

QUESTION 5

Processes are inherently variable. Understanding and monitoring them is therefore critical for the quality practitioner aiming to ensure consistent delivery of a quality product or service.

- a) Give **two** situations when it would be appropriate to carry out a process capability study. **(4 marks)**
- b) You have been asked to carry out a process capability study on a key business process. Name an appropriate process of your choice and explain how you would carry this study out. Illustrate and explain with the use of charts and key tools as appropriate. **(16 marks)**

QUESTION 6

Quality improvement teams are trained to use a number of quality tools at the appropriate stages of, for example, an improvement-based project.

- a) Illustrate and label the following **three** basic tools of quality. Fully explain their practical use in each case:
1) Scatter diagrams
2) Check Sheets
3) Pareto Charts **(12 marks)**
- b) Explain how control charts are used to understand and improve the output of a continuous operation or service. Illustrate and label an example of a control chart. **(8 marks)**

QUESTION 7

Failure Modes and Effects Analysis (FMEA) is a systematic, team-based tool that is commonly used across many industries, both manufacturing and service-based.

- a) Explain when it would be appropriate to carry out an FMEA exercise and name **three** factors that can help ensure the exercise is effective. **(6 marks)**
- b) Without resultant and effective outputs, FMEA can be seen as a 'paper exercise'. Name and explain **three** key outputs from this tool that can benefit the business. **(6 marks)**
- c) Draw an FMEA template showing appropriate column headings. Populate this fully using **one** scored failure mode example of your choice. **(8 marks)**



Chartered Quality Institute

CQI Examinations January 2015

Unit 305

Using Quality to Improve Business Performance (Level 3)

21 January 2015

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

The business process map or flow chart is a well-established means of procedural communication and standardisation. It has a format utilising internationally recognised symbols. In more recent times, efficient software packages have made this tool even more versatile.

- a) Illustrate and briefly explain the meaning of **three** common process mapping symbols. (6 marks)
- b) Using these symbols, illustrate a process map for a process of your choice. Your chosen example should include cross-functional swim lanes. (8 marks)
- c) One of the key aims of process mapping is to help businesses become more efficient. Name and explain **two** ways that process mapping helps to achieve this. (6 marks)

QUESTION 2

You have been asked to run a quality improvement team to address deterioration in the quality of a manufactured product or service delivery. You decide to use an approach based around the stage-based **DMAIC** methodology.

Explain what the stages referred to in this acronym mean. What key activities would be undertaken at each one? For each stage, discuss the appropriate quality tools you would use in order to make this stage effective. (20 marks)

QUESTION 3

You have been asked to run a brainstorming exercise to address a quality issue in your organisation. You choose to use a cause and effect diagram as an aid to ideas generation.

- a) Explain step-by-step how you would carry out the brainstorming exercise. Include in your answer an example of the cause and effect diagram labelled as appropriate. (14 marks)
- b) Numerous factors can make brainstorming less effective. Name and explain **two** and in each case, discuss how these can be avoided. (6 marks)

SECTION B – ANSWER TWO QUESTIONS ONLY

QUESTION 4

You are a newly appointed Quality Manager looking to implement a step change improvement in the quality culture of your organisation. You decide to use a project-based improvement approach to achieve this and present your proposals to the management team

- a) Provide **three** examples of what is required from the management team in order to support project success. (6 marks)
- b) Name and explain **three** factors you would consider important when selecting your preferred improvement team members. (6 marks)
- c) You wish to use a range of quality tools to progress the project. Briefly explain **one** you would choose and why, for each of the following:
i) Presenting the issue
ii) Visualising and reviewing the process
iii) Gathering the possible causes for investigation
iv) Monitoring improvements. (8 marks)