

b) Explain **two** clear benefits the FMEA programme can bring to the business in terms the team can understand.

(6 marks)

c) Illustrate and label a completed FMEA chart/template which you may use to present to the team during their initial training. Include any **two** potential failure modes of your choice.

(8 marks)

## QUESTION 6

Dedicated quality improvement teams can have a dramatic and beneficial effect on business performance; conversely they may tie up key personnel and resources for very little gain.

a) Taking **four** of the items listed below, discuss them in the context of an improvement project in terms of the positive impact they can bring, and conversely, negative impact if lacking or poorly applied.

- (i) Senior management input
- (ii) Training
- (iii) Team selection
- (iv) Data collection and presentation
- (v) Communication within the business
- (vi) Company culture.

(12 marks)

b) Project closure and associated team recognition are key stages in any improvement project. Identify **four** key points that represent good project closure.

(8 marks)

## QUESTION 7

Process analysis is a key part of improving business performance and can bring significant benefits to any business continuously delivering a service or manufacturing a product. Understanding process capability is a key part of this.

a) Give, and briefly explain, **three** situations where a capability study could be used to bring benefit to a business.

(6 marks)

b) Describe the stages involved in running a capability study and actions that need to be taken at each stage. The answer should include illustration of the use of any complementary quality tools.

(14 marks)



CQI Examinations January 2014

## Unit 305

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

24 January 2014

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

Brainstorming is a recognised team technique, often used to explore root causes of a quality issue. When used in conjunction with complementary tools, it can be highly effective in understanding these causes and prioritising corrective actions.

- a) Explain how you would run a brainstorming process to establish the root causes of an issue. (9 marks)
- b) Provide and explain any **one** quality tool you would use in conjunction with the exercise described in Part (a). (5 marks)
- c) Briefly explain **three** key factors that could limit the effectiveness of any brainstorming exercise. (6 marks)

### QUESTION 2

The group of tools commonly known as the seven basic tools of quality are used by quality improvement teams to help define and investigate issues, and also target corrective actions:

- a) Name, explain the use of, and illustrate which of these tools you feel would be most appropriate to satisfy the following activities:
- (i) To display and prioritise causes of failures in order to take action
  - (ii) To demonstrate if correlation exists between two key variables
  - (iii) To identify and group potential factors causing a named undesired effect on quality of product or service.
- (12 marks)
- b) Explain how control charts are used to understand and improve the output of a continuous operation or service. Clearly illustrate and label an example control chart.
- (8 marks)

### QUESTION 3

Most quality improvement teams use process mapping/flow charting at an early stage to gain a clear understanding of the process they wish to improve. This tool also allows the team to see where responsibilities lie between departments or individuals, which are often key areas of process inefficiencies and errors.

- a) Illustrate and briefly explain **three** commonly used flow charting symbols (6 marks)
- b) Take a cross-departmental business process of your choice and map it using recognised symbols. Ensure you show interactions between functions using a standard format. (14 marks)

## SECTION B – ANSWER TWO QUESTIONS ONLY

### QUESTION 4

As company quality manager, you have been asked to investigate a quality issue which is resulting in high levels of customer complaints and potential lost business to your company.

You decide to run an improvement project based upon a DMAIC approach to this issue. Clearly explain the stages of this methodology. Include in your answer the quality tools you would use to support activities at each stage.

(20 marks)

### QUESTION 5

You are a newly recruited quality manager within a medium-sized organisation which designs and manufactures high-volume consumer products. The organisation is unfamiliar with the FMEA process and you have been asked to train staff and then lead this programme based upon your previous experience.

- a) Taking a project based design FMEA as your remit, discuss how you would decide upon:
- (i) Your team size and functional membership of the team
  - (ii) The best stages during the project to commence the FMEA programme and to schedule follow-on meetings.
- (6 marks)

**CONTINUED OVERLEAF** >>