

CHAPTER-8

OPERATING COSTING

Ans.1.

Union Transport Company

Statement showing Operating Cost of the bus per annum

	₹
Manager's Salary	16,800
(₹ 1,400 × 12)	
Driver's Salary	7,200
(₹ 600 × 12)	
Conductor's Salary	2,400
(₹ 200 × 12)	
Road Tax	2,000
Insurance	3,000
(3% of ₹ 1,00,000)	
Garage rent	4,800
(₹ 400 × 12)	
Stationery	1,200
(₹ 100 × 12)	
Depreciation	20,000
(₹ 1,00,000 / 5 years)	
Repairs	2,360
Petrol and Oil (36,000 Km* × ₹ 50) / 100	18,000
Total Cost	77,760
Add : 10 percent of takings for commission of Driver and Conductor and 15 percent for desired profit i.e. 25 percent of takings or $33\frac{1}{3}$ percent on Total Cost	25,920
	1,03,680

* Calculation of distance covered

$(20 \text{ Km} \times 2 \times 3 \times 25 \times 12) = 36,000 \text{ Km per annum}$

Calculation of bus fare to be charged

Effective Passenger Kilometers : = 14,40,000

$(2 \times 20 \text{ Km} \times 3 \text{ trips} \times 40 \text{ passengers} \times 25 \text{ days} \times 12 \text{ months})$

Rate to be charged per kilometer from 7.2 Paise

each passenger $(₹ 1,03,680 / 14,40,000)$

Ans.2. Alternative Proposals

	Owen	Executives	Hire
Reimbursement of Expenses (20,000 km. x 1.60)	----	32,000	----
Hire Charges	----	----	20,000
Petrol (20,000 kms. x 0.6)	12,000	----	12,000
Repairs & Maintenance (20,000 kms. x 0.20)	4,000	----	----
Tyre (20,000 kms. x 0.12)	2,400	----	2,400
Insurance	1,200	1,200	----
Taxes	800	----	800
Depreciation $\left(\frac{1,00,000 - 20,000}{5 \text{ Years}} \right)$	16,000	----	----
Total Operating Cost	36,400	33,200	35,200
÷ kms.	20,000	20,000	20,000
Cost per km.	1.82	1.66	1.76
Ranking	III	I	II

Decision : Use of own car by Sales Executives will be the most economical proposal from the Concern's point of view. Hiring of car, for the use of Sales Executives will be the IInd best choice and maintaining a fleet of cars for its executives will be the costliest alternative.

Ans.3. Working Notes

(1) **Total running Kms per month :**

	Km. per trip	Return journey	Days per month	Km. per month
Delhi to Chandigarh	150	2	8	2,400
Delhi to Agra	120	2	10	2,400
Delhi to Jaipur	270	2	6	3,240
				8,040

(2) **Passenger Kms. per month :**

	Total seats available per month	Capacity utilized %	Seats	Km. per trip	Passenger Kms. per month
Delhi to Chandigarh & Back (50 seats × 2 trips × 8 days)	800	90	720	150	1,08,000
Delhi to Agra & Back (50 seats × 2 trips × 10 days)	1,000	85	850	120	1,02,000
Delhi to Jaipur & Back (50 seats × 2 trips × 6 days)	600	100	600	270	1,62,000
			Total		3,72,000

Operating Cost Statement (per month)

	₹	₹
Salary of Driver	2,800	
Salary of Conductor	2,200	
Salary of the part-time accountant	200	
Depreciation (₹ 6,00,000 $\frac{20}{100} \times \frac{1}{12}$)	10,000	
Insurance (₹ 4,800 × 1/12)	400	
Road Tax (₹ 1,500 × 1/12)	125	
Repairs and maintenance	1,000	
Permit Fee	315	
Diesel ($\frac{8,040 \text{ kms.}}{4 \text{ kms.}} \times ₹ 6$)	12,060	
(Refer to working note 1)		
Lubricant Oil ($\frac{8,040 \text{ kms.}}{100 \text{ kms.}} \times ₹ 10$)	<u>804</u>	
(Refer to working note 1)		
Total Cost per month	29,904	
Profit and passenger tax together accounts for 50%		
of total taking p.m. or 100% of cost	<u>29,904</u>	
Total takings	<u>59,808</u>	
Passenger tax (20% of takings)		11,961.60
Profit (30% of takings)		17,942.60

$$\text{Rate per passenger Km.} = \frac{₹ 59,808}{₹ 3,72,000} = 0.1607741 \text{ passenger Km.}$$

(Refer to working note 2) or (Re. 0.16 say)

Fare to be charged

Delhi to Chandigarh, per passenger	=	150 Kms. × 0.16 = ₹ 24
Delhi to Agra, per passenger	=	120 Kms. × 0.16 = ₹ 19.20
Delhi to Jaipur, per passenger	=	270 Kms. × 0.16 = ₹ 43.20

Ans.4. (i)

EPS Public School

Statement showing the expenses of operating a single bus and the fleet of 25 buses for a year

Particulars	Per bus	Fleet of 25 buses
	per annum	per annum
	(₹)	(₹)
Running costs :		
Diesel (Refer to working note 1)	56,832	14,20,800
Repairs & maintenance costs	16,400	4,10,000
Driver's salary	60,000	15,00,000
Cleaners salary	7,200	1,80,000
Licence fee, taxes etc.	2,300	57,500
Insurance	15,600	3,90,000
Depreciation	93,750	23,43,750
Total expenses	2,52,082	63,02,050

(ii) Average cost per student per month in respect of students coming from a distance of :

- (a) 4 kms. from the school
 (₹ 2,52,082 / 354 students × 12 months)
 (Refer to working note 2) ₹ 59.34
- (b) 8 kms from the school
 (₹ 59.34 × 2) ₹ 118.68
- (c) 16 kms from the school
 (₹ 59.34 × 4) ₹ 237.36

Working notes :

WN 1 : Diesel Cost per Bus

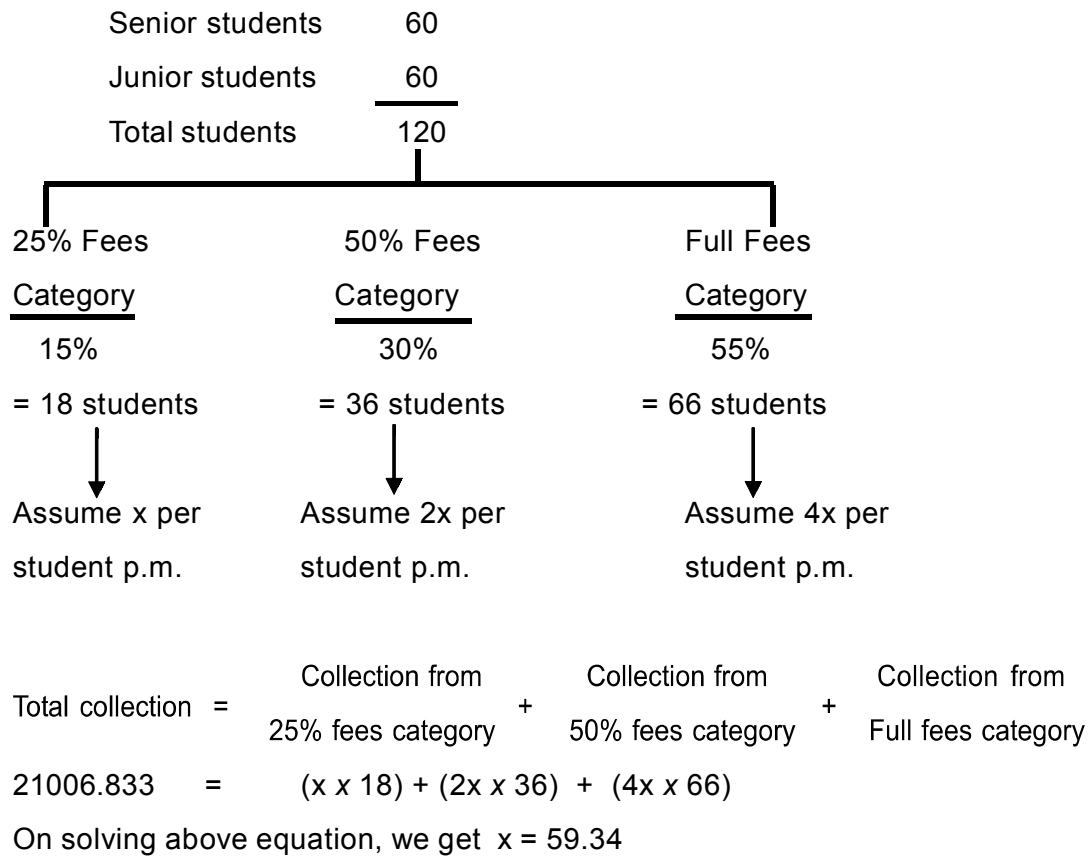
Total kms. = 16 kms. x 2 for return journey x 4 trips per day x 24 days p.m. x 10 months
 = 30,720 kms.

<u>Kms.</u>	<u>Cost</u>	
10	18.50	
30,720	?	= ₹ 56,832

WN 2 : Average cost per student p.m.

Total collection required per Bus p.m. =

$$\frac{2,52,082}{12 \text{ m}} = 21006.833$$



Ans.5.

(i)

Annual Cost Statement of three vehicles

	₹
Diesel	3,36,960
(Refer to working note I)	
(1,34,784 kms / 4 km) × ₹ 10)	
Oil & sundries	33,696
(1,34,784 kms/100 kms) × ₹ 25	
Maintenance	39,696
(Refer to working note 2)	
{(1,34,784 kms × 0.25P) + ₹ 6,000}	
Drivers' salary	72,000
(₹ 2,000 × 12 months) × 3 trucks	
Licence and taxes	15,000
Insurance	5,000
Depreciation	87,000
(₹ 2,90,000 / 10 years) × 3 trucks	
General overhead	11,084
Total annual cost	6,00,436

(ii) Cost per km. run

$$\text{Cost per kilometer run} = \frac{\text{Total annual cost of Vehicles}}{\text{Total kilometre travelled annually}}$$

$$\text{(Refer to working note 1)} = \frac{\text{₹ 6,00,436}}{1,34,784 \text{ kms.}} = \text{₹ 4,4548}$$

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

$$\text{Cost per tonne km.} = \frac{\text{Total annual cost of three vehicles}}{\text{Total effective tonnes kms. per annum}}$$

$$\text{(Refer to working note 1)} = \frac{\text{₹ 6,00,436}}{5,25,312 \text{ kms.}} = \text{₹ 1.143}$$

$$\text{Freight rate per tonne km.} = \text{₹ 1.27}$$

$$\frac{\text{₹ 1.143}}{9} \times 10$$

Working Notes :

WN 1 Total Kms.

Truck No.

1	16 km. x 2 x 4 Trips p.d. x 24 days p.m. x 12 months	=	36,864
2	40 kms. x 2 x 2 Trips p.d. x 24 days p.m. x 12 months	=	46,080
3	30 kms. x 2 x 3 Trips p.d. x 24 days p.m. x 12 months	=	51,840

Total Kms.	<u><u>1,34,784</u></u>
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WN 2 Total Tonne Kms.

Truck No.

1	16 kms. x 6 Tonnes x 4 Trips p.d. x 24 days p.m. x 12 months	=	1,10,592
2	40 kms x 9 Tonnes x 2 Trips p.d. x 24 days p.m. x 12 months	=	2,07,360
3	30 kms. x 8 Tonnes x 3 Trips p.d. x 24 days p.m. x 12 months	=	2,07,360

<u><u>5,25,312</u></u>
