

QUESTION 5

Automatic data collection is now commonplace in business and commerce.

(a) Identify **TWO** types of automatic data collection.

(4 marks)

(b) For each of the two types of automatic data collection, discuss the technology and applications and give advantages and disadvantages for each.

(16 marks)

QUESTION 6

Many organisations use computer software applications to manage aspects of their business. This could be a Material Requirements Planning (MRP) system, which is a production planning and inventory control method used to manage manufacturing processes, or it could be a Customer Relationship Management (CRM) system controlling interactions with customers, clients and sales prospects. These systems hold vast database records that produce reports on demand.

Provide five advantages and five disadvantages of this type of report. For each, provide a brief explanation of your answer.

(20 marks)

QUESTION 7

There are a number of tools that can be used to help meet customer demand in terms of QCD (quality, cost and delivery). For example, to eliminate constraints in a process or to reduce the lead time and cost of a process.

Explain what is meant by any **FOUR** of the following examples:

- Process lead time
- Work-in-process
- Average completion rate (exit rate or throughput)
- Capacity
- Takt rate (customer demand rate)
- Time trap
- Capacity constraint
- Value-add (VA) time
- Non-value-add (NVA) cost.

(20 marks)



Chartered Quality Institute

CQI Examinations June 2012

Unit 303

Monitoring and Measuring for Quality (Level 3)

20 June 2012

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 (i.e. graph paper or additional answer booklet) please write 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

Acceptance sampling can be used to reduce inspection costs. 100% inspection of every part you receive or ship is often impracticable as well as expensive and time consuming. An Operating Characteristic (OC) Curve can be used when deciding on an acceptance sampling plan.

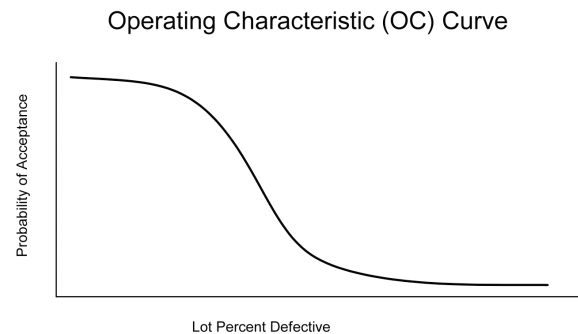
(a) Explain what an acceptance sampling plan is. Your explanation should include descriptions of the following terms:

- Acceptable quality level (AQL)
- Reject quality level (RQL)
- Producer's risk (Alpha risk)
- Consumer's risk (Beta risk)
- Sample size
- Acceptance number.

(15 marks)

(b) Below is a typical OC Curve. Use this to show approximately the following points:

0.65% defective (AQL) at 98% of the time and 5.5% (RQL) at 10% of the time. (5 marks)



QUESTION 2

One way of collecting VOC (voice of the customer) feedback is by the use of a survey.

(a) Discuss the use of customer surveys using the following headings:

- Purpose
- Why use surveys
- When to use surveys.

(10 marks)

(b) Describe how a customer survey would be conducted.

(10 marks)

QUESTION 3

Deciding where, when and how much data to collect when setting up a process monitoring system is not always a simple task. Output measures provide the best overall barometer of process performance. Typical output measures are how well customer or business needs and requirements were met.

In order to predict what output measures you are likely to achieve, input and process measures are required.

(a) Explain, with an example, what input measures are.

(5 marks)

(b) Explain, with an example, what process measures are.

(5 marks)

(c) Describe **TWO** methods that can be used to ensure the selected input and process measures will provide the required output measures.

(10 marks)

SECTION B – ANSWER TWO QUESTIONS ONLY

QUESTION 4

There are many examples of how different organisations collect test and inspection records, from a simple monthly fire alarm test, to telephone conversation monitoring, to complex product measurements. There are three key steps to this activity:

- Collecting the data
- Analysing the data
- Displaying the results of the data analysis, usually in a visual format, to get an understanding of what is going on in the process from which the data is collected.

List the information that you may find on an inspection and test record, using an example of your choice, and explain why that information is important.

(20 marks)

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