



**DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY**  
**UNIVERSITY EXAMINATIONS 2020/2021**  
**END OF SEMESTER EXAMINATIONS FOR THE PhD BUSINESS ADMINISTRATION**  
**END OF SEMESTER EXAMINATION**  
**DBA 5105: PRODUCTION AND OPERATIONS MANAGEMENT**  
**DATE: SEPTEMBER 2021** **TIME: 3 HOURS**  
**INSTRUCTION; Answer Question ONE & TWO and ANY Other ONE**

**QUESTION ONE (40 Marks)**

**Read the following statement and answer the questions that follow;**

**Impacts along the Agrifood value chain: interruptions in logistics, processing and Market access:**

Transport along commodity routes have been disrupted by restrictions on cross-border movement. Truck drivers are increasingly reported in Rwanda, Tanzania and Uganda as a high-risk group for transmission of the disease (Global Voices, 2020), which may lead to further measures on cargo transports that in turn could further disrupt the movement of agricultural goods. In Kenya, concerns over safety and requirements for COVID-19 tests for the long-distance truckers crossing borders in Eastern Africa resulted in a shortage of food truck drivers and delays in the delivery services (Roussi, 2020).

While all governments have declared agricultural products as essential to ensure movements in view of the COVID-19 containment measures, the stay-at-home advice and travel restrictions mean that traders have logistic difficulties, leading to supply delays and post-harvest losses.

Fish trade has been impacted by border controls. For example, the stringent border control measures applied between Kenya and Uganda have interfered with the free trade of tilapia. Even though veterinary services were declared essential services by most countries, they have been affected by movement restrictions (such as live animal and meat inspection at slaughterhouses).

Movement restrictions and limited public transports have also halted most vaccination campaigns, and those that are still ongoing have slowed down as organizations have had to adapt to physical distancing.

Labour shortages, due to the stay-at-home policies, are expected to impact production and processing of food, especially for labour-intensive meat and dairy-processing plants. As overall logistics are slowed down, food safety and quality can be negatively affected. With over 90 percent of the volume of meat and dairy processing being informal, COVID-19 prevention and response leave this target group without market, due to lack of access to formal markets. This is particularly true for women, as they often play a key role in high value food-processing activities. The closure of many informal markets in the urban and peri-urban areas to avoid crowding has disrupted food supply systems, especially for fresh produce such as meat, eggs and milk. In view of this, shifts in consumer demand have been reported. The impact is felt mostly in low-income urban households who rely on these informal food markets. Middle- and higher-income families can buy fresh produce from supermarkets and grocery shops.

The livelihoods of fisheries and aquaculture actors will also be negatively affected due to decreases in consumer demand, disruptions in markets access and logistical bottlenecks (FAO 2020c). For pastoralists, there will be the loss of income from selling livestock and products (milk, butter, gee and eggs), resulting in an increased reliance on the environment (charcoal burning) and overall reduction in the purchasing power of households.

Required;

- a) Advice how to manage the effect of covid-19 on this type of economy from an operation point of view (5 marks)
- b) Explain the best operations decisions that will help salvage the affected sectors (5Marks)
- c) How will access to digital technologies and service improve provision of a wide range of market-oriented services along the value chain (5 Marks)
- d) Show how the following Trends can be used to improve the above different industries performance affected by Covid-19; (15 Marks)
  - i. Cost of providing services
  - ii. Technology issues and benefits
  - iii. Consumer preferences
  - iv. Training
- e) Explain the supply chain management best practices that can be applied to redeem the situation and provide a long-term solution to the above affected sectors (10 Marks)

### **QUESTION TWO (20 Marks)**

#### **The Chiron Case: Good Manufacturing Practice Gone Bad**

When British regulators suspended the license of Chiron's manufacturing plant in Liverpool, England, in October 2004, the move caught the US Food and Drug Administration by surprise and triggered an international vaccine crisis. When British regulators suspended the license of Chiron's manufacturing plant in Liverpool, England, in October 2004, the move caught the US Food and Drug Administration by surprise and triggered an international vaccine crisis. The FDA had inspected the plant in the past, and Chiron was slated to provide nearly half of the US vaccine supply for 2004–2005: 48 million doses of Fluvirin. Instead, the United States scrambled to find enough vaccine to protect against influenza, which kills 36,000 Americans each year. The Emeryville, Calif.-based Company's stock plunged, and it reported a \$22.9 million net loss in the fourth quarter of 2004.

How could things go so wrong? When they closed the plant, the UK's Medicines and Healthcare Products Regulatory Agency (MHRA) cited bacterial contamination in some lots of vaccine, and a failure to follow good manufacturing practice. GMP is a set of regulations that are meant to ensure the safety, purity, and effectiveness of drugs, medical devices, and certain other products. They regulate everything in the manufacturing process, including record keeping, equipment validation, and employee qualifications.

Required;

- a) "...When they closed the plant, the UK's Medicines and Healthcare Products Regulatory Agency (MHRA) cited bacterial contamination in some lots of vaccine, and a failure to follow good manufacturing practice." Advice as an expert in operations management how this can be avoided through effective and competitive transformation processes (5 Marks)

- b) Show how trade-offs can help in managing cost of production in Chiron's manufacturing plant (5 Marks)
- c) Which operations decisions would best help improve performance of Chiron's manufacturing plant (5 Marks)
- d) Identify the competitive priorities that would help in minimizing loss in the above company? (5 Marks)

**QUESTION THREE (20 Marks)**

- a) Define Six Sigma as a methodology for continuous improvement and for creating products/processes that perform at high standards and discuss the DEMAIC model as a combination of change management and statistical analysis (15 Marks)
- b) Discuss the role of positioning strategies for transformation processes in improving productivity in both manufacturing and service industry today (10 Marks)

**QUESTION FOUR (20 Marks)**

- a) Discuss the analytical concepts, frameworks and tools for making operations management decisions. (10 Marks)
- b) In order to manage projects successfully, it is necessary to have a system. A full project management system consists of SEVEN components. Discuss these components and show their relevance in improving operation management in a manufacturing sector (10 Marks)