INTERNATIONAL UNIVERSITY OF EAST AFRICA
'Learning to Succeed'

FACULTY OF BUSINESS MANAGEMENT

END OF SEMESTER EXAMINATIONS - DECEMBER 2025

PROGRAMME: MBA
YEAR/SEM: YEAR 2/SEMESTER 1
COURSE CODE: MBA 851
NAME: ADVANCED OPERATIONS MANAGEMENT

DATE:
TIME:

INSTRUCTIONS TO CANDIDATES:

SECTION A

Section. A is Compulsory (40 MARKS)

Question 1:

Case study : Hightone Electronics, Inc

George Gonzales, operations director of Hightone Electronics, Inc. (HEI), sat quietly at the conference table overlooking the lobby of the corporate headquarters office in Palo Alto, California. He reflected on the board meeting that had just adjourned and the challenge that lay ahead for him. The board had just announced their decision to start an Internet-based division of HEI. Web-based purchasing in the electronics industry had been growing rapidly. The board felt that HEI needed to offer on-line purchasing to its customers in order to maintain its competitive position. The board looked to George to outline the key operations management decisions that needed to be addressed in creating a successful Internet-based business. The next board meeting was just a week away. He had his work cut out for him.

Hightone Electronics, Inc. was founded in Palo Alto, California over 50 years ago. Originally, the company provided radio components to small repair shops. Products were offered for sale through a catalog that was mailed to prospective customers every four months. The company built its reputation on high quality and service. As time passed, HEI began supplying more than just radio parts, adding items such as fuses, transformers, computers, and electrical testing equipment. The expansion of the product line had been coupled with an increase in the number and type of customers the company served. Although the traditional repair shops still remained a part of the company’s market, technical schools, universities, and well-known corporations in the Silicon Valley were added to the list of customers.

Today HEI operates the Palo Alto facility with the same dedication to supplying quality products through catalog sales that it had when it was first founded. Customer service remains the top priority. HEI stocks and sells over 22,000 different items. Most customers receive their orders within 48 hours, and all components are warranted for a full year.

Expanding HEI to include Web-based purchasing seems to be a

natural extension of catalog sales that the company already does successfully. George Gonzales agrees that the company has no choice but to move in this competitive direction. However, George does not agree with the opinion of the board that this would be “business as usual.” He believes that there are many operations decisions that need to be identified and addressed. As he stated in the meeting, “Having a slick Web site is one thing, but making sure the right product is delivered to the right location is another. Operations is the key to making this happen.” His challenge for the next board meeting was to identify the key operations decision and persuade the board that these issues needed serious consideration.

Case Questions:

a) Explain why operations management is critical to the success of a business. (10 marks)

b) Why would developing an Internet-based business require different operations consideration for HEI? Is George Gonzales correct in his assessment that this would not be “business as usual”? (10 marks)

c) Recall that HEI wishes to continue its reputation of high quality and service. Discuss the key operations management decisions that need to be considered. (10 marks)

d) How different will these decisions be for the Internet business? Develop an operation strategy for Hightone Electronic Inc. and determine the key operational adjustments that George Gonzales needs to make. (10 marks)

Question 2:

VIGNETTE: Quality of Service: Tears at teatime at IKEA

Next week, Jane Fillimore will move into a new flat. You can tell something about the 28-year-old music-industry publicist from Kilburn, north-west London, from the list of furniture she is buying. There is the Pax Brivic wardrobe, the Norden dining table and the Bonde media storage combination. Fillimore wants style – but on a budget. She is part of Generation Ikea. Not that she wants to be. She hates the Swedish retailer, and only last Sunday had her worst shopping day ever at the firm’s superstore in a drab retail park near the new Wembley

stadium in London. She wanted to pick up the Pax Brevic wardrobe she had ordered the week before. Easy, you might think, but just getting served was an ordeal. When she entered the store, an assistant told her to 'walk the mile of hell' past wannabe-stylish urban living rooms to the giant storage zone. The store did not have her wardrobe and a salesman sent her back through road works to IKEA's nearby distribution centre. The distribution centre had the wardrobe, but could not give it to her without a receipt. To get one, she had to go back to the main store. But the main store had lost her order, so she had to go to customer service. This department is not called customer service at IKEA, it's called customer returns, and it took her half an hour to find. By 4.30 pm, Fillimore was right back where she started. Exasperated, she put her head in her hands and burst into tears. 'I don't even like the wardrobe', she sobbed. 'I bought it because it's cheap. That's the only reason I come here.' By 5.00 pm, the store is closing, and she can only dream of getting her wardrobe by Friday. She could walk back through the little sets that represent the nation's living rooms to try one last time to find her wardrobe, but she can't face it. As she walks out, I ask her if she knows that Argos and Sainsbury's (two other UK retailers) are selling furniture. For the first time all day, she breaks into a smile. 'Really?', she grins. 'I'll go there tomorrow. I never want to come back to this place again.' (Source: Based on an article by John Arlidge, Sunday Times, 26 October 2003)

Questions 1

a) When IKEA was founded 60 years ago by Ingmar Kamprad, he realised that customers did not mind queuing, collecting their purchases and assembling the furniture themselves as long as the price was right. Suggest why gaps in quality of service have opened up? (10 marks)

b) Discuss the operation challenges that IKEA Company is facing currently (10 marks)

c) How would the Forks model increase operational efficiency at IKEA Company (10 marks)

d) Apply the Honshin planning to IKEA Company and examine the impact it would create (10 marks)

SECTION B

Answer any THREE Questions

Question 1:

A firm is evaluating **three potential sites** (X, Y, Z) for a new distribution center. The decision factors and weights (sum = 100) are:

Factor	**Weight**	**Score for X**	**Score for Y**	**Score for Z**
Proximity to customers	25	80	85	75
Transportation cost	20	70	60	90
Land cost & taxes	15	50	40	80
Labor availability	20	60	70	65
Business climate / incentives	10	80	60	70
Infrastructure quality	10	70	75	60

a) Compute the **weighted factor rating** for each site, and identify which site you would choose. (10 marks)

b) Suppose you have **four potential locations** A, B, C, D for a facility. For each, you have scored them across five factors, and assigned weights. compute total weighted score, rank the sites, and discuss sensitivity (i.e. if weight of one factor shifts ±10 points, would ranking change?). (10 marks)

Question 2:

A company must serve three customer zones. Coordinates and demands (loads) are:

Zone	**(x, y)**	**Load (units per period)**
1	(2, 4)	100
2	(5, 1)	150
3	(8, 6)	120

a) Consider two candidate facility locations: **P** at (4, 3) and **Q** at (6, 5). Using **rectilinear**

distance ($|\Delta x| + |\Delta y|$), compute the **load-distance score** for P and Q, and determine which is better (lower load-distance). (08 marks)

b) Using **Euclidean distance** ($\sqrt{[(\Delta x)^2 + (\Delta y)^2]}$). Which location is better under Euclidean metric? Discuss difference versus rectilinear choice. (06

c) Suppose now there's also a **supplier node** at (1, 1) supplying 200 units. Extend the load-distance calculation for both candidate facility locations (P, Q) including both inbound (supplier) and outbound (customers). Compute total load-distance and choose the better site. (11 marks)

Question 3:

You're in a growth phase and need to design your operations network (number of plants, location, capacity). Discuss the operations-management tools you would apply? (20 marks)

Question 4:

Fast Food Chain Peak Load Management

A fast food chain sees peaks during lunch and dinner. Some outlets struggle to meet demand; others are idle in off-peak times.

Questions:

a. Propose staffing and capacity flex strategies (8 marks)

c. How would you monitor performance and shift resources dynamically? (8 marks)

c. What operational controls would prevent degradation during peaks? (9 marks)

Question 5:

Pharmaceutical Manufacturing and Batch Quality Failures

A pharma plant experiences occasional batch failures, requiring rework or disposal, disrupting supply.

Questions:

a. What statistical process control (SPC) methods would you use to detect drift? (10 marks)

b. How would you structure feedback loops between quality and production? (5 marks)

c. How to reconfigure scheduling to insulate downstream operations? (5 marks)

Question 6:

Glovo: Urban Delivery Startup

Glovo in its delivery startup uses bicycles and small vehicles in congested city zones. They struggle to meet promised delivery times, especially in rush hours.

Questions:

a. Suggest routing, clustering, or dispatching heuristics to improve reliability. (8 marks)

b. What control systems would you implement? (8 marks)

c. How would you measure and control deviations/delays? (9 marks)

Question 7:

Large-Scale Event Catering

A catering service handles major events with large, perishable demand. Late changes to guest numbers are common.

Questions:

a. How would you plan capacity, staffing, and inventory buffers? (9 marks)

b. What control checks would you adopt before, during, and after the event? (8 marks)

c. Design contingency strategies to curb the situation? (8 marks)

Question 8:

a) Your organisation uses make-to-order but you face major lead-time variation from suppliers. How do you redesign your operations to cope? (10 marks)

b) Your service operations have high variability in demand by hour/day. How do you design your operations-management strategy to meet this variability? (10 marks)

Question 9:

Your plant is running at capacity, but due to quality issues you have high re-work and scrap. How do you apply operations-management methods to reduce defects and improve yield? (20 marks)

Question 10:

Organization xyz that concentrates on the production manufactured products has hired you as an operations consultant. The organization is currently experiencing mismatches between its productive systems technology at all the stages in the product life cycle (PLC) of their various brands.

Required:

Identify the possible mismatches and the consequences of such mismatches on the decisions of the procurement functions. Recommend to management on the appropriate measures that would be put in place to ensure harmony between productive system technology and the PLC in respect of the procurement function decisions.(20 marks)

Question 11:

a) "Once jobs have been designed, they have to be performed and the tent to which performance meets expectations (operations needs) ascertained" (Kakuru, 2004). In view of the above statement, what factors would you consider in determining the most appropriate work measurement standard in your organization. (10 marks)

b) Examine the changing trends of job design since the 1970's and discuss the critical factors one would consider when designing a job. (10 marks)

Question 12:

You are currently in charge of operations in certain Bank X. The bank's focus is to increase outreach of their services to the general public. You have been entrusted to operationalize and implement this decision in line with bank's policy.

Required:

a) Use hypothetical illustrations to discuss how you would use the location decision in operations management to qualitatively and quantitatively implement the above decision. (10 marks)

b) Discuss the different layout options available to the operations manager and show when each of the options would be most suitable for the business. (10 marks)