



PROGRAM : B-TECH
ENGINEERING: INDUSTRIAL

SUBJECT : **QUALITY ASSURANCE IV**

CODE : **BQA 411**

DATE : RE EXAMINATION 2019
15 JULY 2019

DURATION : (SESSION 1) 11:30 – 14:30

WEIGHT : 40:60

TOTAL MARKS : 100

ASSESSOR : MR. B. MOGOTSI

MODERATOR : MS. N.I DLUDHLU

NUMBER OF PAGES : 3 PAGES 2402

INSTRUCTIONS : ONLY ONE POCKET CALCULATOR PER CANDIDATE
MAY BE USED.

REQUIREMENTS : NONE

INSTRUCTIONS TO STUDENTS

PLEASE ANSWER ALL QUESTIONS.
UNDERLINE EACH AND EVERY ANSWER

QUESTION 1

Your company has employed Failure Mode Effect and Analysis (FMEA) as tool to methodology that facilitates process improvement.

Discuss the process to be followed when conducting an FMEA.

[Total Marks 30]

QUESTION 2

Quality audits are differently categorized, some cover an entire company, a division, or any portion of the processes that provide a product or service. Quality auditing is a “systematic, independent and documented process for obtaining audit evidence [*records, statements of fact or other information which are relevant and verifiable*] and evaluating it objectively to determine the extent to which the audit criteria a set of policies, procedures or requirements] are fulfilled.”

Discuss six audit categories that can be employed within the organization.

[Total Marks 18]

QUESTION 3

ISO 9001:2015 focuses attention on those interested parties that can impact the organization’s ability consistently provide conforming products and services. Key Improvements to ISO 9001:2015 increased emphasis on achieving value for the organization and its customers ; A greater emphasis on leadership and organizational context; The focus on risk-based thinking; Emphasis on objectives, measurements and change; Stakeholder-focused communication and awareness and Decreased emphasis on documentation.

Discuss the ISO 9001:2015 Clauses 4 to 10.

[Total Marks 25]

QUESTION 4

You have attended a six sigma course through the University of Johannesburg and you realized the importance of this methodology for problem solving.

Explain to your manager the importance of adopting this methodology in your organization, focusing on the below:

1. What is Six sigma? (2 marks)
2. Benefits of adopting the Six Sigma methodology (4 marks)
3. Where does six Sigma Methodology mainly focuses on? (6 marks)
4. What does it mean to improve by one sigma? (3 marks)

[Total Marks 15]

QUESTION 5

You are given an opportunity to lecture your fellow students on the Taguchi loss function.

Discuss the standard approach for design process by responding to the questions below:

1. Definition of Taguchi loss function (1 mark)
2. Discuss the three phases in applied in Tolerance Analysis. (6 marks)
3. Discuss the Taguchi's loss function process (5 marks)

[Total Marks 12]

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