

JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA
PGDM / PGDM (M) / PGDM (SM)
FOURTH TRIMESTER (Batch 2023-25)
END TERM EXAMINATIONS, SEPTEMBER, 2024
SET-1

Course Name	Supply Chain Management	Course Code	20522
Max. Time	2 hours	Max. Marks	40 MM

INSTRUCTIONS:

- **Attempt all four questions.**
- **Distribution of marks for each question mentioned in the bracket.**
- **It is closed book / notes exam, no mobile/ electronic / digital medium is allowed. Only calculators are allowed.**
- **Answers should be rich in content, precise and to the point.**

Ahmedabad Medical Equipment Company (AMEC) is based out of Ahmedabad in India. AMEC is a leading distributor of range of high-end precision medical equipment including diagnostic equipment, orthopedic implants and ophthalmic equipment. AMEC has an advanced manufacturing unit on the outskirts of Ahmedabad, Gujarat. The pan India distribution centre of the company is also collocated with the manufacturing unit.

AMEC manufactures only a limited range of products at its manufacturing unit, this includes some precision surgical instruments. However, most of other high-end equipment offered by the company are imported from Taiwan. This includes specialized diagnostic equipment, ICU equipment, ophthalmic equipment and orthopedic implants.

AMEC sells its product to retail customers (individuals, small clinics and hospitals) through a network of dealers across India. Bulk orders from institutional customers such as big hospitals are delivered directly by AMEC from its central distribution centre in Ahmedabad. AMEC also have other distribution centers strategically located pan India including one in Delhi NCR region.

Q1)

Manish Gupta is VP Logistics at AMEC. AMEC has recently added high-end diagnostic equipment (market name – AceT) for early detection of thyroid disease i.e. hyperthyroidism in its product portfolio. It's a breakthrough product and demand of this newly launched product is high as per market inputs. The transportation options available with him for importing AceT from Taiwan includes Air or sea i.e. shipping in 10- or 20-foot containers. Air mode of transportation is more reliable, faster but expensive whereas sea mode of transportation is slower but cheaper. Manish wishes to evaluate the transportation decision for this newly added imported product AceT. This is also important as freight transportation rates for both air and sea modes have also been recently revised.

Transport Mode	Avg. Transportation Rate (Rs / Unit)	Mean Lead Time (in weeks)	Min. Shipment Quantity (Units)	Fixed costs per order (based on minimum shipment quantity, Rs)
Air	15	1	300	4500
Sea	4	8	4000	16000

For both Air and Sea transport, assume that there is no supply uncertainty. The projected avg. weekly demand of AceT faced by DC in Ahmedabad is 2000 units with standard deviation of demand 400. The cost per unit of product is Rs 900 per unit. Assume inventory carrying cost to be 20%. Company works with 97.7 % service level ($z = 2$). Since the distance is long, transit or pipeline inventory is to be included in analysis (*Hint- Transit inventory can be calculated from the given lead time and average weekly demand*).

Evaluate the total annual supply chain costs (transportation costs and various inventory costs) involved for the two modes of transportation and thereby determine which mode of transport Manish should select to import AceT.

(Marks: 10)

Q2)

2.1) Manish has been working with AMEC for more than a decade. Over the years, he and his team has endeavored to build relevant capabilities in supply chain by taking appropriate supply chain strategic decisions. **Discuss the two generic supply chain capabilities and relation between them.**

2.2) Further in recent past, businesses across the globe including AMEC faced Supply Chain disruptions due covid-19 pandemic. **Discuss the remedial measures and additional supply chain capability** which companies are endeavoring to build in their supply chain so that they are in better position to face such uncertainties in future, avoid supply chain disruptions and resulting loss of business revenue.

(Marks: 6+6)

Q3)

As mentioned before, AMEC has a network of brick and mortar dealer retail stores in metros and other major cities of India. Through it's dealer network, AMEC distributes and sells it's products to retail customers pan-India i.e. employing distribution network design - "Retail Storage with Customer Pickup".

The top management of the company is considering opening an additional online channel wherein customers can place order on the company's website and get delivery at their premises. After much deliberation and considering various contextual factors, the top management of the AMEC has taken a decision that only a limited category of products will be sold through online channel. With this, retail customers will be able to place orders on company's website and goods will be delivered directly to customer premised using package carriers i.e. Drop Shipping. The company will continue selling other products through its retail store network.

3.1) Compare and discuss the above-mentioned distribution network designs in terms of various supply chain costs and customer value factors.

3.2) Top Management has directed Manish Gupta to identify category of medical equipment for which going online will offer biggest advantage for AMEC. By analysing in terms of product characteristics and supply chain costs involved, give your recommendation regarding suitable product category.

(Marks: 6+6)

Q4)

Medanta Hospital is Gurgram near Delhi is one of the major customers of AMEC's medical equipment including diagnostic equipment, surgical and ophthalmic equipment alongwith orthopedic implants. Medanta is India's largest multi-specialty tertiary care provider hospital and has been consistently ranked the best private hospital in India for many years.

Earlier AMEC products were supplied to Medanta by one of its dealers in Delhi NCR. However, due to increasing use of high precision medical equipment of AMEC at various departments of Medanta, it's Supply Chain Manager wishes to implement Vendor Managed Inventory (VMI) arrangement with AMEC. **Discuss VMI and assess the benefits for Medanta in implementing such as arrangement.**

(Marks: 6)