Marudhar Kesari Jain College for Women (Autonomous) Vaniyambadi

Class: III B.Com Semester :VI Subject: Cost Accounting-II Subject Code: FCM 61

UNIT-III

Operating Costing (Transport Costing): Cost Unit – Cost Classification – Operating Cost sheet.

INTRODUCTION

Operating Costing is a method of ascertaining the costs of providing or operating a service. This method of costing is applied by those undertakings which provide services rather than the production of goods. Such undertakings, for example, are; transport concerns, gas agencies; electricity suppliers; hospitals; theatres, etc.

Definition:

CIMA defines the method "Operating costing applies where standardized services are provided by an undertaking'.

Such undertakings are: transport concern (shipping, air, railways and motor transport etc.), catering establishments (hotels, hostel, canteen etc.) and public utility undertakings like gas, electricity, steam generating, hospitals, theatres, schools, laundries etc. In many factories utility services like motor transport, power house, hospital and canteen are departmentally run divisions which provide services to the producing departments of the factory.

Operating costing is used by concern running diverse nature of activities, the cost system is obviously different from that for manufacturing concerns. In this system a suitable cost-unit is adopted, which is not a job or process but is related to service rendered e.g. ton-kilometer, passenger-kilometer of transport services, unit of electricity or kilowatt hour, cubic meter of gas etc.

Because of the varied nature of activities carried out by the service undertakings, the cost system used is different from that followed in manufacturing concerns.

Industries which are suitable or applicable for operating costing are;

- 1. Transport service: Bus, taxi, truck, railways, etc.
- 2. Welfare services: Canteens, hospitals, libraries.
- 3. Utility suppliers: Gas, Electricity, water.

4. Municipal services: Street lighting, road maintenance.

The operating costs can be classified into three categories. For example, in the case of a transport undertaking, these three categories are as follows:

- 1. **Operating and running charges** It includes expenses of variable nature. For example:
 - Expenses on petrol, diesel.
 - Lubricating oil, and grease, etc.
 - Wages of the driver, conductor, etc. (If payment is based on time or distance of trips).
 - The commission is taking on the bridge (Toll).
 - Depreciation (If allocated based on mileage run and treated as variable expenses).
- 2. Maintenance charges These expenses are semi-variable and include the cost of:
 - Tires and tubes,
 - Repairs and maintenance,
 - Spares and accessories, overhaul, etc.
- 3. **Fixed or standing charges** These costs are fixed in nature though the operation is on standing position, which includes:
 - Garage rent,
 - Insurance,
 - Road license,
 - Depreciation,
 - Interest on capital,
 - Administrative overheads
 - Motor vehicle tax
 - General supervision
 - Salary of an operating manager, supervisor, etc.

In the case of transport costing the following formulas are applicable:

1. Run Kilometers = (No. of vehicle x Distance x No. of Trips x Working Days).

2. Passenger Kilometers = (No. of vehicle x Distance x No. of Trips x Working Days x Actual Passenger Carried)

3. Ton Kilometers = (No. of vehicle x Distance x No. of Trips x Working Days x Goods Carried).

UNIT OF COST

It is quite important to find out a proper unit of cost in case of operating cost so that the cost per unit can be ascertained. In certain cases the unit is obvious. For example in case of hospital it will be bed, in case of water works it will be 1000 litres, in case of electricity it will be a unit or kwh and in case of a retail store it will be the sale per Rs. 100 In case of

transport concerns, however, the unit is likely to be composite. It may be a passenger-km. or ton-km signifying the effort which is made in carrying a passenger one kilometre or a ton of goods one km. Following are composite units based on two or more factors.

Services Transport – goods Transport – passengers Hospital Hotel – lodging Canteen Boiler House Electricity Water supply Educational Institution Composite units Per ton km or per quintal – km. Per passenger – km. Per patient – day or per bed – day Per Room – day or per service day Per meal or per plate Per 1000 lbs. of Steam Per kilowatt – hours Per thousand litres Per student tution fees.

PROBLEMS

1. From the following data calculate the cost per mile of a vehicle

	Rs
Value of vehicle	15000
Road license for the year	500
Insurance charge per year	100
Garage rent per year.	600
Driver's wage per month.	200
Cost of petrol per litre.	0.80
Miles per litre.	8
Proportionate charge for tyre and	
Maintenance per mile.	0.20
Estimated life.	1,50,000 miles
Estimated annual mileage.	6000 miles

Ignore interest on capital.

Calculation of Cost per mile of a Vehicle

Particulars	Rs (Per annum)	Rs (Per mile)
Standing Charges		
Road License	500	
Insurance	100	
Garage Rent	<u>600</u>	
Standing Charge Per mile 1200/ 6000		0.20
Maintainance Charges		
Tyre Charges		0.20
Running Charges Drivers wages per month (200 x12) –2400	2400	
Dirvers wages per month (200 x12) =2400	2400	0.40
Per mile = 2400 / 6000		
Petrol per mile :0.80 /8		0.10
Depreciation = Value of vehicle/ Estimated life		
= 15000 / 150000		0.10
Cost per mile		1.00

2. Calculate the total kms and total passenger kms from the Following

Number of buses -5

Trips made by each bus-4 Distance of route -20 kms(one way) Days operated in a month-25 Capacity in each bus-50 passengers Normal passengers travelled-90% of capacity.

Solution

Total KMs = No.of Buses X Trip x Kiolmeters X No.of Working days in a Month = $5 \times 4 \times 2x20 \times 25$ = 20000 kms Total Passenger Kms = Total Kms x Actual Capacity x Actual seat Occupancy = 20000 x 50 x 90% = 900000 **3.** Mr.vasan owns a lorry of 6 ton capacity. During a month, It went on trips 20 days, covering an average 200 kms. Each day.40% of the time it ran empty. It carried an average Load of 80% of capacity during the period. Find out the total ton kilometers for the month

Ton Kilometers = Value of Ton x Kilometer x No.of days x Actual Capacity = 6 x 200 x 20 x 80/100 = 19200 kms Calculation Effective ton Kilometer

Effective ton Kilometer = 11520 kms

4. The road transport company which keep a fleet of Lorries Shows the following information Kms in April -30000 Wages for April -Rs 2000 Petrol oil etc. for April-Rs 4000 Original cost of vehicles. - Rs 100000 Depreciation to be allowed at 25% per annum on original cost Repairs for the month of April-Rs 6000 Garage rent etc. for April -Rs 1000 License , insurance,etc for the year -Rs 6000 Prepare operating cost sheet for April showing the fixed cost. Variable cost and total cost per running kilometer.

Calculation of Cost per kilometer of a Vehicle

Particulars	Rs (Per month)	Rs (Per km)
Standing Charges		
Wages	2000	
Road License, Insurance (6000/12)	500	
Garage Rent	1000	
Standing Charge Per km (3500 /30000)		0.12
Maintainance Charges		
Repairs Charges	6000	0.20
PER KMS = $6000 / 30000$		0.20
Running Charges		
Pertrol	4000	0.13

Petrol per km = 4000 / 30000		
Depreciation = value of the vehicle x depreciation rate		
$= 1\ 00000\ x\ 25\%$		
= Rs. 25000 per annum	2083	0.07
April Month Dep = $25000/12$		
Depreciation per km $= 2083/30000$		
Total	15583	0.52

5. From the following information, calculate kilometers And total passenger kilometers Number of buses 4 Days operated in a month 30 Trips made by each bus 4 Distance of route 30 km (one way) Capacity of bus 60 passengers. Normal passengers travelling 80% of the capacity

Solution Total kilometers = No of buses x trip x km x No of days = 4x4x2x30x30 = 28800 Total passenger kilometers = Total km x normal capacity x actual capacity =28800 x 60 x 80/100 =13,82,400 passenger kilometers.

6. Number of buses 10 Days operated in a month-25 Round trips made by each bus 4 Distance of route 20 km long Capacity of bus 60 passengers Normal passengers travelling 90% of capacity

Calculate: (a) Total kms covered in a month (b) Total passenger kms. Solution

(a) Total kms = No of buses x trip x km x no of days = 10x 4x 20 x25 = 20000 kms
(b) Total passenger kms= Total km x normal capacity x actual capacity = 20000x60x90/100 = 1080000 per km 7. A transport company is running 4 buses between two Towns which are 50 kilometers apart Seating capacity of each bus is 40 passengers. Actual passengers Carried was 75 % of seating capacity, on an average All the buses rub 30 days in a month Each bus made one round trip per day. Find out the total passenger kilometers per month.

Solution

Passenger kilometers = no of buses x trip x kilometers X no of passengers actual capacity

= 4x2x50x30x40x75/100

= 360000 passengers per kms

8. From the following data of	calculate the cost per mile of
A vehicle:	RS
Value of vehicle	100000
Garage rent per year	1200
Insurance charge p.a.	400
Road tax p.a.	500
Driver's wages per month.	600
Cost of petrol per litre	6.40
Tyre maintenance per mile	0.80
Estimated life 150000 miles	
Miles per litre of petrol : Estimated annual mileage	8 6000
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Solution

Calculation of cost per mile of a vehicle

Particulars	Per annum.(Rs)	Per mile(rs)
Standing charges		
Garage rent per	1200	
Insurance.	400	
Road tax.	500	
	2100	
Standing per mile =2100/6000.		0.35
Maintenance charges		
Tyre and maintenance		0.80
Running charges		
Driver's wages per month		
600x12.	7200	1.2
Per mile(7200/6000).		
Cost of petrol per litre 6.40		0.8

Total operating cost per mile=Rs.3.82

9. Vignesh travels, a transport company is running two buses between two Places 100 kilometers apart. The seating Capacity of each bus is 50 passengers . The Following particulars are taken from their books of the month

	RS.
Wages of driver and conductors.	3000
Salary of office staff	1500
Fuel cost.	6000
Repairs and maintenance.	1500
Insurance.	2000
Depreciation.	3000
Interest and other charges.	2500

The actual passengers carried were 80% of the capacity. The buses ran on all the 30 days in a month. Each bus made a To and fro trip every day. Find out the cost per passenger Kilometer.

Solution

Passenger Kilometer = no of buses x trip x kilometers X no of days x no of passengers x Actual capacity

= 2x(2x100)x30x50x80/100

= 480000 passengers

Operating cost sheet of Vignesh travels

particulars	Per month Rs.	Per km
Rs.		
Standing charges		
Salaries	1500	
Insurance.	2000	
Interest and other charges	2500	
-	6000	0.012
Standing charges per km (6000/480000)		
Maintenance charges		
Repairs(1500/480000).	1500	0.003
Running charges		
Fuel cost	6000	
Depreciation.	3000	
Wages of driver and conductors.	<u>3000</u>	
	12000	0.025
Running charges per km		
=12000/480000 0.025		
Operating cost per passenger		0.04