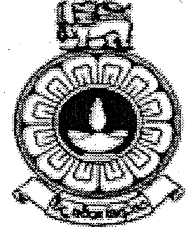


THE OPEN UNIVERSITY OF SRILANKA
 DEPARTMENT OF TEXTILE AND APPAREL TECHNOLOGY
 POST GRADUATE DIPLOMA / MASTER OF TECHNOLOGY
 (APPAREL PRODUCTION & MANAGEMENT)
 FINAL EXAMINATION-2013/2014
 TTM7138-QUALITY MANAGEMENT
 DURATION- 3 HOURS



Date: 22nd August 2014

Time:0930-1230hrs

Total number of questions: 08

Answer **six (06) questions only**.

Answer **question 1**, which is **compulsory**, and additional **five (05)** questions.

Question 1 carries twenty five (25) marks and questions 2 to 8 carry fifteen (15) marks each.

COMPULSORY QUESTION

- Q1. (a) Differentiate “Quality assurance” & “Quality control” procedures practiced in any production or service organisation and compare those two procedures with Total quality management (TQM). (4 marks)
- (b) According to the Juran’s philosophy, how the quality was defined? State the three (03) components of Juran’s “Quality trilogy”. (4 marks)
- (c) “Productivity and the quality have a direct relationship”. Justify this statement. (2 marks)
- (d) State any three (03) benefits that would be gained from a quality circle. (3 marks)
- (e) What is the purpose of developing a cause effect diagram? (2 marks)
- (f) Why “Quality function deployment (QFD)” is important in quality management? (3 marks)
- (g) How do you determine the process capability (Cp) of a process? Briefly explain how do you decide whether the production process in control or not, using the Cp. (3 marks)
- (h) “Fitness for use” is one of the meaning of quality. Draw a chart to show what factors determine the fitness for use of any product. (2 marks)
- (i) Differentiate ‘Process-oriented management’ and ‘Result-oriented management’ described in Kaizen approach to quality improvement. (2 marks)

Select any five (05) questions from Q2 to Q8.

- Q2. (a)** Briefly explain the importance and how can you practice following two (02) Deming's points in the industry.
- (i) "Improve constantly and forever the system of production and service" (6 marks)
 - (ii) "Institute Training" (6 marks)
- (b)** In quality management, quality philosophies of three experts- Deming, Crosby, and Juran are considered. Compare their philosophies in considering the following factors.
- (i) Definition of quality (4 Marks)
 - (ii) Management commitment (4 Marks)
- (c)** State four (04) categories of service quality characteristics and give two (02) examples to show how can we measure these each of the category of service quality characteristic in various situations. (5 marks)
- Q3. (a)** What are the contents covered in "Code of conduct of quality circle"? Select any three (03) of them and briefly explain the importance of each of them in practicing quality circle concept. (5 marks)
- (b)** Briefly explain how can you use Pareto diagram and Cause Effect diagram **together** to solve a problem related to an organization. (6 marks)
- (c)** Briefly explain how control charts can be used in quality management. (4 marks)
- Q4. (a)** Write short notes on the following quality awards.
- (i) Baldrige award
 - (ii) Japan quality award (Deming prize)
 - (iii) British quality foundation award (6 marks)
- (b)** Write an account on the Sri Lanka National Quality Award with considering offering institute, its importance, award categories, types of awards and eligibility criteria for the award. (5 marks)
- (c)** Customer perception of quality internal and external factors. Briefly explain those two factors with giving suitable examples. (4 marks)

Q5. (a) What are the standard eight quality management principles given in ISO9000 standard? Select any three (03) them and briefly explain the importance of **each of the selected principles** to a quality management in any production or service organisation. (7 marks)

(b) Why internal auditing of quality management system is important for any organisation? (3 marks)

(c) Briefly explain why employee motivation is important and state any three (03) ways of positive reinforcement to motivate employees. (5 marks)

Q6. (a) A garment factory needs to study the quality costs variation with the no. of defects of the production and also to optimize the total quality cost. As a quality manager, how would you suggest to do this task. You may consider the quality costs variation chart. (8 marks)

(b) What are the purposes of considering following quantities in any sampling plan?

(i) Producer's risk (ii) Consumer's risk (iii) Acceptable quality level (AQL) (3 marks)

(c) What is "OC" Curve and briefly explain how it can be used in quality management in any production organisation. (4 marks)

Q7. (a) Explain the importance of reliability engineering for production sector. (6 marks)

(b) (i) Write down formulas to calculate "Mean failure rate (MFR)" and "Mean time to Fail" used in reliability engineering. (2 marks)

(ii) Consider seven specimens of an electric component. Calculate the MFR and the MTTF **only for five specimens**. (2 marks)

Component number	Time to failure (hrs)
1	400
2	470
3	530
4	580
5	600
6	620
7	700

(c) Briefly explain features and characteristics of a pattern of products failure rate variation using a "Bath tub curve". (5 marks)

- Q8. (a) Assume that you are assigned to do a benchmark for your company using PDCA cycle. Briefly explain what steps you would follow to do this. You may consider the model for applying bench marking process. (5 marks)
- (b) Explain why "Reliability engineering" is more important in today's business environment. (6 marks)
- (c) A washing machine requires 20 minutes to clean a load of clothes. The mean time between failures of the machine is 150 hours. Assuming a constant failure rate, what is the chance of the machine completing a cycle without failure. (4 marks)