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**Program**  BBA

**Subject**  Supply Chain Management

**Semester** 8

Final Term Assignment paper

**Iqra National University**

**Explain the following in your own words with examples.**

**Q1. Bull whip effect in supply chain management? What do you mean by supply chain management in equilibrium? (20 marks)**

**Answer:**

**Bull whip effect in Supply Chain Management**

It is a distribution channel event or occurrence that estimates, predicts supply chain production ineffective. In different stages of a supply chain, factors like lack of communication, time, demand for supply, mismanagement of supply and demand orders, disorganization occurs and results to a problem for the organization. This is called bull whip effect.

This effect industries badly, businesses with vast and huge productions will be in danger, may face financial losses.

**Example**

Real demand from a consumer is 6 units, here the shopkeeper orders 8 units from the distributer. The 2 extra units are to make sure they have enough in stock with themselves. Here the supplier gives an order of 18 units from manufacturer or producer. This allows them to buy in high numbers so that they have sufficient stock in order to guarantee the delivery of commodities to shopkeeper timely. The manufacturer receives orders from supplier in huge numbers for the products, now orders 40 units to make sure that the production meets the demand. So now 40 units have been produced for a demand of 8, it means the retailer has to increase the demand for the product by promoting the product, advertising the product and decreasing the prices of the product so that to find more customers to purchase the product.

**Supply Chain Management in Equilibrium**

Equilibrium is the stage where supply and demand levels each other. When market demand and supply equals each other and matches each other, this state is called equilibrium. In equilibrium the prices stay stable. The equilibrium price occurs where both demand and supply matches and balances each other. Equilibirium in supply chain management means the demand for the product balances its supply for the product that from the supplier who provides raw material to end customer who buys the product remains balance. Shopkeepers sell their product at a continuous price. Businesses, companies with their supply chain will be able to produce commodities according to demand.

**Example**

The demand for dollar pen from customers is 10 units. A retailer constantly and regularly orders 10 units of pen from distributer. The company takes the order and asks the supplier for the raw material of 10 units and produces 10 units of dollar pen. The distributer delivers those 10 units of dollar pen to the shopkeeper. Here the demand for the dollar pen in the market is 10 and the supply for the dollar pen is also 10. The demand and supply matches and balances each other those results to equilibrium.

Supplier provides raw material of 10 units to manufacturer, manufacturer produces 10 units and the distributer ships or delivers those 10 units to retailer.

**Q2. Explain in detail demand forecasting and its role. Explain the approaches in forecasting. (15 marks)**

**Answer**

**Demand forecasting**

Demand Forecasting estimates and forecasts the demand for products and services for future in a company. It calculates the demand for the commodities and services beforehand. It does not mean the prediction we make for demand of products must be 100% true. It may be not. The demand forecasting provides an estimation of commodities and services to businesses that their customers will buy in future. Demand forcasting helps an organization to make decisions that are buying of raw material, planning for the production of goods, collecting money for it, deciding the price of goods.

**Example**

A leading car maker take a look and studies its last 12 months of actual sales of its cars at model, engine type, and color level; and based on the anticipated growth, he estimates and forecasts the short-term demand for the next 12 month for purchase, for its production and planning the inventory, material.

**Role of Demand forecasting**

* It makes a base for decision making and planning in supply chain. For instance; in production ; helps in scheduling, material arrangement, making plans for production of goods.
* Demand forecasting plays an important role in management section of every firm, organization.
* It assist a business to decrease risk related activities and helps in making crucial business decisions.
* Productive transportation system or supply chain can be estimated and forecasted on the availability of authentic inputs.
* Helps in placing of demands in the system.
* Different techniques are used that estimates and forecasts the demands on the future so that proper plans and decisions are made to acheive those demands.
* Every business starts with an objective that decides it before. Demand forcasting helps in acheiving thses objectives. For example, an organization has set a target of selling 10000 units of its products. In this the organization would use demand forecasting for its products. If the demand for the products is low, the organization would take accurate actions, so that the objectives can be acheived.
* Plays an importantl role in making budget through determining costs and expected income. For example, an organization has predicted that the demand for its product, which is 10 ruppees, would be 1000 units. Therefore, the total expected revenue would be 10\* 1000 = Rs. 10000. In this way, demand forecasting helps organizations to prepare their budget.

**Approaches in Forecasting**

There are two approaches, methods in forecasting.

1. Qualitative Methods
2. Quantitative Methods
3. **Qualitative Methods**

Qualitative methods are used and applied where there is no historical data available. They are based on the assessment and judgment of experts, professionals to make predictions, forecasts.

* Qualititave methods, approaches are used when situation is unclear and less date is there.
* New produts are introduced
* New technologies are introduced
* Experience is there
* **Example:**Estimating sales of produts online, forcasting for e-commerce sales of products.
* It is based on humans assessment, views and is non numerical. Experts experience and opinions are used to make demand forcasts.
* Businesses do market surveys of consumers. The data is gathered through telephonic conversations, individual interviews and survey questionnaires to make forecasts.
1. **Quantitative Methods**

Quantitative forecasting methods are utilized when historical data is there and further examined and analyzed to obtain those estimates. It is numerical in nature. It is based on numericals.

* It is utilized by the existance of historical data. It cannot be utilized without historical data.
* It can be assessed and predicted through existing products, products that are already existed.
* It can be estimated by the use of current and present technology which is used.
* Mathematical or nemerical techniques are used in quantitative forcasting.
* **Example**: Estimating and predicting the sales of Dell core 5.
* Companies make forcastings by utilizing and looking at financial statements of previous 2 to 3 years (balance sheet, income statments, cash inflow and outflow).

**Q3. Explain the following modes of transportation. (15 Marks)**

1. Air
2. Package carrier
3. Rail
4. Water
5. Pipeline

**Answer:**

**Modes of transportation**

It is the mean or ways through which commodities, people are transported in to different areas, from one area to another area.

1. **Air transportation**
* It is a mean of transportation that carries goods and people from one place to another.
* It is used to carry small, large value goods, equipments. It is also used for shippinng of emergency items that are needed to be shipped quickly.
* It is used for shipping of goods that is exported and imported from one country to other that has to travel a long way.
* Air transportation is usually used to transport goods that are highly priced and valueble but not too much heavy in weight.
* **Example:** Helicopters, airplanes, jet crafts are means of air transportation.

 **Advantages**

* It is the quickest mode of transportation. It transports and ships the goods in quick time than other modes of transportation.
* It transports commodities in places which are not in reach and is difficult to reach by the other transportation vehicles.
* It can also carry a large number of goods at a time.
* Its servives is fair.
* It saves time.

**Disadvantages**

* The freight cost is high as compared to other means of transportation.
* It is hard and dangerous to carry and transport heavy goods in it.
* It flies on the base of weather situation and if the weather is not good then it cannot fly in heavy storms, wind.
* It is not proper to use airplane for a short distance specially if the goods can be transfered by other transportation mean or vehicle.
1. **Package carrier**
* They are transpotation comapnies and businesse that carry and transport small packages.
* Trucks, rails are used to transport goods.
* They provide servisec that ships the flow of material and has the track system that tracks the order status that can allow and help them know where the goods have reached, their distination and infoems the customers about their goods, products.
* **Example** can be DHL, Fed Ex.
1. **Rail**
* Trains are the means of transportation here.
* Trains are used for the transportation and shipment of commodities, goods.
* It is best suited and used for large number of goods to be shipped. It can carry heavy loads of merchendise.
* Variety of products are transported through trains such as cement, coal,
* It is very cost effective mode of transportation for both short and long distances.
* Trains run on electricity, diesel to carry passengers and goods from one place to another.
* They are quick and they are very rare effected by weather.
* **Example** is Train.

**Advantages**

* It is good for transfering large and hefty commodities in bulk.
* Its shipment cost is lower than air means.
* It is quicker than cars, busses.

**Disadvantages**

* It is expensive for transfering and shipping commodiries to shorter distances.
* It can go to far places, remote places because it is not accessible and available.
* Its services is fixed scheduled therefore it is not adjustable for loading and unloading at any area. It loads and unloads goods from a specific place according to its schedule.
1. **Water**
* Large Ships, yatch are used to transfer and carry goods through ocean way.
* It is mainly used for carring and transfering hefty commidies in large numbers.
* Water transpotation services is used by those countries where they have access to oceans and transfers goods, cargos to another country.
* **Examples** are Ships, yatch.

**Advantages**

* It is cheap, low cost means of transportation for hefty commodities.
* It encourages and enhances trade all over the world.
* The cost carring goods in this means of transportation is cheap and economical.

**Disadvantages**

* It takes loads of time to transfer goods from one place to other because it moves slowly. The delivery and shipment of goods takes time.
* It may not travel when there is heavy wind, storm especially when is heavily loaded because it faces difficulty in moving and is dangerous.
* If large sea ships are damaged, then it needs lots of money to be repaired so it needs huge investment.
1. **Pipeline**
* Pipeline transportation is a method of transportation which includes movement of solid, liquid or gas related products over long distances through pipelines.
* It is vastly used for transport and shipment of crude and  petroleum products like oil and natural gas.
* It cannot carry different types of substance.
* It is the most productive mode of transfering petroleum goods, water, gas relevant products and is less costly.