



FINAL SEMESTER EXAMINATION
(in compliance with MQA's requirement)

Student NRIC : _____

Student ID : _____

Programme : **BSc (HONS) MARITIME BUSINESS & LOGISTICS**

Academic year : **2021/22**

Level : **5**

Course : **INTERNATIONAL LOGISTICS & SUPPLY CHAIN OPERATIONS**

Course Code : **MAL2016**

Time Allowed : **3 hours**

INSTRUCTIONS TO CANDIDATES:

1. Please read the instructions given in the question paper **CAREFULLY**.
2. Answer **ALL questions in the question paper**.
3. Answers to the questions are to be written into the examination booklet.
4. Electronic dictionaries, lecture notes, files or any unauthorised materials except writing equipment are strictly prohibited.

This question paper must be submitted along with all used and/or unused rough papers and/ or graph papers (if any). Candidates are **NOT ALLOWED** to take any examination paper(s) used or unused out of the examination hall.

WARNING:

The Examination Board of Peninsula College Georgetown regards cheating as a most serious offence and will not hesitate to mete out the appropriate punitive actions according to the severity of the offence committed, and in the accordance with the clauses stipulated in the Students' Handbook, up to and including expulsion from Peninsula College Georgetown.

(This booklet contains 4 printed pages including this page)

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QUESTION NO.	MARKS
1	/ 40
2	/ 20
3	/ 20
4	/ 20
Total	/ 100

SECTION A: CASE STUDY

[40 MARKS]

CASE STUDY: AMAZON.COM

From its start as a venture looking to build “earth’s largest bookstore” in 1994, Amazon was now one of the most valuable companies in the world and founder Jeff Bezos was the richest person on earth. In 2018, Amazon had an online store that sold its own products and listed products for sale by more than two million third-party sellers. Since its founding, Amazon has added more than 30 store categories, ranging from electronics to furniture, selling millions of different products and making an estimated 1.2 billion domestic customer shipments in 2017.

With total shipping costs exceeded \$21 billion in the most recent fiscal year, Amazon was taking steps to gain greater control of its supply chain by expanding into ocean freight forwarding, opened an air cargo hub, built a truck fleet, and established a parcel delivery network. Amazon offered its third-party sellers fulfilment services known as Fulfilment by Amazon (FBA) which provided transportation, warehousing, picking, packing, shipping, customer service, and returns for products sold through its website. The company’s latest initiative, Shipping with Amazon, was a new service for any business offering package delivery to customers, regardless of whether they sold products on the Amazon site.

Traditional Retail Supply Chain

the standard supply chain for retailers such as Walmart, Target and Tesco PLC were driven by the orders retail buyers placed with suppliers, who coordinated the delivery of goods for sale. A significant portion of general merchandise was manufactured in Asia. Since the 1990s, retailers had partially offloaded the responsibility for category management to category captains – key supplier partners with the capabilities to analyse, review and plan for assortment recommendations for product categories. Retailers provide suppliers with access to sales, inventory, and other data in real time, using online information portals. Analysts working for suppliers will then download and review this data and then recommend to category buyers, who had the final say over approving these assortment recommendations.

Retailers and large suppliers tended to outsource a large portion of their logistics needs, starting at the suppliers’ factory gates and ending at retailers’ distribution centers. They relied on third-party logistics providers and freight forwarders to ensure timely shipping and delivery of goods. Goods were shipped in bulk – in container loads from suppliers’ factories and then consolidated, broken apart into cases, and stored. Retailers shipped mixed batches in the backroom warehouse, re-stocking shelves as required. Retailers had to deal with one final logistics piece after the product was sold – the returns process.

Amazon.com

During the 2013 Christmas holiday season, the volume of Amazon orders overwhelmed UPS and other carriers. Late deliveries of customer orders reportedly cost amazon millions of dollars in refunds and motivated management to embark on plans to build its own last-mile delivery network.

Thus, Amazon’s strategy was to control the shipment of goods across the entire supply chain, including procurement, shipment to DCs, and final customer delivery. Amazon is responsible for last-mile product delivery and has a total of three channels. The typical flow for goods through Amazon’s distribution centres was as follow: Product from overseas arrived at one of Amazon’s inbound sortation centres before being sent to a fulfilment centre. Domestic suppliers often shipped goods directly to fulfilment centres. From the fulfilment centres, product followed one of three channels. First, it could be shipped to FedEx or UPS, who handled customer delivery.

A second option was for it to be sent as part of a truckload of packages to an outbound sortation centre, where packages would be sorted and loaded together with other packages destined for a similar ZIP code; these shipments would go to the UPS, and letter carriers would deliver them to customers.

A third option was for shipments to go from outbound sortation centres to an Amazon delivery station or hub, where local couriers or Amazon Flex drivers would deliver the packages to customers.

In 2017, Amazon introduced Amazon Key, a smart lock system to stop package theft. One feature of this system was the ability to allow Amazon couriers access to customers' homes to place packages inside when nobody is at home. Paired with the Cloud Cam, the Cloud Cam starts recording the moment the delivery person taps an app that grants one-time access to unlock the house door. Cloud Cam then sends the house owner a live stream of the whole delivery process. The system is considered as a good strategy by Amazon to control the delivery experience, including the driver.

In effort to control logistics costs, Amazon invested heavily in warehouse automation. It acquired Kiva Systems in 2012 and later re-named as Amazon Robotics. This division designed and installed warehouse automation systems exclusively for Amazon. Amazon Robotics automated fulfilment centres with the latest technology, such as autonomous robots and associated systems, control software, and devices that incorporated innovative tools such as computer vision, depth sensing and object recognition.

Despite Amazon's rapid growth, the company faced challenges in its supply chain. In 2017, Amazon shipped over five billion items worldwide through its Prime programme alone. However, based on the difference between what Amazon charged customers and third-party sellers for shipping and the actual costs the firm incurred to deliver those packages; Amazon lost \$7.2 billion on shipping in 2016.

Another challenge for Amazon was returns and the costs of reverse logistics. For example, Amazon has since banned customers who the company believed were abusing returns from its site as workers often have difficulty in evaluating justification for the return. However, under the new policy, customers who wanted to return any goods must travel to the store and deal with a customer service representative.

END OF CASE STUDY

Adapted and modified from: Johnson, F and Mark, K (2018) Amazon.com: Supply Chain Management, Ivey Business School Foundation, pp. 1-19

Answer **ALL** questions on the separate sheet provided.

1. a) Compare Amazon's supply chain against traditional brick-and-mortar retailers. (16 marks)

- b) Based on the case above, examine the challenges faced by Amazon. (9 marks)

- c) Analyse how advancement in technology has benefited Amazon. (5 marks)

- d) Suggest any **TWO (2)** ways to reduce Amazon's costs of reverse logistics. (10 marks)

[Total: 40 marks]

SECTION B: ESSAY QUESTIONS

[60 MARKS]

Answer **ALL THREE (3)** questions on the separate sheet provided.

2. T&J Sendirian Berhad is having difficulty shipping their products on time. The operation manager, Adrian is desperate to turn things around. Based on the given scenario above, advise Adrian on how can he solve the bottleneck by implementing Theory of Constraints' five basic steps. (20 marks)

[Total: 20 marks]

3. Part of an FMEA exercise at DHG Inc. has identified 4 failure modes associated with the failure of "goods arriving damaged" at the point of delivery.
- i. Poor packaging (failure mode 1);
 - ii. Goods not secured (failure mode 2);
 - iii. Goods incorrectly secured (failure mode 3);
 - iv. Mishandling of goods (failure mode 4).

The improvement group which is investigating the failure allocates scores for the probability of the failure mode occurring, the severity of each failure mode, and the likelihood that they will be detected (with remote = 0 and very high probability = 10).

Probability of Occurrence				Severity of Failure				Probability of Detection			
Failure Mode 1	Failure Mode 2	Failure Mode 3	Failure Mode 4	Failure Mode 1	Failure Mode 2	Failure Mode 3	Failure Mode 4	Failure Mode 1	Failure Mode 2	Failure Mode 3	Failure Mode 4
4	5	6	3	5	3	2	5	6	6	5	5

- a) Calculate the Risk Priority Number (RPN) for each of the failure mode and state the failure mode that should be given priority. (11 marks)

- b) Based on part (a) above, analyse the **THREE (3)** approaches to reduce risk through prevent failure. (9 marks)

[Total: 20 marks]

4. a) Discuss the **FOUR (4)** combined logistics strategies as proposed by Christopher, Peck and Towill, 2006. (12 marks)

- b) Briefly explain any **FOUR (4)** differences between traditional supply chain and closed-loop supply chain. (8 marks)

[Total: 20 marks]

- END OF QUESTIONS -