QUESTION 6

Quality Team Improvement Boards also sometimes called story boards, are used to summarise the activities of quality improvement teams. There is no set format. It is left to the creativity of the team.

a) List 5 items that could be displayed on a Team Board.

(5 marks)

b) Explain what is meant by 'Visual Management'. Illustrate your answer with diagrams.

(15 marks)

QUESTION 7

Data that is collected is associated with a particular process. In order to first of all identify where in the process to collect the data and to assess what significance that data has in the performance of the process, the process must first be understood. An effective way of understanding processes is by process visualisation.

a) What is meant by process visualisation? Illustrate your answer with diagrams.

(5 marks)

b) Explain how you would go about visualising a process.

(5 marks)

c) If your objective was process improvement, what techniques could you use to help you decide what data to collect from the process?

(10 marks)

Chartered Quality Institute

CQI Examinations January 2011

Unit 303

Monitoring and measuring for quality

20 January 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 all three 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.

QUESTION 1

Variation is the term applied to any differences which occur in products, services, and processes. There are two types of variation:

1. Common cause
2. Special cause

a) Explain these two types of variation.

(15 marks)

b) Identify two types of tools used to understand variation.

(5 marks)

QUESTION 2

A FMEA is a systematic method of identifying and preventing product and process problems before they occur.

a) List, in order, the 10 steps of a FMEA.

(10 marks)

b) Which tool would you use to prioritise the failure modes for action, and why?

(10 marks)

QUESTION 3

In many businesses data is collected and stored, often automatically, but never used. Because of this valuable information is lost and opportunities for improvement missed. This data can range from manufacturing to sales to administrative.

a) Identify one sort of collected data from your own experience and explain how it is collected and stored. Include timescale information.

(10 marks)

b) Explain how this data is, or could be, analysed and the results displayed and explain what value this information is, or could be, to the organisation. Include timescale information.

(10 marks)

QUESTION 4

A single sampling plan gives a producer's risk of 1% at 0.4% defective, and a consumer's risk of 5% at 2.8% defective. From tables the sample size and the acceptance number can be determined: Sample size, n = 320, and acceptance number, c = 4

a) Using Table 35 draw, to scale, the operating characteristic curve using plotting points at P(A) values of 0.99, 0.95, 0.75, 0.25, 0.05, and 0.01.

p% is calculated by dividing the np value obtained from the table by the sample size shown above and multiplying by 100.

(15 marks)

b) Detail on the OC curve the two specified values for alpha and beta or producer and consumer risk. The producer has a 99% probability that the batch will be accepted and the consumer has a 5% probability that the batch will be rejected.

(5 marks)

QUESTION 5

Below is a list of common quality tools:
• Box Plot
• Brainstorming
• Cause-Effect Diagram
• Data Collection
• Flow Diagram
• Graphs and Charts
• Histograms
• Pareto Analysis
• Scatter Diagrams
• Stratification

a) Describe, in detail, any three of these tools. **(12 marks)**

b) Give two examples each of quality improvement activities where Brainstorming, Flow Diagrams, and Scatter Diagrams are frequently used.

(8 marks)