

## QUESTION 5

With the drive to reduce time to market in new product introduction, minimizing warranty failure in new designs is one of the keys to market success. In addition, a single safety-related issue can prove very costly both to company reputation and in potential compensation costs.

- a) Describe the stages involved in carrying out an FMEA exercise to understand and address product failure risk. Include in your answer an FMEA chart/template illustrating **TWO** potential failure modes of your choice.  
(14 marks)
- b) Explain **TWO** constraints which could limit the effectiveness of the FMEA exercise.  
(6 marks)

## QUESTION 6

In setting up any team-based quality improvement project, the success of its achievements will be dependent upon many factors.

- a) Discuss the following in terms of influence on project outcome. In each case, review how they can either support or conversely act as a constraint to project success using appropriate examples.
- (i) Senior management
  - (ii) Team selection and training
  - (iii) Data collection and presentation
  - (iv) Communication within the business
- (16 marks)
- b) Project closure is a key to any improvement project. Name and briefly explain **TWO** key factors which characterise this stage in a successful project.  
(4 marks)

## QUESTION 7

In any ongoing manufacturing process, or continuous delivery of a service, process analysis may be used to identify conformity to requirements, highlight problems to be addressed or show potential opportunities for improvement.

Taking an example of your choice, explain how you would carry out a process analysis exercise. In your answer, illustrate any tools you would use to gather and interpret information about the process including key process data.

(20 marks)



Chartered Quality Institute

CQI Examinations January 2013

## Unit 305

### Using Quality to Improve Business Performance (Level 3)

25 January 2013

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.

## SECTION A – ANSWER ALL QUESTIONS

### QUESTION 1

Your company has been experiencing a quality issue and you have been asked to run a Brainstorming exercise to understand it in order to target corrective action. Using an issue of your choice:

- a) Describe step by step how you would run the Brainstorming process to establish root causes of the issue and how you would group the output of the exercise to maximise its effectiveness. **(14 marks)**
- b) Name, and briefly explain, **THREE** potential limitations to the effectiveness of your Brainstorming exercise. **(6 marks)**

### QUESTION 2

Quality improvement activities in business are underpinned by good data collection and root cause investigation. The Seven Basic Tools of Quality are an established group which can support the effectiveness of such activities when employed by a quality improvement team:

- a) Illustrate the following **THREE** tools and explain how they are used to display data in order to identify and target improvement opportunities: **(12 marks)**
- (i) Pareto charts
  - (ii) Histograms
  - (iii) Scatter plots
- b) The Ishakawa or Cause and Effect diagram can be particularly effective as a team-based tool. Construct an example diagram addressing a problem of your choice. Show example primary and secondary causes under appropriate headings. **(8 marks)**

### QUESTION 3

A process mapping/flow charting exercise can be carried out to understand the flow of operations within a complex process. It is often initiated where the desired output of the process falls below that required in a key business target.

- a) Illustrate **THREE** flow charting symbols and explain what is meant by each one. **(6 marks)**
- b) Map an example process with which you are familiar and where responsibilities cross between departments and/or individuals. Use recognised symbols for the map and also swim lanes to show responsibilities for each stage of the process. **(14 marks)**

## SECTION B – ANSWER TWO QUESTIONS ONLY

### QUESTION 4

Your company has recently suffered from a decline in product quality or the provision of a service which is leading to customer complaints. As the company quality manager you have been tasked to lead an improvement team to understand and address the issues.

Choosing a recognised improvement process with which you are familiar, name and describe the stages such a project would take.

Use of appropriate problem identification and/or problem-solving tools is key at each stage therefore your answer should include reference to these tools. **(20 marks)**