OPERATING COSTING

CHAPTER - 8

Q. 1. The Union Transport Company has been given a twenty kilometer long route to play a bus. The bus costs the company ₹ 1,00,000. It has been insured at 3% per annum. The annual road tax amounts to ₹ 2,000. Garage rent is ₹ 400 per month. Annual repair is estimated to cost ₹ 2,360 and the bus is likely to last for five years.

The salary of the driver and the conductor is ₹ 600 and ₹ 200 per month respectively in addition to 10% of takings as commission to be shared equally by them. The manager's salary is ₹ 1,400 per month and stationery will cost ₹ 100 per month. Petrol and oil cost ₹ 50 per 100 kilometers. The bus will make three round trips per day carrying on an average 40 passengers in each trip. Assuming 15% profit on takings and that the bus will ply on an average 25 days in a month, prepare operating cost statement on a full year basis and also calculate the bus fare to be charged from each passenger per kilometer.

Q. 2. A company is considering three alternative proposals for conveyance facilities for its sales personal who have to be considerable travelling, approximately 20,000 kilometers every year. The proposal are as follows :

(i)   Purchase and maintain of its own fleet of cars. The average cost of a car is ₹ 1,00,000.

(ii)   Allow the executive to use his own car and reimburse expenses at the rate of ₹ 1.60 paise per kilometre and also bear insurance costs.

(iii)   Hire cars from an agency at ₹ 20,000 per year per car. The company will have to bear cost of petrol, taxes and tyres.

The following further details are available :

Petrol ₹ 0.60 per km.

Repairs and maintenance ₹ 0.20 P per km.

Tyre ₹ 0.12 P per km.

Insurance ₹ 1,200 per car per annum.

Taxes ₹ 800 per car per annum.

Life of the car : 5 years with annual mileage of 20,000 kms.

Resale value : ₹ 20,000 at the end of the fifth year.

Work out the relative costs of three proposals and rank them.

Q. 3. Mr. X owns a bus which runs accordings to the following schedule :

   (i)   Delhi to Chandigarh and back, the same day.

           Distance covered : 150 kms, one way

           Number of days run each month : 8

           Seating capacity occupied 90%.

   (ii)   Delhi to Agra and back, the same day.

           Distance covered : 120 kms, one way

           Number of days run each month : 10

           Seating capacity occupied 85%.

   (iii)   Delhi to Jaipur and back, the same day.

           Distance covered : 270 kms, one way

           Number of days run each month : 6

           Seating capacity occupied 100%.

   (iv)   Following are the other details :

Cost of the bus	₹ 6,00,000
Salary of the driver	₹ 2,800 p.m.
Salary of the Conductor	₹ 2,200 p.m.
Salary of the part-time Accountant	₹ 200 p.m.
Insurance of the bus	₹ 4,800 p.a.
Diesel consumption 4 kms per litre	₹ 6 per litre
Road tax	₹ 1,500 p.a.
Lubricant oil	₹ 10 per 100 kms.
Permit fee	₹ 315 p.m.
Repair and maintenance	₹ 1,000 p.m.
Depreciation of the bus	@ 20% p.a.
Seating capacity of the bus	50 persons.

Passenger tax is 20% of the total takings. Calculate the bus fare to be charged from each passenger to earn a profit of 30% on total takings. The fares are to be indicate per passenger for the journeys :

(i)   Delhi to chandigrh   (ii)   Delhi to Agra   (iii)   Delhi to Jaipur

Q. 4. EPS is a Public School having 25 buses each plying in different directions for the transport of its school students. In view of large number of students availing of the bus service, the buses work two shifts daily both in the morning and in the afternoon. The buses are garaged in the school. The workload of the students has been so arranged that in the morning, the first trip picks up senior students and the second trip plying an hour later picks up junior students. Similarly, in the afternoon, the first trip takes the junior students and an hour later the second trip takes the senior students home.

The distance travelled by each bus, one way is 16 kms. The school works 24 days in a month and remains closed for vacation in May and June. The bus fee, however, is payable by the students for all the 12 months in a year.

The details of expenses for the year 2003-2004 are as under :

Driver's salary – payable for all the 12 in month.	₹ 5,000 per month per drive.
Cleaner's salary payable for all the 12 months	₹ 3,000 per month per cleaner
(one cleaner has been employed for every five buses).	
Licence Fees, Taxes etc.	₹ 2,300 per bus per annum
Insurance Premium	₹ 15,600 per bus per annum
Repairs and Maintenance	₹ 16,400 per bus per annum
Purchase price of the bus	₹ 16,50,000 each

Life of the bus	16 years
Scrap value	₹ 1,50,000
Diesel Cost	₹ 18.50 per litre

Each bus gives an average of 10 kms per litre of diesel. The seating capacity of each bus is 60 students. The seating capacity is fully occupied during the whole year.

The school follows differential bus fees based on distance traveled as under :

Students picked up and dropped within the range of distance from the school	Bus fee	Percentage of students availing this facility
4 kms	25% of Full	15%
8 kms	50% of Full	30%
16 kms	Full	55%

Ignore interest. Since the bus fees has to be based on average cost, you are required to :

(i)   Prepare a statement showing the expenses of operating a single bus and the fleet of 25 buses for a year.

(ii)   Work out average cost per student per month in respect of :

     (a)   Students coming from a distance of upto 4 kms from the school.

     (b)   Students coming from a distance of upto 8 kms from the school; and

     (c)   Students coming from a distance of upto 16 kms from the school.

Q. 5. A transport company has a fleet of three trucks of 10 tonnes capacity each playing in different direction for transport of customer's goods. The trucks run loaded with goods and return empty. The distance travelled, number of trips made and the load carried per day by each truck are as under :

	One way Distance Km	No. of trips per day	Load carried per trip / day tonnes
1	16	4	6
2	40	2	9
3	30	3	8

The analysis of maintenance cost and the total distance travelled during the last two years is as under :

Year	Total distance travelled	Maintenance Cost ₹
1	1,60,200	46,050
2	1,56,700	45,175

The following are the details of expenses for the year under review :

Diesel   :   ₹ 10 per litre. Each litre gives 4 km per litre of diesel on an average.

Driver's salary   :   ₹ 2,000 per month

Licence and taxes   :   ₹ 5,000 per annum per trucks

Insurance   :   ₹ 5,000 per annum for all the three vehicles.

Purchase Price per truck :   ₹ 3,00,000 Life 10 years. Scrap value at the end of life is ₹ 10,000

Oil and sundries   :   ₹ 25 per 100 km run.

General Overheads   :   ₹ 11,084 per annum

The vehicles operate 24 days per month on an average.

Required :

(i)   Prepare an Annual Cost Statement covering the fleet of three vehicles.

(ii)   Calculate the cost per km

(iii)   Determine the freight rate per tonne km to yield a profit of 10% on freight.

Q. 6. Remix p.l.c makes ready-mixed cement and operates a small fleet of vehicles which delivers the product to customers within its delivery area.

General data :

Maintenance records for the previous five years reveal :

Year	Mileage of vehicles	Maintenance cost (₹)
1	1,70,000	13,500
2	1,80,000	14,000
3	1,65,000	13,250
4	1,60,000	13,000
5	1,75,000	13,750

Transport statistics reveal :

Vehicle	Number of Journey each day (Trips)	Average tonnage carried to customers (Tonnes)	Average distance to customers (miles)
1	6	4	10
2	4	4	20
3	2	5	40
4	2	6	30
5	1	6	60

There are five vehicles operating a five day week, for 50 weeks a year.

Inflation can be ignored.

Standard cost data include :

Driver's wages are ₹ 150/- each per week.

Supervisor/relief driver's wages is ₹ 200 per week.

Depreciation, on a straight line basis with no residual value :

	Cost	Life
Loading equipment	₹ 1,00,000	5 years
Vehicles (each)	₹ 30,000	5 years

Petrol cost 30 p. per mile,

Repairs cost 7½ p. per mile

Vehicle licences cost ₹ 400 p.a for each vehicle

Insurance costs ₹ 600 p.a for each vehicle

Tyres costs ₹ 3,000 p.a in total

Miscellaneous costs, ₹ 2,250 p.a in total.

You are required to calculate a standard rate per tonne / mile of operating vehicles.