School of Business
Master of Business Administration MBA LSCM
Semester End Examination - Nov 2023

ADMISSION NUMBER

Duration : 180 Minutes
Max Marks : 100

Sem III - MBLS6020 - Physical Distribution and Transportation Management

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1) Name two types of distribution channel conflict that can occur among channel members. — K1 (2)

2) Explain the importance of regularly inspecting and servicing equipment in a construction company. — K2 (4)

3) Outline the process of activity-based costing (ABC) and its application in transportation cost analysis. List an example of how ABC can help identify cost drivers in a transportation company. — K2 (6)

4) A transportation company is facing the challenge of managing its fleet lifecycle effectively. Interpret the significance of proper fleet lifecycle management in maximizing the longevity and efficiency of the company's vehicles. Identify the factors that influence the decision to replace or refurbish aging fleet assets. Define the financial implications of fleet replacement decisions, considering costs of acquisition, operation, maintenance, and disposal. Outline a comprehensive fleet replacement strategy for the transportation company that balances economic considerations, environmental sustainability, and technological advancements. — K3 (9)

5) Identify the role of sustainability, energy management, and quality performance in optimizing distribution and transportation operations. Show three specific sustainability measures that a logistics company can implement to reduce its environmental impact while maintaining operational efficiency. — K3 (9)

6) A retail company receives an average of 50 customer returns per day. The company's reverse logistics team has a processing time of 3 days to inspect, sort, and restock the returned items. Calculate the average number of returned items that the reverse logistics team processes in a week and a month. If the company's average carrying cost per returned item is $2 per day, determine the total carrying cost incurred by the company in a month due to customer returns. — K5 (10)

7) A logistics company is evaluating the costs associated with shipping products via two different modes: Mode X and Mode Y. The transportation cost per unit for Mode X is $5, and for Mode Y is $7. The company shipped 500 units using Mode X and 300 units using Mode Y last month. Examine the total transportation cost for each mode and determine the cost savings achieved by using Mode X instead of Mode Y. K4 (12)

8) A shipping company is evaluating its modal rate development for different routes. It offers four shipping modes: Mode X, Mode Y, Mode Z, and Mode W. The company has historical data on shipping volumes, transportation costs, and transit times for each mode on various routes. Using this data, recommend a rate development model to determine the optimal pricing for each mode and route combination. Consider factors such as distance, cargo volume, and delivery timelines. Based on the rate development analysis, determine strategic pricing adjustments to improve the company's market share and profitability while meeting customer demands. Recommend a comprehensive case study showcasing the implementation of the rate development model and its impact on the shipping company's financial performance and customer satisfaction. K5 (15)

9) A distribution company wants to optimize its transportation routes to reduce fuel consumption and transportation costs. The company has five delivery locations (A, B, C, D, and E) and data on the distance between each location. The fuel cost per kilometer for the delivery trucks is $0.15. Use the Traveling Salesman Problem (TSP) algorithm to evaluate the most cost-effective route that visits all locations once and returns to the starting point. Estimate the total transportation cost for the optimized route. K5 (15)

10) A large transportation company wants to optimize its fleet routing to improve fuel efficiency and reduce operating costs. The company has a diverse fleet of trucks and needs to find the most fuel-efficient routes for delivering goods to multiple destinations. Use the Vehicle Routing Problem (VRP) algorithm to design an optimized routing plan considering factors like distance, traffic conditions, and fuel consumption. Conduct a cost-benefit analysis to assess the potential fuel savings and operational benefits from implementing the optimized routes. Additionally, consider the environmental impact and carbon emissions reduction achieved through fuel-efficient routing. Provide a comprehensive case study that showcases the transportation company's successful implementation of the VRP algorithm and its positive impact on fuel consumption, cost savings, and sustainability. K6 (18)