

**PAN AFRICA CHRISTIAN UNIVERSITY
EXAMINATIONS PAPER**



PAN AFRICA CHRISTIAN UNIVERSITY

**BACHELOR OF BUSINESS INFORMATION TECHNOLOGY AND BACHELOR
OF SCIENCE IN INFORMATION TECHNOLOGY**

END OF SEMESTER EXAMINATION

DEPARTMENT: COMPUTING AND INFORMATION TECHNOLOGY

COURSE CODE: BIT404

CAMPUS: ONLINE

COURSE TITLE: OPERATIONS MANAGEMENT

EXAM DATE: MONDAY, XXXX, DECEMBER, 2024

TIME: 5.30-8.30PM

INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other THREE questions in Section **B**.
- None programmable calculators permitted
- Calculators on phones, tablets and computers are NOT permitted in Theory Papers

SECTION A

(Answer ALL questions in this section)

QUESTION 1

Read the case below and answer the following:

Coca Cola Company

Before production starts on the line cleaning quality tasks are performed to rinse internal pipelines, machines and equipment. This is often performed during a switch over of lines for example, changing Coke to Diet Coke to ensure that the taste is the same. This quality check is performed for both hygiene purposes and product quality. When these checks are performed the production process can begin.

Coca Cola uses a database system called Questar which enables them to perform checks on the line. For example, all materials are coded and each line is issued with a bill of materials before the process starts. This ensures that the correct materials are put on the line. This is a check that is designed to eliminate problems on the production line and is audited regularly. Without this system, product quality wouldn't be assessed at this high level. Other quality checks on the line include packaging and carbonation which is monitored by an operator who notes down the values to ensure they are meeting standards.

To test product quality further lab technicians carry out over 2000 spot checks a day to ensure quality and consistency. This process can be prior to production or during production which can involve taking a sample of bottles off the production line. Quality tests include, the CO₂ and sugar values, micro testing, packaging quality and cap tightness. These tests are designed so that total quality management ideas can be put forward. For example, one way in which Coca Cola has improved their production process is during the wrapping stage at the end of the line. The machine performed revolutions around the products wrapping it in plastic until the contents were secure. One initiative they adopted meant that one less revolution was needed. This idea however, did not impact on the quality of the packaging or the actual product therefore saving large amounts of money on packaging costs. This change has been beneficial to the organisation. Continuous improvement can also be used to adhere to environmental and social principles which the company has the responsibility to abide by. Continuous Improvement methods are sometimes easy to identify but could lead to a big changes within the organisation. The idea of continuous

improvement is to reveal opportunities which could change the way something is performed. Any sources of waste, scrap or rework are potential projects which can be improved.

The successfulness of this system can be measured by assessing the consistency of the product quality. Coca Cola say that 'Our Company's Global Product Quality Index rating has consistently reached averages near 94 since 2007, with a 94.3 in 2010, while our Company Global Package Quality Index has steadily increased since 2007 to a 92.6 rating in 2010, our highest value to date'. This is an obvious indication this quality system is working well throughout the organization. This increase of the index shows that the consistency of the products is being recognized by consumers.

Source: <https://ua.coca-colahellenic.com/en/local-impact/plants-and-processes/production-processes>

- a) Discuss THREE types of quality costs in the case above. **(6 Marks)**

- b) Identify TWO benefits Coca cola company will enjoy by embracing Total Quality Management. **(2 Marks)**

- c) "Coca Cola say that 'Our Company's Global Product Quality Index rating..."
Explain the importance of Coca cola Company using this system. **(2 Marks)**

SECTION B

(Answer any THREE (3) questions in this section)

QUESTION 2

- a) Identify the THREE factors that are critical to the development of a Company's business strategy. **(3 Marks)**

- b) Using a company of your choice, explain the relevance of each of these factors (a above) in the development of the company's operations strategy. **(7 Marks)**

QUESTION 3

Determine the utilization and the efficiency for each of these situations:

- a) A manufacturer of cement has determined that its production facility has a design capacity of 3000 bags per week. The effective capacity, however, is 2300 bags per week. Calculate the manufacturer's capacity utilization relative to both design and effective capacity if output is 2000 bags per week. **(4 Marks)**
- b) A company manufactures a product using two machine cells. Each cell has a design capacity of 250 units per day and an effective capacity of 230 units per day. At present, actual output averages 200 units per cell, but the manager estimates that productivity improvements soon will increase output to 225 units per day. Compute the design and effective capacity utilization measures. **(4 Marks)**
- c) Highlight TWO ways you would handle unexpected disruptions or crises in operations. **(2 Marks)**

QUESTION 4

Otieno owns and operates a motor business where he sells used cars and offers a repair and maintenance service. His peak periods for car sales are at the beginning of the December (when customers replace their cars for holidays) and in March or August when many people sell their old cars in order to buy new ones registered with the bi-annual number plate. Peak periods for service work are again at the start of April so that they are reliable during the rainy weather.

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- a) Describe FIVE ways Otieno can adjust to capacity during peak periods. **(5Marks)**
- b) Highlight FIVE ways Otieno could smooth demand during off-peak seasons. **(5Marks)**

QUESTION 5

- a) Suppose you are going to have a prescription filled at a local pharmacy. Explain THREE ways you would judge the quality of this service. **(6 Marks)**
- b) Using Kenya Police Service as an example, describe the transformation process. **(4Marks)**

QUESTION 6

Using Toyota Incorporation as an example, discuss FIVE Design for Manufacturing (DFM) guidelines in its operations. **(10 Marks)**

End of Exam