
QUESTION 5

Customer satisfaction is an important measure for any organization and, as such, should be assessed in more ways than just the monitoring of customer complaints.

List the various data that can be collected in this area, with examples in each case, and evaluate each, using a table, as a measure of customer satisfaction.

(20 marks)

QUESTION 6

There are a number of commonly used tools for data visualization. These are:

- Time series plots
- Control charts
- Histograms
- Pareto charts
- 5 whys
- Fishbone diagram
- Scatter plots
- Flow chart.

Discuss **FOUR** data visualisation methods, with illustrations, showing how they are used in all **FOUR** cases.

(20 marks)

QUESTION 7

Most organizations have some form of order processing software application, either for purchase orders or customer orders or both.

(a) Discuss the various data that can be obtained from these applications, using either purchase orders or customer orders as an example.

(10 marks)

(b) Describe, with examples, how an organization would use this data.

(10 marks)



Chartered Quality Institute

CQI Examinations June 2011

Unit 303

Monitoring and Measuring for Quality (Level 3)

23 June 2011

Time: 9.40 – 12.10
(2½ hours)

Notes for candidates

At 9.30, you have 10 minutes preparation time before the exam begins. Your exam booklet will be handed out at 9.40.

Attempt **ALL THREE questions** in **Section A**. Attempt **any TWO** questions from **Section B**. If you attempt three or more questions in Section B, only the first two will be marked.

Questions may be attempted in any order. All questions carry equal marks. The maximum marks for each part of each question are shown.

Begin each question at the top of a fresh side of paper. Do not write in the margins.

If you use any additional sheets (graph paper or additional answer booklet) please indicate your CQI student number, examination name and date on each sheet.

Candidates must show all their working out for any calculations.

SECTION A – ANSWER ALL QUESTIONS

QUESTION 1

There are eight quality management principles on which the quality management standards ISO 9000 series are based.

Discuss, in detail, the factual approach to decision-making. **(20 marks)**

QUESTION 2

Data collection is an important aspect of monitoring an organization's performance. Business reports are usually constructed around the analysis of data.

(a) Briefly explain the following data types and give an example for each type:

- Qualitative data
- Quantitative data
- Discrete data
- Continuous data
- Objective data
- Subjective data
- Attribute data
- Variable data.

(15 marks)

(b) How do you assure the reader that the data used in the analysis for your report is a true reflection of the current situation?

(5 marks)

QUESTION 3

Quality, cost and delivery (QCD) is used in, for example, lean manufacturing and measures a business's performance. The analysis of these metrics often forms a part of the continuous improvement process.

(a) Explain how measuring QCD can be achieved in an organization.

(14 marks)

(b) How can results be displayed so that all members of the organization can see how they are doing?

(6 marks)

SECTION B – ANSWER TWO QUESTIONS ONLY

QUESTION 4

Inspection is an important aspect of quality control for all organizations and not only manufacturers.

(a) Briefly discuss the attributes and function of an inspection record.

(6 marks)

(b) Control chart for number of nonconforming items (np).

Produce (sketch) a 'p' chart for the following output data and include the upper control limit and the lower control limit.

In this case the control limits are set at:

$$n\bar{p} \pm 3\sqrt{n\bar{p}(1-\bar{p})}$$

Subgroup: output during week

| Week No. | Week ending | No. output inspected | No. output defective |
|----------|-------------|----------------------|----------------------|
| 1 | 14/1 | 724 | 48 |
| 2 | 21/1 | 763 | 83 |
| 3 | 28/1 | 748 | 70 |
| 4 | 4/2 | 748 | 85 |
| 5 | 11/2 | 724 | 45 |
| 6 | 18/2 | 727 | 56 |
| 7 | 25/2 | 726 | 48 |
| 8 | 4/3 | 719 | 67 |
| 9 | 11/3 | 759 | 37 |
| 10 | 18/3 | 745 | 52 |
| 11 | 25/3 | 736 | 47 |
| 12 | 1/4 | 739 | 50 |
| 13 | 8/4 | 723 | 47 |
| 14 | 15/4 | 748 | 57 |
| 15 | 22/4 | 770 | 51 |
| 16 | 29/4 | 756 | 71 |
| 17 | 6/5 | 719 | 53 |
| 18 | 13/5 | 757 | 34 |
| 19 | 20/5 | 760 | 29 |

(14 marks)