Unit 4

Freight Rates/ Costing Methods

Unit-4: Freight Rates / Costing Methods				
Location	**Learning Outcomes**	**Knowledge Evaluation**	**Performance Evaluation**	**Teaching Training Method**
	Session-1: Road Freight			
Classroom, different booking offices (road, air, railway, sea).	✡ Describe and demonstrate the rate computation for sunday booking. ✡ Advantages of road freight index.	✡ Fundamental road freight components. ✡ Technical method of calculation of road freight.	✡ Explain basic components of road freight. ✡ Analyse the importance of RFTIM.	Interactive lectures, group work, project, role play.
	Session - 2: Rail Freight			
	✡ Rate computation for different segment. ✡ State the advantages of railway freight index.	✡ State the rail freight calculation method.	✡ Examine the importance of railway freight system and its advantages.	
	Session-3: Air Freight			
	✡ Demonstrate the rate computation for air freight. ✡ Demonstrate the role of IATA in air freight computation.	✡ Describe the air freight calculation method. ✡ State the different steps for calculation of air freight rates.	✡ Explain the methods of calculation of air freight. ✡ Explain the factors affecting the sea freight.	
	Session-4: Sea Freight			
	✡ Describe the rate computation for sea freight.	✡ Steps in shipping freight methods. ✡ State main components of sea	✡ Explain the components of sea freight. ✡ Demonstrate	

		freight.	the steps required in sea freight.	
	Session-5: Waterways & Coastal Freight			
	✡ Demonstrate the rate computation for water ways and coastal freight.	✡ Steps in water ways and coastal freight. ✡ State main components of water ways and coastal freight.	✡ Explain the components of water ways and coastal freight. ✡ Demonstrate the steps required in water ways and coastal freight.	

Session 1: Road Freight

Figure 1: Road Freight

Road transport is vital to economic development, trade and social integration, which is based on the conveyance of both people and goods. Reduction in transport costs promote specialization, extend markets and there by enable exploitation of the economies of scale. Global competition has made the existence of efficient transport and logistics systems in delivery chain an absolute imperative. Easy accessibility, flexibility of operations, door-to-door service and reliability have earned road transport an increasingly higher share of both passenger and freight traffic vis-à-vis other transport modes.

India has one of the largest road networks in the world 3.3 million km. Road transport accounts for about 85% of passenger traffic (surface transport) and 70% of freight traffic. National highway are the prime arterial routes span about 70,934 km throughout country and cater to about 45% of the total road demand (Sources Road Development Plan Vision 2021 developed by Indian Road Congress).

1.1 Road Freight Index

Every country has developed a system for determining day to day road freight index.

The Indian Road Freight Index (RFTIM) - It is an index of weighted average rates complied across various route similar to stock exchange Index.

It displays past and present freight rate trends. It is estimated daily by experienced panellist who make an assessment of the freight that would be paid that day.


Figure 2: Trailer

Importance of RFTIM

i) India road freight index is a statistical tool which help to calculate the road freight as well as it is helpful for analysis of freight trends, route wise and data wise.

ii) Plan reduce of logistics cost and management of the performance and the indicators of the performance analysis.

1.2 Rate Computation for (A) Sundry (Small)

For preparing these rates, prevailing market lorry hire rate is converted into chargeable rates in paisa per kg. taking into account the actual weight loss suffered while loading the truck, due to non-availability of sufficient goods and / or the goods being bulky/ voluminous in nature.

Example 1: If the prevailing market lorry hire for a 10 ton truck from a transshipment centre A to a final destination B is Rs 1000/ and if centre A is able to dispatch only 8 ton in a 9 ton truck at one time, the chargeable rate per kg From A to B will be 23 paisa as under.

Lorry Hire = Rs.1000

Actual weight loaded = 8 tons

Lorry hire per ton = 1000/8 = ₹ 125

Chargeable rate per kg = 12.5 paisa

Add handling charges = 5.0 paisa

Total = 17.5

Add 30% overheads cost & margin = 17.5 x 30/100 = 5.25 paisa

Total = 22.5 paisa or 23 paisa

When the goods are transported from the last transshipment centre to the final destination in company own truck or contacted parcel truck, the chargeable rate is calculated on the basis of k.m. as under and handling charges of 5 paisa is added to it. For the first 400 km. = 17 paisa per k.m. per quintal for each additional k.m. =12 paisa per k.m. per quintal over 400 k.m.

Example 2: If the distance from last transshipment centre M to a final destination N is 55 k.m. the rate will be as under.

Rate per kg for first 400 k.m. = 400 x17 /100 = 68 Add rate per kg for additional 150 k.m. = 150 x 12/100 = 8 Add handling charges = 5 paisa Total 91 paisa b. Rate list computation for full truckload.

- Full load contract rate is computed by adding 20% margin or as per the policy of the company to the total projected lorry hire + handling / transshipment charges + other charges minimum weight.
- For actual weight 1-30 kg, charged weight will be 30 kg.
- For actual weight 31-50, charged weight will be 50 kg.
- The minimum charged weight for TBB consignment will be 100 kg.

Figure 3: Road Freight of TCI

Review Questions

1. Give the method of rate computation for sundry with examples.
2. Give the method of rate computation for full truck load with examples.
3. What is minimum weight? Give example.

Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirement for assessment activity.

Part-A

1. Differentiate between FTL and sundry booking?
2. What are fundamental of road freight components?
3. What is minimum weight?
4. What are the reasons of weight loss?

Part-B

Discuss in the class:

1. Method of Rate computation.
2. Method of Rate computation for sundry.

Part-C

Performance Standards

Performance standards may include, but not limited to:

Performance Standards	Yes	No
Able to identify the various factors affecting road transport.		
Able to calculate freight for sundry booking.		
Able to calculate freight for FTL.		
Able to calculate weight loss.		

Session 2: Rail Freight

Railway transportation is expected to be one of the principal means to carrying cargo both in India as well as in the other parts of the world. The Indian railways are the biggest national enterprises in the country and one of the world's largest rail network. Indian railway contemplating to establish many railway stations and introduce faster goods train covering small and medium cities in India to improve the mobility of goods transportation. During the year 2010-11 Indian railway earned 625.72 billion through rail freight.

Figure 4: Goods Train

Revenue Earning through Freight Traffic

Rail is providing to be a reliable alternative to road transportation. Railway has a high fixed cost and low variable cost of operation and is therefore best suited for large consignment over long distance. This coupled with its heavy load bearing capability, makes rail an ideal mode for carrying large, heavy or high density products over long distance. Transportation time however, is long and therefore, not suited for small time sensitive short distance or short lead time shipment.

2.1 Factors Affecting Railway Freight Structure

The consideration governing the freight structure therefore is:

A) Speed: Indian railways provide different types of goods train

1. High speed train
2. Slow speed train

Freight carried by faster train would naturally cost more than that hauled by slower trains.

B) Distance: Generally the freight of long distance is more than short distance but the relationship cannot be always linear.

C) Liability of risk: Railway transports the goods bearing two types of risk i.e. owner risk (OR) and carrier risk (CR). C.R will transit risks carried by the railway which will be more than the owner risk.

D) Frequency of service: Frequency of service affects the forces of demand and supply of the services and will have a bearing on the cost.

E) Type of wagons: Special rate is applicable for different types of special wagons i.e. closed refrigerated, shock absorbing etc.

F) Nature of commodity: (Sundry booking and full truck load) Railways are accepting two types of booking i.e. sundry booking (generally less than 2 ton) and full truck load. The railways do give some consideration for full truck load.

2.2 Classification of Railway Freight Rates

A) Class rates: Some about 3000 commodities have been categorized by Indian railway in several class and the freight rates applicable there on have been worked out.

B) Wagon rates: Commodities offered for freight in full wagon load quantities enjoy better rates in the different class mentioned above.

C) Smalls: Small means less than wagon load or sundry booking. Generally it is less than 2 m ton or less than full truck load. Freight rates for sundry booking is about 15 to 20% higher than for wagon load rates.

D) **Risk rates:** Consignment can be booked by rail either at owner risk or railway risk the RR risk are about 20% higher than OR rates. In case of OR no liability is carried out by the railway until it prove that it is negligence of the railway. Business man or owner generally book commodities of low value, perishable goods like fruits, vegetable etc. on the basis of owner risk to save the freight costs.

E) **Train load rates:** Indian railway started this facility from 1982 for certain commodities like pulse and grains, coal, cement, lime stones, iron, marble, steel etc. The train load rates are about 10% cheaper than wagon load rates.

F) **Station to station rates:** The railway administration can also quote station to station rates in order to generate more traffic in freight and to meet existing demand. However no discount is permitted in the rates of commodities chargeable at lower class rates or for movements for less than 150 KMs for wagon load consignment and for less than 300 KMs for smalls. Similarly no discount is allowed in the rates for live stock, petroleum and other hydrocarbon oils, whether dangerous or non dangerous.

G) **Special rates:** There are some special subsidized rates for defense material, postal traffic or as per the contract between consignor party and railway.

2.3 Railway Freight Index (RFIT)

The RFIT is an index of average freight rates complied across various routes. It highlights past and present freight rate strends, by analyzing these trends future forecasts of freight rate trends can be made accurately. It indicates various economic variables that effect the freight rates trends. It indicates various economic variables that determine the railway freight and prove the relationship between freight rates and these variables.

Advantages of Railway Freight Index

- Indian railway freight index is statistical tool which helps to estimate the freight rate.
- Indian railway freight index helps to make analysis of freight trends km. wise, route wise and commodity wise.
- It is also helpful for plan of reduction of freight costing and management of the performance.

Calculation of freight (Process): In order to calculate the freight charges it is necessary to calculate the distance for charge. There can be different possible route by which the delivery station can be reached. The distance of all routes available has to be calculated from the k.m. table issued by the I.R.C.A (Indian railway conference association) after the distance of all routes available has been calculated. The classification of the commodity for charge has to be determined from IRCA goods traffic part I. The commodities which have not been classified in the goods tariff are to be charged at the highest class of 150. After calculating the distance and as certain the chargeable class the rate per qty. For the entire

distance is to be seen from the rate table. (Rate table is prepared by the IRCA). The rate table gives the rates per quintal for the each of the class for various distance blocks. The total freight charges are then calculated by multiplying rate per qty with the chargeable weight. Supplementary charges if any are to be added in the total. If transshipment is required enroute, the transshipment charges at the prescribed rates should be added in the freight charges. In case owner risk has been prescribed and the consignor wants to book the consignment at carrier risk (railway risk) normally 20% off e-freight charges should be added for booking of the goods at the railway risk.

2.4 Method of Calculation of Railway Freight Rates.

Example 1: Ms. Richa booked consignment from railway, the weight of consignment is 4 ton and distance from booking point to delivery points 400 kilometer on class LR4 class, find out her freight rate (using the railway freight index).

Given, Weight of consignment = 4 ton

Distance covered = 400 km

According to railway freight index per ton freight of 401 to 425 km of LR4 class is 209.90 per ton.

So the freight of 4 ton = 4 x 209.90 = 839.60.

Example 2: Mr. Divyansh booked consignment from Indian railway the weight of all consignment are 85 kg and distance from booking railway station to consignee delivery station is 200 km. Find out his freight costing by Indian railway freight index slabs.

Given weight of consignment 85 kg

Distance = 200 km

According to the railway freight index of luggage rates slabs 191 to 200 of weight freight is 87.08.

Review Questions

1. What are the factors affecting while making railway freight structure?
2. Explain in brief railway freight system of OR and CR.
3. What is railway freight index?
4. List the advantages of freight index.
5. Ms. Manju booked from Indian railway the weight of box is 200 for 700 km. Find out her freight costing by Indian railway freight index.
6. Mr. Neeraj Kathait booked consignment from Indian railway. The weight is 300 kg and distance from Sadulpur to Dehradun consignor booking railway station to consignee delivery station is 425 km. Find out his freight according to the Indian railway freight index.

7. Dr. R.K. Mahesh booked consignment from Sadulpur railway station to Jodhpur railway station and the distance between these stations are 450 km and the weight of these consignment is 6 kg? Find out his freight by using Indian railway freight index.
8. Mr. Sandeep booked medicine from Jodhpur to Jhumpa railway station from Indian railway station and the weight of these medicine is 95 kg and distance of these railway stations are 472 km. Find out his freight.

Activity Questions

1. Visit railway station of your city and list the weight measure systems.
2. Visit the railway station of your city and collect the RR forms (Railway Receipt Form) and fill it up with the help of goods clerk.
3. Visit the railway station and list the methods of freight payments.
4. From standard or railway website collect information about` container railway transport system.
5. Visit the railway station and collect the information on procedure of refund of freight.
6. From the standard website or railway website collect information about claim procedure of damage goods.

Practical Questions

1. Visit the railway station and make project on procedure of railway freight system.
2. From the standard website, as open sources or railway website collect information on railway budget and make a project on it.
3. Visit the railway parcel office and develop a freight costing of cargo by taking real data with the help of goods clerk.
4. Prepare a case study on logistics services offered by Indian railway.

Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirement for assessment activity.

Part-A

1. Differentiate between class rate and wagon rates in railway freight.
2. What is the difference between GFN and R/R?
3. Differentiate between railway freight system of OR and CR.
4. What are the factors affecting railway freight structure?

Part-B

Discuss in the class room:

1. What is railway freight index?

2. How rail freight is calculated for sundry booking?
3. Why some time railway freight is less than road freight?
4. Discuss different method of freight payments.

Part-C

Performance Standards

Performance standards may include, but not limited to:

Performance Standards	Yes	No
Able to identify different factors affecting railway freight.		
Able to calculate the railway freight.		

Session 3: Air Freight

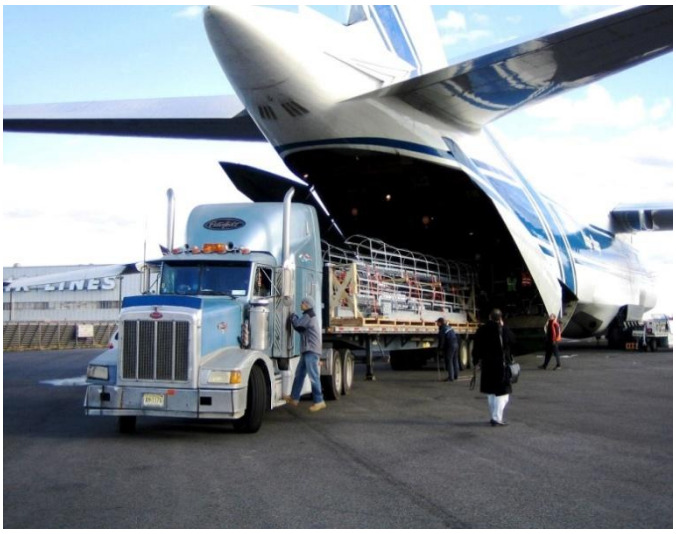

Figure 5: Air Freight

Air transport services play a crucial role in the transport of high value items and capital goods. The major sector utilizing air freight for transport are garments, gems and jewellery, pharmaceutical, chemicals and perishable. The Indian air transport services was first developed under private initiatives. Currently this sector is fairly liberalized two public sector undertaking, Air India and Indian Airlines provide international air services together with the host of the foreign carriers. There are some private airlines to operate air services such as Jet airways, Sahara, GoAir and Kingfisher airlines have also decided to venture into air freight market and play a bigger role in the booming aviation sector. Now air cargo is a way to reduce inventory carrying cost and improve customer support service. Today aircraft can carry thousands of pounds of cargo anywhere in the world just about 24 hours.

The aviation industry is thriving with robust growth in manufacturing sector and flourishing IT/TES sector in India. It is attracting huge foreign as well as domestic investment and has become one of the fastest growing industries in the world.

Air freight is a costly method of transportation for a package of any size, but necessary if our packages have to arrive at its destination quickly. Today's modern aircraft can carry thousands

of pounds of cargo just about anywhere in the world within 24 hours. Air transportation is regularly used whenever the benefit of fast delivery compensate the increased transportation cost.

- High value and low weight: These products require less protection because it requires less packing which results in reduced packing cost and logistics cost.
- Perishable products: These products are of the short life i.e. fruits (strawberries). Air transport is a unique mode of getting them to distant market.
- Emergency products (medical and spare parts): Medical suppliers and spare parts which are critical for there pair of the machinery are transported by air as they are vital for saving.
- Other valuable transportation: Now a day air transportation is also used for live animals like race show horse.

3.1 Air Freight Services

A) Domestic

- **Same day (NFO next flight out):** It means consignment will be reach at destination on the same day.
- **Overnight services:** Consignment is delivered the next business day.
- **Second day:** In this domestic services consignment is delivered on the second business day. For example freight is delivered by six pm. on the second business day following pick up freight picked up on Wednesday delivers on Friday.
- **Deferred services:** In this air freight domestic services consignment require typically three to five business days domestically to reach its destinations, depending upon the distance.
- **Time definite:** In this air domestic services consignment are delivered within the time limit given by the consignor.

B) International Services Offered

- **Consolidation services:** Shipments from different shippers are grouped together and tendered to the airline as one shipment with the forwarder be coming the shipper in the eye of the airline. The forwarder gets a much lower price because of the higher volume than the shipper could get themselves by going direct to the airline. The forwarder or consolidator makes their money on the difference between what they charge the individual shippers and what the airlines charge them. This is typically referred to as the gross margin or the spread.
- **Direct services:** In this international services consignment are directly delivered from point of airlines booking to the delivery point without involving the

transshipment services. Generally carrier provides these services in case of full truck load. These services reduce the transit time.

- **Door to airport:** In this international services airlines companies pick-up the consignment from the booking point and are delivered at destination airport door.
- **Door to door:** In these international services airlines companies pick-up the consignment from the door of consignor and delivered at consignee's home.

3.2 The role of International Air Transport Association (IATA) in Rate Making

The majority of the air transport companies (Airline) operating scheduled cargo services are members of IATA. IATA is known in the world as the medium through which airlines fix a common tariff.

Air cargo tariff structure - the rating structure in international traffic exhibits a number of complexities. There are different pricing concepts and any rationalization of new concepts bring changes in the air rate bring. These are normally negotiated through IATA machinery. The major constituents of the current IATA rate structure are the following.

- General Cargo Rate (GCR) is applicable to shipments weighing below or about 45 kg and constitutes the normal rates for cargo transportation. They fetch for the airline a reasonable profit.
- Class rates are surcharged or discounted rates for certain classified items i.e. valuable cargo, live animals, newspaper catalogues etc.
- Special Commodity Rates (SCR) are heavily discounted rate applicable directionally between two points for example about 70% of cargo carried out of India as Mumbai to London where special commodity rates are applicable. These rates are market oriented and take into account demand requirements.
- Freight All Kinds (FAK) Rates are different from SCR in that they carry sundry booking of combinations of different commodities and transported through transshipment process. This approach is simple to develop and apply.
- Government mandatory rates are the rates introduced by the government by the mandatory order to offer incentives to the export of certain commodities.

3.3 Methods of Calculation of Air Freight (Process of calculation of air freight or steps)

- Measure the length, width and height of the consignment which are going to be transported with the help of a tape measure. Write down the dimensions. Round each measurement taken upwards to the nearest inch.
- Multiply the length by width. Then multiplies the result by the height to get the volume of the consignment in cubic inches.

- Calculation of dimensional weight: Dimensional weight is also known as dim cubic weight etc. Freight carrier utilizes the greater of the actual weight or dimensional (dim) weight to calculate shipping weight.

  All freight transportation modes are governed by weight / cubic measurement factors where by carrier will charge on actual weight or volumetric weight whichever demand to be greater.

  The IATA factor for air freight shipment is 1 kilo = 6,000 cubic centimeters.

  Example: Let us assume actual weight of consignment or carton is 14 kilos.

  The measurement 30x 45x65 cm^3

  ### Which is 87750 Cubic Centimeter?

  Divide the figure by IATA cubic allowance factor of 6,000 cubic centimeter = 14625 kilos in this instance the air freight charge will be based on 15 kilos rather than14 kilos actual weight.

  A precise measurement of dimensional weight is not always used to make the calculations. However, there is a formal and somewhat longer way to go about it, which yields a more exact result.

  The basic formula for dimensional weight is:

  (LxWxH) / DF

  Here L = Length

  W = Width

  D/F is the dimensional factor

  ### Dimensional Factors

  1. Distance the shipment travels
  2. Customs costs
  3. Other factors

3.4 Process how to Calculate Total Freight Rates

The total cost of the air freight is equal to the chargeable weight multiplied by the per kg price in the traffic scheduled. This calculation must always be either equal or superior to the minimum rate for particular destination.

Paying a Higher Weight Break

The shipper / forwarder can use a higher weight break to his advantages at any time. If used this type of calculation gives a lower total air freight rate

An example a consignment has a chargeable weight 65 kg.

Tariffs	Minimum (M)	330.00 FRF
	Less than 45 Kg	32.50 FRF per kg
	More than 45 kg rates	22.00 FRF per kg
	More than 100 kg rate	13.00 FRG per kg

65 Kg = 22.00 FRF X 65 kg = 143.00 FRF

Review Questions

1. What are the different domestic services?
2. What are the different dimensional factors?
3. Give the different steps for calculation of air freight rates.
4. What are the different international services?
5. Rate the following shipment.
   A. Chargeable weight 60 per kg.
   B. Chargeable weight 135 kg.
   C. Chargeable weight 30 kg.

Tariffs	Minimum		
	Less than 45 Kg	35.50 FRF per kg	
	More than 45 kg rates	25.50 FRF per kg	
	More than 100 kg rates	13. 00 FRG per kg	

Activity Questions

1. Visit any airlines company of your city and collect information on how to calculate the chargeable weight.
2. Visit air port of your city and collect information on different services offered for domestic cargo.

Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirement for assessment activity.

Part-A

1. What factors affect air freight factor?
2. Differentiate between air domestic services and different dimentional factor.

3. What is the role of IATA for calculation for air freight?
4. What is FAK?

Part-B

Discuss in the class room:

1. How air freight is calculated?
2. What are the different international services?
3. Why is air freight a costly modes of transport?
4. Which types of commodities are generally exported and imported by air transport?

Part-C

Performance Standards

Performance standards may include, but not limited to:

Performance Standards	Yes	No
Able to identify the different factors affecting air transport.		
Able to calculated the air freight.		

Session 4: Sea Freight

International ocean shipping is a practice used to trade goods all over the world. Consignments are packed into shipping containers and loaded on a vessel before travelling across the sea to a destination port. Large machinery and project material that is too large to fit into ocean containers are known as break bulk and travels uncovered aboard vessel.

Figure 6: Sea Freight

Calculating sea freight is the process that determine a shipments mass which is then used as rate to calculate the cost of either an LCL (less than container load) or a break bulk shipment and full container load.

Linear conference: A linear conference is a group of two or more vessel operating carriers which provides international linear services for the carriage of cargo on particular route or route within specified geographical limits on uniforms freight rates and on other mutually agreed conditions. There are about 360 linear conferences all over the world.

Advantages of Linear Conference

Coverage of a wide range of ports:

- Helpful for maintaining uniforms rates for all shippers.
- Regularity of sailing to schedule ports of call.
- Stability of freight costing for a relatively long period of time which enables shippers quotes CIF prices.

Conference rate making one of the most important activities of a conference is the preparation, publication and revision of conference traffic. The traffic usually contains a list of rules and regulations for proper application of the tariff.

4.1 Factor Affecting Sea Freight

- Cost and value of service.
- Volume and weight of the cargo.
- Value of cargo.
- Availability of the shipping services.
- Distance.
- Logistics services like warehouse, packing, home delivery, home booking.
- Competition.

4.2 Sea Freight Calculation is Broadly Divided into Two Main Components

A) Less than truck loads or breaks bulk cargo calculation.

B) Full container load calculation.

A) Less than truck loads or break bulk cargo calculation: Break bulk cargo is a cargo that is unitized, palletized or strapped. The cargo is measured along the greater length, width and height of the entire shipment. The cargo is also weighted. Shipping lines quote break bulk cargo per ton which is either 1 metric ton or 1 cubic meter, which ever yields the greater revenue.

Steps for break bulk cargo calculation

- For Less than truck load shipment - shipping companies measure the length, width and height of booking cargo on the basis of measurement and estimate the volume of the cargo by using the formula -

  Volume (in cubic inches) = Length x Width x Height

- After getting the volume the next step is to create denominator by multiplying 12x12x12. There are 12 inches in a foot (12x12x12) = 1728 cubic inches.
- Divide the volume by 1728 in order to get cubic footage volume.

  Cubic feet = Volume/ 1728
- Multiply by 0.0283168466 to get cubic meter.

Example

A cargo has a gross mass of 2MT (metric ton)

Length = 2.5 Meter

Width = 1 Meter

Height = 2 Meter

Dimensional of cargo are

Length x width x height

2.5 x 1x 2 = 5 meter

The traffic rate quoted by the shipping line is USD 110.00 weight or measure (freight per ton)

Step (i) Multiply the meter 2.5 x 1 x 2 = 5 meter and now compare the mass = 2 MT.

Step (ii) Calculate the freight with the greater amount either the mass of the dimensional

5 x USD 110.00 = USD 550.00

Freight will be paid on the measurement and not the weight. All shipping lines carrying cargo in a break bulk from insist on payment based on a minimum freight charge which is equivalent to one freight ton, one cubic meter or one metric ton.

B) Full container load calculations and surcharges

Freight rates for containers are based on the container as a unit of freight irrespective of the commodity loaded. The Freight All Kinds (FAK), shipping lines quote per box (container) either a six or twelve meter container from time to time. Abnormal or exceptional cost arise in respect of which no provision has been made in the traffic. For example a shipping line cannot predict the movement of the US $ or the sudden increase of the international oil price. These increases have to be taken into account by the shipping line in order to ensure that the shipping line continue to operate at a profit. These increases are called surcharge. All shipping line accordingly retains the right to impose an adjustment factor upon their rate taking into account these fluctuations. All surcharges are expressed as percentages of the basic freight rate. Surcharges are regularly reviewed in the light of unforeseen circumstances which may arise and bring cause for a surcharge.

Review Questions

1. What is linear conference?
2. What are the advantages of linear conference?
3. What do you mean by conference rate making?
4. What are the factors affecting the sea freight?
5. List the name of logistics services.
6. Find out the freight rate of following cargo shipment.

Sl. No.	Type of Cargo	Length (Meter)	Width (Meter)	Height (Meter)
1.	Carton	2.5	3.5	1.5
2.	Box	1.5	2	6
3.	Carton	4.5	5	1.5
4	Timber Board	8	3	6

Activity Questions

1. Visit any shipping transport and list the factors which are affecting the freight rates.
2. Visit the nearest shipping company of your city and list the different logistics services provide by the company.

Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirement for assessment activity.

Part-A

1. What are the factors affecting sea freight?
2. What is the difference between sea freight and air freight?
3. What are the application of linear conference?
4. Which types of logistic services are provided by the shipping companies?

Part-B

Discuss in the class room:

1. Method of costing of sea freight.
2. Which types of commodities are exported and imported through sea transport?
3. What are the international services provided by the sea transport companies?
4. Discuss conference rate making.

Part-C

Performance Standards

Performance standards may include, but not limited to:

Performance Standards	Yes	No
Able to identify the factors affecting sea freight.		
Able to calculate sea freight.		

Session 5: Waterways & Coastal Freight

Figure 7: Shipping Freight

The trucking industry accommodates the shipment of a variety of goods to a variety of location. A single truck load shipment often comprises the goods of numerous customer. Therefore it is necessary to establish an appropriate charge for each customer for a particular shipment. The present invention relates to a method and system for establishing freight rates or shipping charges associated with shipping goods in the trucking industry. More specifically the present invention relates a method for establishing the appropriate charge for shipping partial load of goods when those goods are combined with other goods on the single truck load. In shipping the freight are very volatile and based on what the market can bear. It changes with seasons and demand costing for bulk consignment.

5.1 Classification of Shipping Freight Cost

The cost of shipment can be broadly classified into two major parts:

- Voyage related cost
- Standing cost

A) Voyage related costs

- Fuel cost while ship is standing / idle at port.
- Fuel cost during sailing.
- Port cost.
- Discharge port cost.

- Berth hire.
- Agency / Customs Immigration / Port charges.
- Health etc.

B) Standing cost

It is a sum of all expenses which have to be borne whether the ship does business or not. For eg. ships crew's salaries / fuel for generator / Maintenance / paints / provisions etc.

Standing costs

- Time taken in reaching to point of loading.
- Time taken in ship loading.
- Travel time.
- Time in unloading of ship at destination.

5.2 How to Calculate Total Freight (Freight Rates Costing Method)

Freight per ton can be found out by using the following formula:

$$\text{Total Cost of owner} = \frac{\text{No of days x Voyage exp per day} + \text{Standing exp per day} + \text{Profit margin}}{\text{Capacity of ship or weightment of ship}}$$

Example

If a ship loading capacity is 1000 mt. It is loaded from point A to B.

From current position to a time require 5 days

Loading is 2 days

Sailing from A to B point 5 days

Unloading at B point 3 days

If standing exp. per day 10,000

Fuel exp. per day 1000 per day, unloading and unloading exp / labour exp 2,000 per day

Customs and Port charges 5,000 per day

Profit 10% of total cost

Find out total cost of per ton

$$\text{Total Cost per ton} = \frac{\text{No of days x Voyage exp per day} + \text{Standing exp per day} + \text{Profit margin}}{\text{Capacity of ship}}$$

$$= \frac{15 \text{ x } 10{,}000 + 1{,}000 + 2{,}000 + 5000 + 10\% \text{ of total cost}}{1{,}000}$$

$$= \frac{15 \text{ x } 18{,}000 + 10\%}{1{,}000}$$

Summary

As we call this world a global village, the service industries or service provider like transport companies should be prepared to face the challenges of tomorrow.This could be made possible by extending their network to every corner of the world providing more accuracy in their commitments.The movers of things around the universe should work with the mantra: we do what we say and be more innovative in their ways of providing sophisticated services to their valued customers each and every day.

Review Questions

1. What is voyage cost? Explain with example.
2. What is standing cost? Explain with example.
3. From the following particulars find out the cost per ton:

   If a ship loading capacity is 1,000 mt it is loaded from Place A to B

   From current position to a time require 2 days

   Loading at point A require 2 days

   Sailing from A to B require 5 days

   Unloading at point B require1 day

   Unloading exp Rs 15,000 per day, standing charges Rs 20,000 per day

   Labour or loading exp / unloading exp Rs 2,000 per day

   Custom and port exp 5,000 per day and fuel exp 4,000 per day

   Profit margin 20 % of total cost
4. What are the advantages of road freight index?
5. Mr. Pradeep booked consignment from Indian railway. Weight of consignment is 250 kg for 560 km. Find out his freight costing according to the Indian railway freight index.
6. Ms Nandani Jaiswal booked 755 kg consignment from Jodhpur to Pali. Distance between Jodhpur to Pali is 70 km. Find out her freight costing by Indian railway freight index.
7. What are the components of sea freight?
8. What are the steps for break bulk cargo calculations?
9. Give the process of rail freight calculation.

Activity Questions

1. Visit any road freight company of your choice in your city and collect information on factor affecting costing of sundry booking.
2. Visit any shipping company of your choice and collect information on major cargo types and their costing method of freight.

Practical Questions

- Visit any transport company of your choice in your city and take real data and develop a freight rate for dispatching truck. You can also take a help of booking authority or transport manager.
- Visit railway parcel office of your city and take the rate list. Develop a freight rate for consignor. Take real data from goods clerk. You can take the help of goods clerk to fill up railway receipts.
- Visit air lines company of your choice in your city and make a project on freight rates.
- Prepare a case study on IATA service. (International Air Transport Association).
- Visit international airport of your nearby city and make a project on dimensional calculation in export cargo.
- Prepare a case study on comparative study on freight rates charged by air transport companies and road transport companies in domestic services cargo.
- Visit any shipping company of your choice and make a project on freight rate on full truck load.
- Visit any shipping company of city of your choice and prepare a case study on freight rate calculations of break bulk cargo with help of real data and shipping company executives.
- Visit the railway station and make project on procedure of railway freight system.
- From the standard website, as open sources or railway website collect information on railway budget and make a project on it.
- Visit the railway parcel office and develop a freight costing of cargo by taking real data with the help of goods clerk.

Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirement for assessment activity.

Part-A

1. What are the difference between voyage and standing cost?

2. What are the factors affecting costal shipping?
3. What are the components of costal shipping?
4. Which cost is higher: voyage and standing cost and why?

Part-B

Discuss in the class room:

1. Method of costing of costal shipping.
2. Classification of shipping freight.

Part-C

Performance Standards

Performance standards may include, but not limited to:

Performance Standards	Yes	No
Able to identify the voyage cost and standing cost.		
Able to calculate the shipping freight.		