Question: Metal Ltd. is having production shops reckoned as cost centres. Each shop charges other shops for material supplied and services rendered. The shops are motivated through goal congruence, autonomy and management efforts. Metal Ltd. is having a welding shop and a painting shop. The welding shop welds annually 75,000 purchased items with other 1,50,000 shop made parts into 12,000 assemblies. The assemblies are having variable cost of Rs. 9.50 each and are sold in market at Rs. 12 per assembly. Out of the total production, 80% is diverted to painting shop at same price ruling in the market. Welding shop incurs a fixed cost of Rs. 25,000 per annum. The painting shop is having fixed cost of Rs. 30,000 and its cost of painting including transfer price from welding shop comes to Rs. 20 per unit. This shop sells all units transferred to it by welding shop at Rs. 25 per assembly.

You are required to:

(a) Find out **profit of individual cost centres and overall profitability of the concern**.
(b) Recommend course of action if painting shop wishes to purchase its full requirement (at market price which is Rs. 10 per assembly) either from open market or from welding shop at market price of Rs. 10 per assembly.

Give reasons for your recommendations.

Solution:

METAL LTD.

(a) Present profitability of individual shops and overall profitability

Particulars	Welding shop			Painting shop		
	Qty. Unit	Rate (Rs.)	Value (Rs.)	Qty Unit	Rate (Rs.)	Value (Rs.)
Sale in open market	2,400	12.00	28,800	9,600	25.00	2,40,000
Transfer to painting shop	9,600	12.00	1,15,200			
Total sales : (A)	12,000		1,44,000	9,600		2,40,000
Less: Variable Cost: (B)	12,000	9.50	1,14,000	9,600	20.00	1,92,000
Contribution : {(A) – (B)}			30,000			48,000
Less: Fixed cost			25,000			30,000
Profit			5,000			18,000

Overall profit for the company (Rs. 5,000 + Rs. 18,000) = Rs. 23,000

(b)(i) When Painting shop purchases its entire requirement from open market at a price of Rs.10 per unit

	Welding shop			Painting shop		
	Qty. Unit	**Rate (Rs.)**	**Value (Rs.)**	**Qty Unit**	**Rate (Rs.)**	**Value (Rs.)**
Sale	2,400	12.00	28,800	9,600	25.00	2,40,000
Less: Variable cost	2,400	9.50	22,800	9,600	18.00*	1,72,800
Contribution			6,000			67,200
Less: Fixed cost			25,000			30,000
Profit/(Loss)			(19,000)			37,200

Overall profit for the company

Rs. 37,200 – Rs. 19,000 = Rs. 18,200

*It is given in the question that cost of painting including transfer price from welding shop is **Rs. 20** per unit. The transfer price from welding shop is **Rs. 12 per unit.** Therefore, the variable cost of **Rs. 8 (Rs. 20 – Rs. 12)** is incurred by painting shop exclusively. The painting shop will be purchasing its requirement from **open market at Rs. 10 per unit.** Therefore, the variable cost per unit in painting shop will be **Rs. 18 (Rs. 10 + Rs. 8).**

This point should be noted carefully.

(b) (ii) When all the requirements of painting shop is met by transfer from welding shop at a transfer price of Rs. 10 per unit

	Welding shop			Painting shop		
	Qty. Unit	**Rate (Rs.)**	**Value (Rs.)**	**Qty Unit**	**Rate (Rs.)**	**Value (Rs.)**
Sale in the open market	2,400	12.00	28,800	9,600	25.00	2,40,000
Transfer to painting shop	9,600	10.00	96,000			
Total sales	12,000		1,24,800			
Less: Variable cost	12,000	9.50	1,14,000	9,600	18.00	1,72,800
Contribution Less:			10,800			67,200
Fixed cost			25,000			30,000
Profit/(Loss)			(14,200)			37,200

Overall profit of the company = Rs. 37,200 – Rs. 14,200 = Rs. 23,000

For the purpose of comparison, the results of the three alternatives are summarised below:

	Welding shop (Rs.)	**Painting Shop** (Rs.)	**Overall Profit** (Rs.)
Profit under (i)	5,000	18,000	23,000
Profit/(Loss) under (b)(i)	(19,000)	37,200	18,200
Profit/(Loss) under (b)(ii)	(14,200)	37,200	23,000

Alternative (b)(ii) should be accepted due to the following reasons:

- It gives a maximum overall profit of Rs. 23,000. The discussion is confined to either b(i) or b(ii).
- Each shop is treated as a separate cost centre and not a profit centre.
- The policy of overall goal congruence of the company is followed.

The above sum has been taken from ICAI