	568	142	6
2	140,142,142,139	563	140.75	3
3	142,136,143,141	562	140.5	7
4	136,137,142,142	557	139.25	6
5	145,146,146,146	583	145.75	1
6	146,148,149,144	587	146.75	5
7	148,145,146,146	585	146.25	3
8	145,146,147,144	582	145.50	3
9	140,139,141,138	558	139.50	3
10	140,140,139,139	558	139.50	1
11	141,137,142,139	559	139.75	5
12	139140144138	560	140.00	6

(Given; D3=0, D4=2.28. A2=0.729)

(a) Draw R chart and comment on the result. (7)

(b) Draw X bar chart and comment on the result. (8)

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