



<b>FACULTY/COLLEGE</b>	College of Business and Economics (CBE)
<b>SCHOOL</b>	School of Economics
<b>DEPARTMENT</b>	Dept. of Transport and Supply Chain Management
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<b>ASSESSMENT DATE</b>	November 2019	<b>SESSION</b>	
<b>ASSESSOR</b>	Mr J Venter		
<b>INTERNAL MODERATOR</b>	Ms J van der Walt		
<b>DURATION</b>	2,5 Hours	<b>TOTAL MARKS</b>	100

<b>NUMBER OF PAGES OF QUESTION PAPER (Including cover page)</b>	16
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**INSTRUCTIONS TO CANDIDATES:**

1. Question papers must be handed in.
2. This is a closed book assessment.
3. Read the questions carefully and answer only what is asked.
4. Number your answers clearly.
5. Answer all questions.
6. Answer **Section A** in the back of your answer book. Indicate the correct answer by means of an **X**.
7. Answer **Section B** in the answer book.
8. Write neatly and legibly.
9. Structure your answers by using appropriate headings and subheadings.
10. The general University of Johannesburg policies, procedures and rules pertaining to written assessments apply to this assessment.

**SECTION A****[40 MARKS]****QUESTION 1**

Which of the following can be considered as advantages of private transportation?

- (i) Flexibility in operations
- (ii) Flexibility in capacity
- (iii) Greater control
- (iv) Improved service levels

Choose the correct answer:

- A (i), (ii), (iii) and (iv)
- B (i), (iii) and (iv)
- C (ii), (iii) and (iv)
- D (i), (ii) and (iv)

**QUESTION 2**

Which one of the following forms of private transportation is most prevalent?

- A Air
- B Rail
- C Ocean
- D Truck

**QUESTION 3**

When operating miles increase, \_\_\_\_\_.

- A fixed cost/mile and operating costs increase
- B operating costs decrease and fixed cost/mile decreases
- C operating costs decrease and fixed cost/mile increases
- D operating cost increase and fixed cost/mile decreases

**QUESTION 4**

Which one of the following is an example of a fixed cost for private trucking?

- A Depreciation
- B Labour
- C Insurance
- D Tolls

**QUESTION 5**

Which one of the following can be considered as a performance criterion for evaluating and controlling a private fleet?

- A Miles operated (empty and full)
- B Human resource hours
- C Vehicle operating hours
- D Total gallons of fuel used by entire fleet

**QUESTION 6**

Which of the following can be considered as advantages of a sleeper cab?

- (i) Allows for two driver teams
- (ii) Reduces the cost of lodging
- (iii) Increases fuel efficiency
- (iv) Allows one driver to accumulate off duty time in the sleeper

Choose the correct answer:

- A (i), (ii), (iii) and (iv)
- B (i), (ii) and (iv)
- C (ii), (iii) and (iv)
- D (i), (iii) and (iv)

**QUESTION 7**

Which of the following can be considered as miscellaneous trucking costs?

- (i) Tolls
- (ii) Overload fines
- (iii) Driver road expense
- (iv) Insurance

Choose the correct answer:

- A (i), (ii), (iii) and (iv)
- B (i), (iii) and (iv)
- C (ii), (iii) and (iv)
- D (i), (ii) and (iii)

**QUESTION 8**

Management and overhead account for what proportion of the fixed cost of trucking?

- A 75%
- B 25%
- C 50%
- D 60%

**QUESTION 9**

Which of the following can be considered as advantages of private trucking?

- (i) Elimination of carrier profit
- (ii) Reduction in inventory levels
- (iii) Union presence
- (iv) For hire authority to backhaul

Choose the correct answer:

- A (i), (ii) and (iv)
- B (i), (iii) and (iv)
- C (ii), (iii) and (iv)
- D (i), (ii), (iii) and (iv)

**QUESTION 10**

Which country is top in terms of vessel calls?

- A China
- B United States
- C Japan
- D Brazil

**QUESTION 11**

How much more fuel does the airline industry use in comparison to the motor carrier industry?

- A The airline uses three times more fuel.
- B The airline uses two times more fuel.
- C Actually, the motor carrier industry uses three times more fuel than the airlines.
- D The airlines use the same amount of fuel as the motor carrier industry.

**QUESTION 12**

What was the primary response of carriers when dealing with fuel price increases?

- A Increasing rates per pound of cargo
- B Using of fuel surcharges
- C Reducing capacity
- D Increasing capacity

**QUESTION 13**

Which one of the following modes is the most intensive user of fuel?

- A Truck
- B Air
- C Rail
- D Water

**QUESTION 14**

What type of technology is being utilised to foster collaboration in the supply chain by carriers and shippers?

- (i) V.M.I
- (ii) R.F.I.D.
- (iii) E.D.I.

Choose the correct answer:

- A (i), (ii) and (iii)
- B (ii) and (iii)
- C (i) and (iii)
- D (i) and (ii)

**QUESTION 15**

What is meant by the term, carbon footprint?

- A Truck length
- B Fuel consumption
- C Number of accidents/year
- D CO<sub>2</sub> emissions

**QUESTION 16**

In transportation, this axiom “Don’t Ship Air” refers to which one of the following?

- A Bubble wrap
- B Empty barrels
- C Air balloons
- D Empty space in equipment

**QUESTION 17**

The most important aspect of collaboration is sharing \_\_\_\_\_.

- A costs
- B risk
- C information
- D customers

**QUESTION 18**

How have carriers responded to the fuel issue and sustainability?

- (i) Service capacity and network optimisation
- (ii) Operational efficiency
- (iii) Technology

Choose the correct answer:

- A (i), (ii) and (iii)
- B (ii) and (iii)
- C (i) and (iii)
- D (i) and (ii)

**QUESTION 19**

Which one of the following countries has the largest export trade flows?

- A United States
- B Germany
- C China
- D Japan

**QUESTION 20**

Transportation has been described as \_\_\_\_\_.

- (i) the glue that holds the supply chain together
- (ii) the enabler of the underlying tactics and strategies for supply chains
- (iii) an enabler for firms to compete in the growing and complex market place

Choose the correct answer:

- A (i), (ii) and (iii)
- B (ii) and (iii)
- C (i) and (iii)
- D (i) and (ii)

**QUESTION 21**

What positive outcomes have occurred in the global economy with increased interdependence?

- (i) Lower prices
- (ii) Wider availability of goods
- (iii) New employment opportunities

Choose the correct answer:

- A (i), (ii) and (iii)
- B (ii) and (iii)
- C (i) and (iii)
- D (i) and (ii)

**QUESTION 22**

On the micro level, global interdependence has \_\_\_\_\_.

- A decreased the level of complexity
- B increased competition
- C reduced outsourcing
- D increased product life cycles

**QUESTION 23**

Reverse logistics systems are developed for \_\_\_\_\_.

- A returning rail box cars
- B eliminating empty backhauls
- C receiving payment from customers
- D returning unacceptable products

**QUESTION 24**

Forward information in the supply chain is utilised to provide \_\_\_\_\_.

- (i) advanced shipment notices
- (ii) order status
- (iii) inventory availability

Choose the correct answer:

- A (i), (ii) and (iii)
- B (ii) and (iii)
- C (i) and (iii)
- D (i) and (ii)

**QUESTION 25**

Cash flow is important to organisations producing products for sale because it \_\_\_\_\_.

- A reduces the need for working capital
- B eliminates the need for checks to pay vendors
- C provides bonus money for employees

**QUESTION 26**

One effective method to reduce the bullwhip effect in a supply chain is to replace inventory with \_\_\_\_\_.

- A outsourcing
- B information
- C TOFC service
- D transportation



**QUESTION 27**

Which of the following can be considered as the major flows in a supply chain?

- (i) Information
- (ii) Water
- (iii) Financials/cash
- (iv) Products

Choose the correct answer:

- A (i), (ii), (iii) and (iv)
- B (ii), (iii) and (iv)
- C (i), (iii) and (iv)
- D (i) and (ii)

**QUESTION 28**

Which one of the following is consistent with a green supply chain strategy?

- A Reduce packaging materials
- B Ship small loads, more frequently
- C Use motor carriers instead of railroads
- D Shift to a group of suppliers located at a more distant location

**QUESTION 29**

The volume of global trade over the course of the last 50 years has \_\_\_\_\_.

- A remained almost constant
- B doubled
- C tripled
- D decreased

**QUESTION 30**

Intramodal competition is which one of the following?

- A The joint use of trucks and railroads to serve common customers
- B Trucking companies underbidding other modes to secure business
- C Various modes seeking to gain market share from other modes
- D A government sponsored activity

**QUESTION 31**

Which one of the following do the majority of rail movements involve?

- A Manufactured goods
- B Bulk liquids and coal
- C Low value, heavy commodities
- D Consumer goods

**QUESTION 32**

The demand for freight \_\_\_\_\_.

- A is a derived demand based on the demand for products
- B originates when the carrier asks for the business
- C starts when the shipper calls the railroad to provide equipment to move a shipment
- D is based on government quotas

**QUESTION 33**

Which one of the following best characterises the short-run cost structure of the railroads?

- A Low variable costs, high direct separable costs
- B Low fixed costs, low variable costs
- C Low joint costs, high separable costs
- D Large proportion of indirect fixed costs

**QUESTION 34**

Railroads are \_\_\_\_\_.

- A more energy efficient than most other modes
- B more likely to haul energy producing materials than other modes
- C not as energy efficient as most other modes
- D buying more energy efficient locomotives

**QUESTION 35**

Which one of the following is one of the strengths of the railroad industry?

- A That it is not as affected by the weather as are other modes
- B That the railroads have large carrying capacity
- C That it can move products in both directions
- D That geographical barriers are not as formidable as they are for other modes

**QUESTION 36**

What is the difference between TOFC (trailer-on-flatcar) and COFC (container-on-flatcar) service?

- A TOFC is slower and cheaper.
- B Not all railroads can handle COFC.
- C COFC is more costly.
- D One method moves the trailer on its wheels and the other moves only the "box" or the container.

**QUESTION 37**

Railroad per unit costs decline as traffic increases. Which one of the following is the reason for this cost behaviour?

- A A high proportion of variable costs in the cost structure
- B A low proportion of fixed costs in the cost structure
- C A large proportion of fixed costs in the cost structure
- D Limited capital investment by the railroads

**QUESTION 38**

Which of the following are the top commodities transported by railroads?

- (i) Coal
- (ii) Farm products
- (iii) Chemicals
- (iv) Transportation equipment

Choose the correct answer:

- A (i), (ii), (iii) and (iv)
- B (ii), (iii) and (iv)
- C (ii) and (iv)
- D (i), (iii) and (iv)

**QUESTION 39**

With respect to global transportation, economic downturns \_\_\_\_\_.

- A lead to increased transportation demand and rates
- B lead to decreased transportation demand and rates
- C have no impact on transportation demand and rates
- D cause shippers to shy away for international trade

**QUESTION 40**

Which one of the following is a transaction channel activity in global transportation?

- A Transfer of ownership
- B Documentation of freight
- C Monitoring performance
- D Timely information sharing

**SECTION B****[60 MARKS]****QUESTION 1****[10 MARKS]**

**Read the case study below and answer the question that follows.**

**GREEN AND LEAN**

Jan Planne and Tim Blaau, friends and former classmates in university, had not seen each other face-to-face for about 15 years when they had one of these chance meetings in an airport. They both just received the news that their flights to their respective, different destinations had been cancelled. As they walked into an airport restaurant to get a sandwich and wait for their new flights, they spotted and immediately recognised each other. After the customary greetings and questions about family and mutual friends, they started discussing their current jobs and responsibilities. Jan had spent the last 20 years with two pharmaceutical organisations, while Tim had worked for a chemical organisation and a large retailer and had established his own package delivery organisation. They were both now vice-presidents of transportation for their latest organisations – a very large retailer and a large consumer products organisation.

Surprisingly, Jan and Tim found that they were both concerned about the same general area in their respective organisations. Now that fuel cost has decreased dramatically for transportation services, they did not want to lose their focus on sustainability.

**Source:** Coyle, JJ, Novack RA & Gibson, BJ. (2015). *Transportation: A Supply Chain Perspective*. 8<sup>th</sup> Edition. United States: Cengage Learning. p. 468

**Question:**

Jan and Tim need some help in trying to understand how it would be possible to be green and lean at the same time. They need some help from you to understand how these two objectives could be achieved simultaneously.

Explain to them how it can be done.

Note: Examples can be used to indicate your understanding of the subject matter.

**QUESTION 2****[10 MARKS]**

**Read the case study below and answer the questions that follow. Question 2.1 is based on the case study. Question 2.2 is not based on the case study.**

**BRAAI PRODUCTS: A SEQUEL**

Braai Products produces a variety of outdoor grills for private households as well as for commercial use. The business was started by Goodbaai Tshabalala as a hobby. Goodbaai Tshabalala liked to cook and particularly liked to do outdoor cooking on a grill. The size of the groups that he entertained kept growing as his barbeques became almost legendary. During this period, Goodbaai Tshabalala became very dissatisfied with his standard size grill that had been purchased at the Pleasant Gap Hardware Store. Being a metal fabricator by trade, he decided to build his own larger grill in his garage shop. Like most prototypes, it did not meet all of Nick's expectations, and he built additional versions until he was satisfied. His guests and neighbours were intrigued with his grill and asked him to build them similar grills. The number of requests was small enough that he could produce them in his garage. Goodbaai Tshabalala estimated that he might receive 20 requests per year, which was manageable. When the requests reached 50 per year, he realised that he could not satisfy the demand using his garage shop. It was too small and precluded options to operate more efficiently. So, Goodbaai Tshabalala borrowed money from the local bank using his home as collateral and rented a nearby abandoned service station. He also purchased new tools and equipment and hired students from the local vocational school to work part time during the school year and full time in the summer to meet peak demand. His decisions resulted in much more business and lower production costs.

The success leads them to consider expanding their market area in Gauteng. The population of the area had expanded significantly over the last 10 years since Goodbaai Tshabalala initially began to build and sell grills because of the improved highway system and the growth of the nearby university. Braai Products, to this point in time, had built the grills to customer needs, and shipped them assembled to customer locations when requested in 15-20-foot vans that they leased. Customers also had the option of picking up the grills themselves to eliminate the delivery charge. Goodbaai Tshabalala needed to rethink the approach to production, marketing and logistics with an expanded market area, a much larger potential volume of sales, and an expanded product line.

Goodbaai Tshabalala felt that it was more economical to ship the grills unassembled and have them assembled at the delivery point. He also recognised that homeowners and restaurant owners could be challenged to assemble the grills, especially since these were larger grills available with a variety of fuel options. He assumed that they would need to make deliveries in trucks with a driver who could efficiently assemble the grills for customers onsite. Such a strategy would require premium pricing and specially trained drivers. Goodbaai Tshabalala and his daughter, Tracie, who joined her father in the business to manage the delivery service, felt that the delivery option offered a value added service that could enhance sales, especially for their commercial customers who purchased larger, more expensive grills usually for their restaurant operations. They believed that they could sustain a private fleet with the expanded sales and market area.

**Source:** Coyle, JJ, Novack, RA & Gibson, BJ. (2015). *Transportation: A Supply Chain Perspective*. 8<sup>th</sup> Edition. United States: Cengage Learning. p. 445.

**Questions:**

- 2.1 You have been hired by Braai Products to write a report, presenting them with the advantages and disadvantages of offering customers a delivery service as well as the special issues and challenges their type of business would face with private transportation service.

Based on your report, make recommendations whether to use a private transportation service or some other option.

Note: Your responses should include an analysis of the challenges of providing for-hire service compared to private transportation. (8)

- 2.2 Explain the concept of “private transportation”. (2)

**QUESTION 3****[10 MARKS]**

Identify and briefly describe any five steps involved in the customs clearance process.

**QUESTION 4****[10 MARKS]**

Global transportation involves more than the physical flow of goods via the modes mentioned above. As in any supply chain, the global flow of goods is supported by effective information flows between the exporter and importer. The concept of logistics channels or networks to describe the planning and execution of these key flows.

Discuss each of the following concepts: the transaction channel, the communication channel, and the distribution channel.

**QUESTION 5****[10 MARKS]**

The fundamental decision in global transportation is mode selection – how will goods be transported from the origin to the destination? The key determinants in mode selection include accessibility, capacity, transit time, reliability, product safety and cost.

Briefly discuss any five of the key determinants in mode selection.

**QUESTION 6****[10 MARKS]**

Explain why information technology is so impactful for businesses and other organisations.

**END OF ASSESSMENT**