



# FACULTY OF ENGINEERING AND BUILT ENVIRONMENT

## DEPARTMENT OF QUALITY AND OPERATIONS MANAGEMENT

### MAIN EXAM

<b><u>PROGRAMME</u></b>	BTECH: QUALITY
<b><u>MODULE</u></b>	CONTINUAL QUALITY IMPROVEMENT IV
<b><u>CODE</u></b>	CQI 44-2
<b><u>DATE</u></b>	18 NOVEMBER 2019
<b><u>DURATION</u></b>	3 HOURS
<b><u>TIME</u></b>	08:30 – 11:30
<b><u>TOTAL MARKS</u></b>	100

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<b><u>ASSESSOR</u></b>	MR B. JAVANI
<b><u>INTERNAL MODERATOR</u></b>	DR N. SUKDEO
<b><u>EXTERNAL MODERATOR</u></b>	PROF K. RAMDASS

<b><u>NUMBER OF PAGES</u></b>	3 PAGES
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#### **INSTRUCTIONS TO CANDIDATES:**

- Please answer all questions.
- Calculators are allowed.
- Question papers must not be handed in.
- This is a closed book assessment.
- Read the questions carefully and answer only what is asked.
- Number your answers clearly.
- Write neatly and legibly.
- Structure your answers by using appropriate headings and sub-headings.
- The general University of Johannesburg policies, procedures and rules pertaining to written exam apply.

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## **CASE STUDY**

### **Papyrus Case**

A few months ago, you were hired to be quality manager of Papyrus, Inc. a company making paper board and converting most of this board into a variety of products. While you have had prior experience in the chemical process industry and in quality, this is your first job in the paper industry.

With the help of the company controller, you have analysed the various costs of quality which run as follows:

	<b>Annual Loss - RANDS (000)</b>
Dimensional rejections, product Line A	816
Beater room defects	480
Lack of adhesion, final products	354
Paper mill winding defects	282
Dimensional rejections, product Line B	204
<b>Subtotal for first five categories of loss</b>	<b>2,136</b>
Loss for remaining 192 kind of defects	<b>4,224</b>
<b>Total</b>	<b>6,360</b>

This total does not include field returns. Annual sales are about R90 million. While “responsibility for quality” is up to the various production superintendents, no one is actively studying, in depth, the causes of the major quality losses.

You have talked to each of the production superintendents and the manufacturing manager. Most of them have given you a reaction as follows: “The present ratio of rejects to production is the result of years of experience in this business. Our management has recognized this by putting this level into the cost standards. We are meeting our standard which is what we are here for. We are always looking for improvement, but our present level is probably as good as we can do with the present machinery and the attitudes of the labour unions. You are new to this business which is different and complicated. After you have experience, you will understand.”

Two of the superintendents had a somewhat different concept: “We could probably improve and cut that loss. However, we are so busy with meeting and schedules, keeping up with customers, handling grievances, maintaining machinery and the like, that we have no time to do creative work.”

To take the initiative to reduce these losses, you must enlist the cooperation of the manufacturing manager. Your own department consists solely of the test laboratory, the floor inspectors, and the final inspectors. You have neither quality engineers nor any budget for hiring any.

### **QUESTION 1 [CASE STUDY]**

- 1.1 Outline how the five separate and unique types of breakthroughs for sustained culture of excellence will assist Papyrus Inc. in attaining superior performance. (15)
- 1.2 Explain how one would apply quality planning based on Juran's Trilogy to improve overall performance of Papyrus Inc.? (15)
- 1.3 Based on the issues emanating from the case, how would one use the Juran's Root Cause Corrective Action (RCCA) six major steps of problem solving to address these issues for Papyrus Inc. (24)
- 1.4 Should Papyrus want to improve its performance through learning and adopt the benchmarking objectives, outline how these would assist such a quest. (21)

**[75 MARKS]**

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### **QUESTION 2 [THEORY]**

- 2.1 Congratulations! You have been appointed a Quality Manager for SAVS International. The key role of the quality office is to conduct assessments to educate your leaders so they understand what needs to be changed or improved. Outline the six areas of importance to being competitive in quality. (18)
- 2.2 Product acceptance involves the disposition of product based on its quality. Explain the three decisions for disposition. (7)

**[25 MARKS]**

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**[TOTAL MARKS 100]**