EXPERT

CA INTERMEDIATE - COST & MANAGEMENT ACCOUNTING

JOINT PRODUCT & BY - PRODUCT COSTING

CA VINOD REDDY

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JOINT PRODUCT AND BY PRODUCT COSTING

I. INTRODUCTION

In many industries, a common manufacturing process yields multiple products. Such products which arise jointly out of the common process are called as either Joint Products or By-Products. Depending upon their economic value (i.e. market value), these products are referred to as

i. Joint Products or Major products

ii. By-products or Minor Products

If the various products arising out of a process are equally important in as much as the management has planned to manufacture them as major products or the sale values realised from each of the product are more or less equal or significant in relation to the total sales, all the products are referred to as joint products. If on the other hand one of the products yields only insignificant or low revenue compared to the rest or market for such a product is not certain, it would be classified as by-product. Thus by-products are secondary results of operations and their economic importance is not such as to rank them as joint products nor is their value so insignificant as to classify them as waste or scrap. Joint products are, therefore, products which by vary nature of production process cannot be processed separately and which have equal economic importance.

Many time distinction between joint product and by-product is not sharp enough and no clear cut criteria exists for distinguishing the two. The method of costing adopted for the two types of products are also different. It is therefore essential to decide whether product is to be treated as a joint product or by-product before the allocation of the joint cost is proceeded with. The classification of products as either joint product or by product largely depends upon the judgement of management.

This chapter mainly deals with the method of allocation of common cost between joint products and by products. So that, we can find out the cost of individual product and profit earned on individual product. This will also help management in taking the pricing decision of the product.

II. ACCOUNTING OF JOINT PRODUCTS

It is difficult to determine the cost of joint product accurately, as no perfect logical basis exists for the apportionment of such costs to products and most of the methods in use are arbitrary. These methods tend to be only approximate as they are based mainly on individual opinion. The main principle to be kept in view is that the method of apportionment should be reasonable, logical and reliable.

Following are some of the methods used in apportioning the joint costs:

1. Apportionment on the basis of physical measurement/output
2. Apportionment on the basis of relative sales values:
   This method includes the following variations -

a. On the basis of final sales values

b. On the basis of estimated net realisable value at the split off point

c. On the basis of actual sales values at the point of separation

d. On the basis of estimated net cost at split off point (Reverse Cost Method)

3. Technical Evaluation or Survey Method
4. Marginal Cost and Contribution Method : Under this method, the joint cost is divided in two parts, viz. Variable Cost and Fixed Cost. The variable cost is allocated to the joint products on the basis of output and the fixed cost is allocated on the basis of contribution earned by each such joint product.

III.ACCOUNTING OF BY- PRODUCTS

The following methods may be adopted for the accounting of by-products and arriving at the cost of production of the main product:

1. Net Realisable Value method
2. Standard Cost Method (i.e. at predetermined cost or sales basis)
3. Comparative price: (the price of a similar or an alternative material)
4. Re-use basis

TREATMENT OF BY-PRODUCT COST -

By-product cost can be dealt in cost accounting in the following ways:

a. **When they are of small total value:**

1. The sales value of the by-products may be credited to the Costing Profit and Loss Account and no credit be given in the Cost Accounts.
2. The sale proceeds of the by-product may be treated as deductions from the total costs.

b. **When the by-products are of considerable total value:** Where by-products are of considerable total value, they may be regarded as joint products rather than as by products.

c. **Where they require further processing:** In this case, the net realisable value of the by-product at the split-off point may be arrived at by subtracting the further processing cost from the realisable value of by-products.

If total sales value of by-products at split-off point is small, it may be treated as per the provisions discussed above under (a).

In the contrary case, the amount realised from the sale of by-products will be considerable and thus it may be treated as discussed under (b)

IV. CO-PRODUCTS

Co-products are :

a. Two or more products

b. Considered to be of relatively equal importance

c. Belonging to the same line of activity, but arising from different processes or operations.

Examples: Maruti Udyog Ltd. manufactures different variety of cars e.g. Maruti 800, Alto, Zen, Ritz, SX4, Wagon R etc. These are co-products because they are produced in the same factory, using same manufacturing facilities. However, they are not the result of common process.

V. DISTINGUISH BETWEEN JOINT AND BY PRODUCTS

Particulars	Joint Products	By Products
Meaning	Two or more products; Separated in the course of the same processing operation, considered as relatively equally important.	Products recovered from material discarded in a main process.
Nature	Intentionally manufactured	Incidentally arises during process
Importance	High Sale Value	Comparatively lower sale value.

VI. STEPS INVOLVED IN DECISION MAKING ON FURTHER PROCESSING

Step 1

Compute Additional Revenue = Sale Value after further Processing Less Sales Value at Split off

Step 2

Compute Additional Costs = Further Processing Costs + S & D OH (if any)

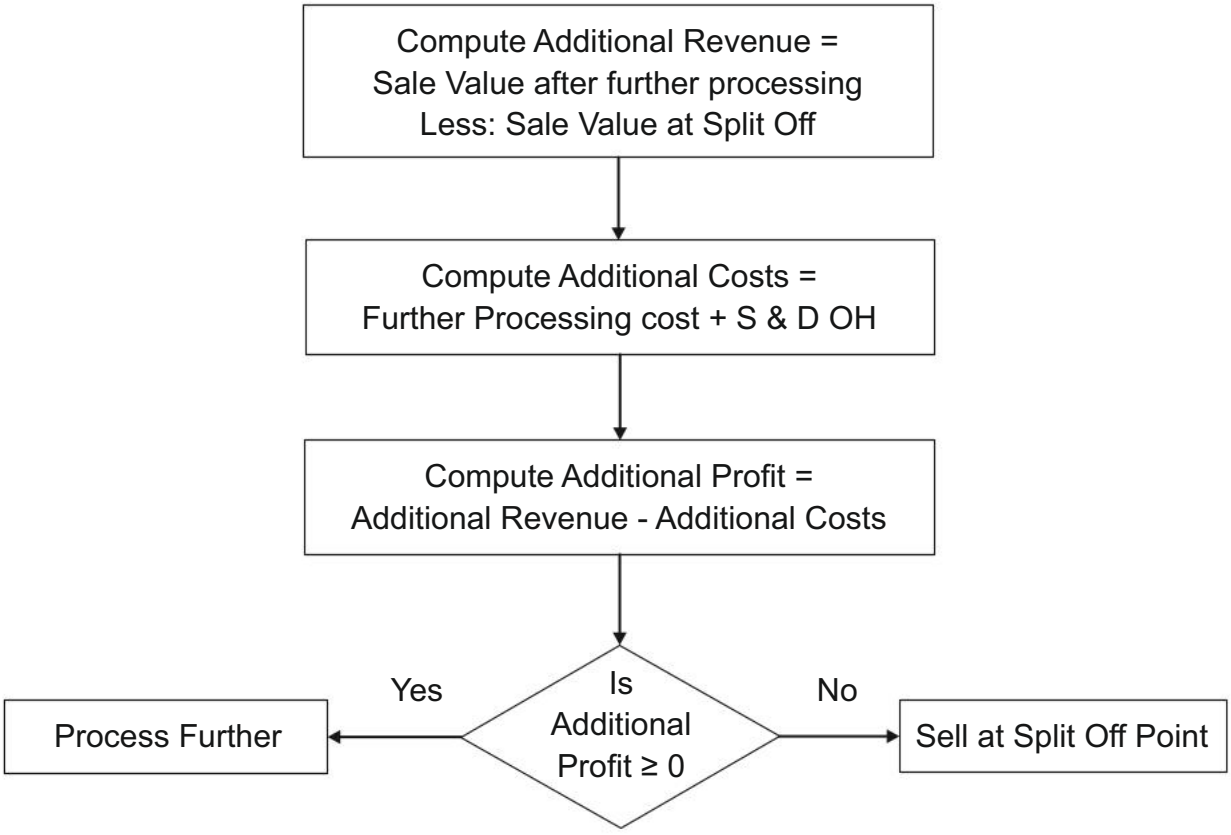
Step 3

Compute Additional Profit = Additional Revenue Less Additional Costs

Step 4

Decide - If Additional Profit is positive, process further. If not, sell at split off point.

Flowchart for Decision Making



MULTIPLE CHOICE QUESTIONS

1. _____ Products arise out of one process and are equally important.

a. Joint Products
b. By-Products
c. Co-Products
d. None of the above

2. _____Products are secondary result of an operation and economic importance in insignificant.

a. Joint Products
b. By-Products
c. Co-Products
d. None of the above

3. _____ products arise out of two or more processes and are of equal importance.

a. Joint Products
b. By-Products
c. Co-Products
d. None of the above

4. Credit to Sale Value of the Joint Cost is the commonly used method for accounting of _____

a. Joint Products
b. By-Products
c. Co-Products
d. None of the above

5. _____ methods used to apportion joint cost.

a. Marginal Cost & Contribution Method.
b. Technical Evaluation / Survey Method
c. Apportionment on the basis of physical measurement/output
d. All of the above

Joint Product By-Product Costing

① It is a method of costing & Not the technique of costing. cost incurred upto split off point or point of separation is known as Joint cost

split-off point

Joint cost = ₹21,00,000/-

In many industries, a common manufacturing process yields 2 or more products, such products which arise jointly out of a common manufacturing process are called as Joint or By products. The nature of these products is : they can not be individually produced.

② Joint cost = ₹25,00,000/-

split-off point

product A	product B	product C	product D
₹18,00,000/-	₹30,00,000/-	₹16,50,000/-	₹80,000/-
sales value			

Whether to call such products derived out of a common manufacturing process as Joint products or By products is dependent upon their Economic value or Sales value.

In above example : Management may treat products A, B, C as Joint products & product D as By-product.

③ If economic value of products is more or less equal OR significant in relation to total sales, such products can be called as Joint / major products

4. If economic value of products is neither so insignificant to call them as waste/scrap nor so significant to call them as Joint products, such products may be treated as By products (Minor products)

Accounting treatment For Joint products and By products is different

5. Many times distinction between Joint products & By products is not sharp enough & No clear cut criteria exists for distinguishing these two. It is largely dependent on Judgement of management

6. This chapter mainly deals with methods of apportionment of JOINT COST

Physical output method

	Joint cost = ₹5,00,000 common manufacturing process	product A	product B	product C	product D
a	quantity produced at split off point Kgs	2,000	7,000	6,000	5,000
b	selling price per kg at split off point ₹	100	75	25	40
c	sales value (a x b) (₹)	2,00,000	5,25,000	1,50,000	2,00,000
d	Joint cost apportioned in the ratio of physical output (2:7:6:5)	50,000	1,75,000	1,50,000	1,25,000
e	profit / (Loss)	150,00	3,50,000	0	75,000

Total profit = 575,000

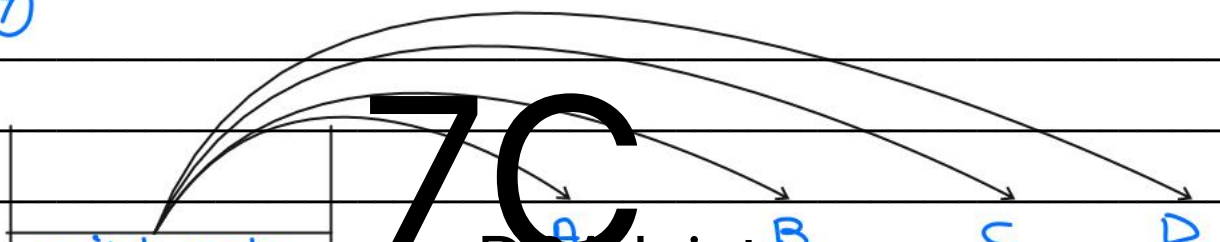
Total profit remains same irrespective of method of apportionment of Joint cost. (product wise profit may change with change in method of apportionment but total profit remains same)

COSTG physical methodproduct DJoint

(7)

7C

DBAJoint



cost 8,00 000

Apportionment of Joint cost in the ratio of sales value at split off point

cost incurred up to split off point = ₹8,00,000

000Apportionment

Particulars	Joint products A	B	C	D	Total
productsParticularsT					
(a) quantity produced at split off point (kgs)	200	300	250	250	1,000
(b) selling price per kg (₹)	1,200	1,800	2,000	2,880	
(c) sales value at split off point (₹) (a x b)	2,40,000	5,40,000	5,00,000	7,20,000	20,00,000
(d) Joint cost apportioned in the ratio of sales value at split off point (24 : 54 : 50 : 72) (₹)	96,000	2,16,000	2,00,000	2,88,000	8,00,000
(e) profit (Loss) (1 - d) (₹)	1,44,000	3,24,000	3,00,000	4,32,000	12,00,000
(f) Joint cost apportioned in the ratio of physical output at split off point (20 : 30 : 25 : 25) (₹)	1,60,000	2,40,000	2,00,000	2,00,000	8,00,000
(g) profit (Loss) when Joint cost is apportioned in the ratio of physical output (c - f) (₹)	80,000	3,00,000	3,00,000	5,20,000	12,00,000

80,000Even

Even though we change method of apportionment of Joint cost, total profit remains same whereas productwise individual profit may differ.

Best method for apportionment of Joint cost is to apportion Joint cost in the ratio of sales value at split off point

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(8) Sometimes for some products sales value at split off point might not be available as :

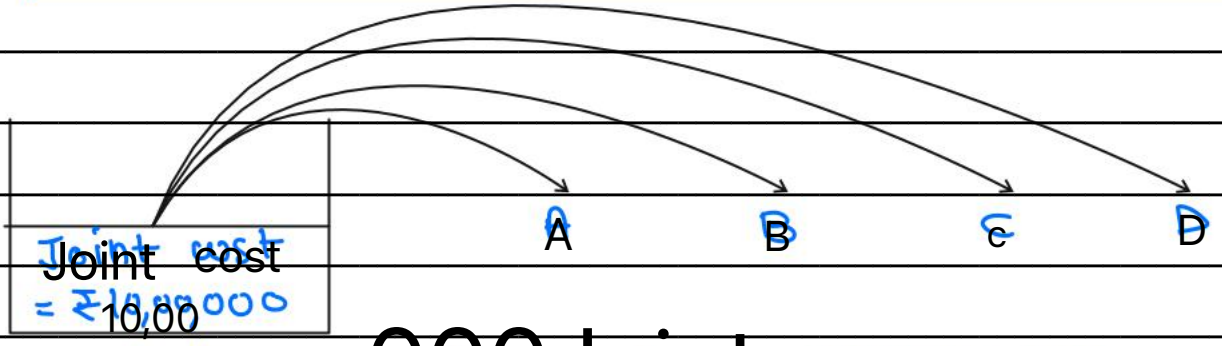
i) products are not in a saleable condition at split off point. They can be sold only after further processing

ii) products are used for captive consumption (every company makes such products for own consumption)

∴ In this scenario, we can not apportion Joint cost in the ratio of sales value value at split off point.

point Method

Method of apportionment of Joint cost • Final sales value method



000 Joint

particulars	Total	Joint products A	B	C	D
(a) Quantity produced (kgs)	2,000	500	200	700	600
(b) Final selling price p.u. (₹)		1,000	1,500	900	450
(c) Final sales value (axb) (₹)	20,00,000	5,00,000	3,00,000	6,30,000	5,70,000
(d) Joint cost apportioned in the ratio of Final sales value (50:30:63:57)	10,00,000	2,50,000	1,50,000	3,15,000	2,85,000
(e) Further processing cost (₹)	5,00,000	1,00,000	50,000	1,50,000	2,00,000
(f) Total cost (d+e) (₹)	15,00,000	3,50,000	2,00,000	4,65,000	4,85,000
(g) profit (₹) (c-f)	5,00,000	1,50,000	1,00,000	1,65,000	85,000

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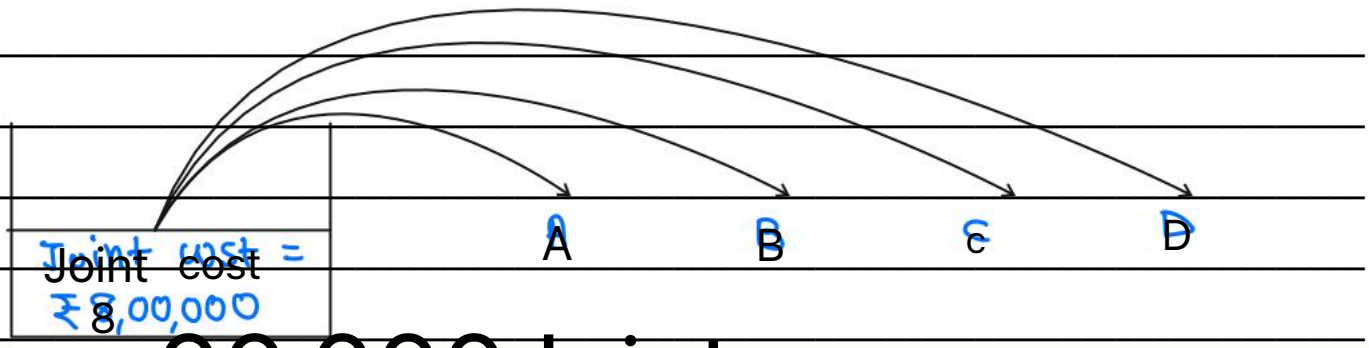
(9) NRV at split off point = (Final sales value − Further processing cost)



00,000Joint

Particulars	Joint products A	B	C	D	Total
a Quantity produced (kgs)	200	300	250	250	1,000
b Final sales value (₹)	50,00,000	10,00,000	15,00,000	5,00,000	80,00,000
c Further processing cost (₹)	35,00,000	3,00,000	1,00,000	1,00,000	40,00,000
d Netrealisable value (NRV) at split off point (b-c) (₹)	15,00,000	7,00,000	14,00,000	4,00,000	40,00,000
e Joint cost apportioned in the ratio of NRV at split off point (15:7:14:4) (₹)	3,00,000	1,40,000	2,80,000	80,000	8,00,000
f Total cost (₹) (c+e)	38,00,000	4,40,000	3,80,000	1,80,000	48,00,000
g profit / (Loss) (₹) (b-f)	12,00,000	5,60,000	11,20,000	3,20,000	32,00,000

(iv) Reverse cost method

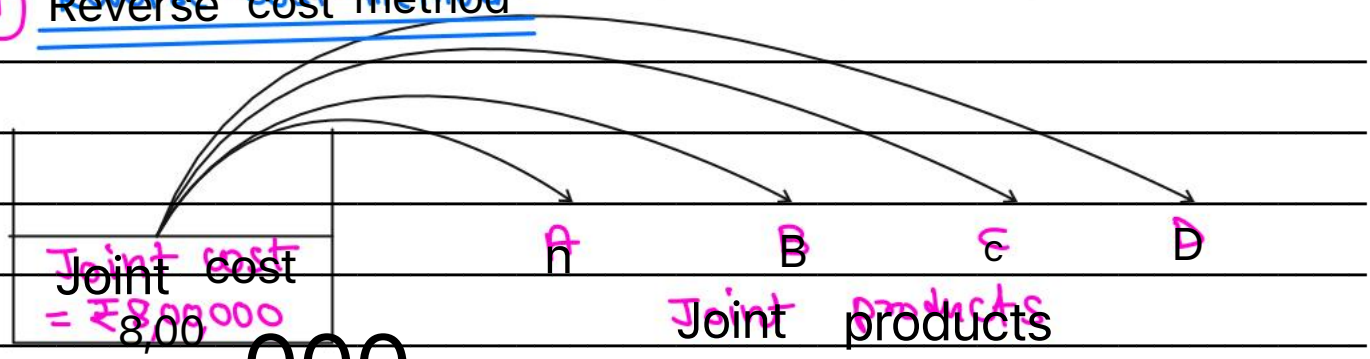
Reverse cost = (Final sales value − Further processing cost − Estimated profit on that product)

ftp tes − 5tfffng − profit on that product

costEstimated

under this method, Actual Joint cost will be apportioned in the ratio of Reverse cost

(11) Reverse cost method



Particulars	Joint products				Total
	A	B	C	D	
a quantity produced (kgs)	200	300	250	250	1,000
b Final sales value (₹)	50,00,000	10,00,000	15,00,000	5,00,000	80,00,000
c Further processing cost (₹)	35,00,000	3,00,000	1,00,000	1,00,000	40,00,000
d Estimated profit on sales %	7.50%	2.50%	12.00%	44.00%	
e Estimated profit (₹) (b x d)	3,75,000	25,000	1,80,000	2,20,000	8,00,000
f Reverse cost (₹) (b - e - c)	11,25,000	6,75,000	12,20,000	1,80,000	32,00,000
g Joint cost apportioned in the ratio of Reverse cost (₹) (11.25 : 6.75 : 12.20 : 1.80)	2,81,250	1,68,750	3,05,000	45,000	8,00,000
h Total cost (₹) (c+g)	37,81,250	4,68,750	4,05,000	1,45,000	40,00,000
i profit / (Loss) (b - h)	12,18,750	5,31,250	10,95,000	3,55,000	32,00,000

(12) **Methods of apportionment of joint cost**

Physical output method	Sales value method	Marginal cost & contribution method	Technical evaluation & survey method
methodsales	i) sales value at split off point	Marginal cost & contribution method	Technical evaluation & survey method
↓	ii) Final sales value	↓	↓
under this method Joint cost will be apportioned in the ratio of quantity produced at split off point.	iii) NRV at split off point	under this method First Joint cost will be divided in 2 parts : Fixed Joint cost, variable Joint cost, then variable Joint cost will be apportioned over Joint products in the ratio of sales volume or sales value and You get wnbi of each product cost.NRV then Fixed Joint cost will be apportioned over Joint products in the ratio of contribution earned by each product profit of each product can be calculated.	Trial & error method or Management Judgement method
methodunder	iv) Reverse cost method		↓
point.variable	↓		under this method management uses their own judgement for apportionment of Joint cost.
	at split off point		
	= (Final sales value − Further processing cost)		
	EEEingReverse		
	Reverse cost = (Final sales value − Estimated profit)		
	Files − Estimated dep.		

methodphysical

methodunder

point.variable

calculated.under.

(13) Apportionment of Joint cost by Marginal cost & contribution method

Joint products A : 800 units, selling price p.u = ₹25
B : 700 units, selling price p.u = ₹30
C : 500 units, selling price p.u = ₹50

Joint cost = ₹36,000 (including variable joint cost of ₹16,000)

⇒ Statement showing Apportionment of Joint cost by Marginal cost & contribution method

particulars	Joint Products A	B	C	Total
a Sales volume (units)	800	700	500	2,000
b selling price p.u (₹)	25	30	50	
c Sales value (₹) (a×b)	20,000	21,000	25,000	66,000
d variable Joint cost apportioned in the ratio of sales volume 8:7:5 (₹)	6,400	5,600	4,000	16,000
e contribution earned by each product (₹) (c-d)	13,600	15,400	21,000	50,000
f Fixed Joint cost apportioned in the ratio of contribution 136:154:210 (₹)	5,440	6,160	8,400	20,000
g profit / (Loss) (₹) (e-f)	8,160	9,240	12,600	30,000

(14) **Whether to further process OR To sell at split off point?**

Particulars	Joint products A	B	C	D	E
(a) Sales value at split off point (₹)	8,00,000	10,00,000	18,50,000	3,00,000	5,80,000
(b) Final sales value (₹)	12,00,000	18,00,000	21,00,000	4,00,000	7,80,000
(c) Further processing cost (₹)	2,00,000	9,00,000	5,50,000	20,000	1,25,000
(d) Incremental Revenue (₹) (b-a)	4,00,000	8,00,000	2,50,000	1,00,000	2,00,000
(e) Incremental profit/ (Loss) (₹) (d-c)	2,00,000	(1,00,000)	(3,00,000)	80,000	75,000
(f) whether to further process ?	Yes	No	No	Yes	Yes

From above table, It is clear that products A, D, E should further processed and sold whereas products B & C should be sold at split off point.

in the context of decision making related to whether to further process the product or to sell it at split-off point, Joint cost is it relevant, as it is Historical or sunk cost.

It means, we can take the decisions related to whether to further process or to sell the product at split off point without knowing Joint cost also.

15

Decision related to :

Whether to further process OR To sell at split off point?

calculate sales Revenue of each product at split-off point

↓

Calculate Final sales value of each of the product

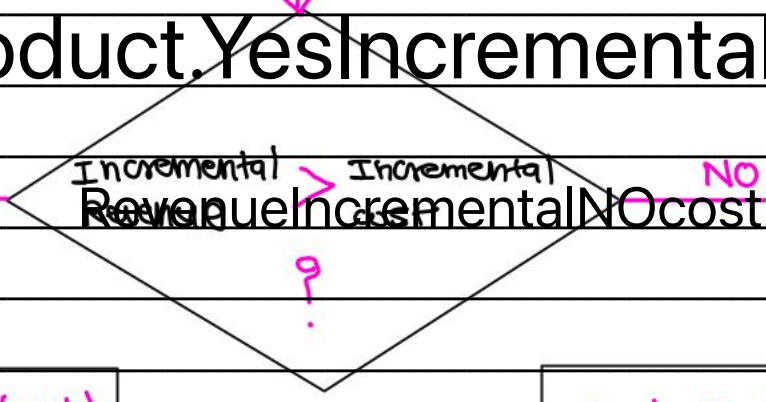
↓

(Incremental Revenue) = (Final sales value − sales value at split off point)

↓

calculate Further processing wst (ie incremental cost) of each of the product.

↓

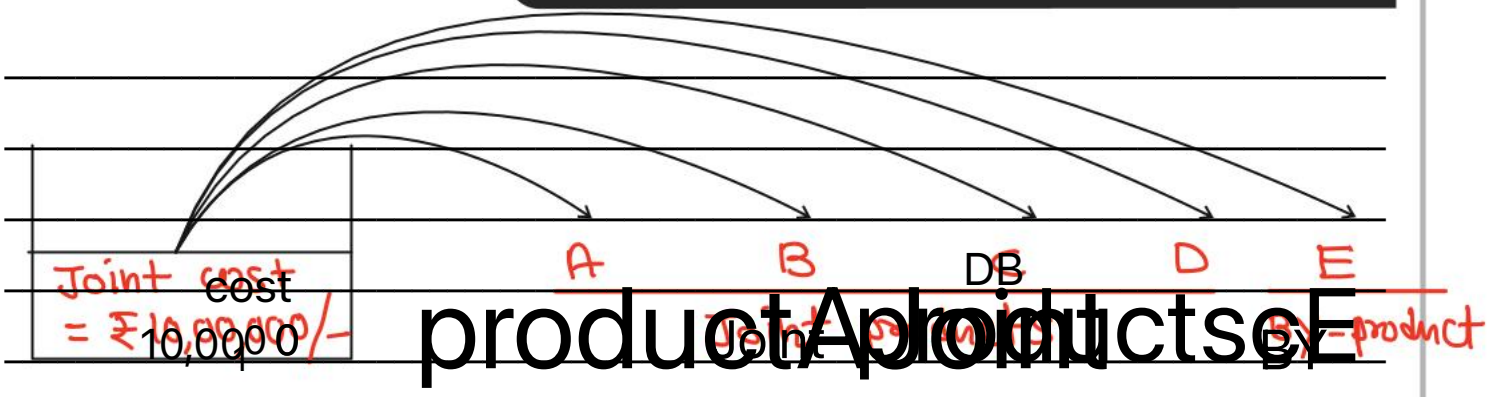


Yes → that product should be further processed after split off point and sold

NO → that products should be sold at split off point without further processing

16 Accounting for By products

a crediting the sales value of By products to Joint cost



particulars	Joint products				By-product
	A	B	C	D	E
(a) Sales value at split off point (E)	7,00,000	5,80,000	5,40,000	6,20,000	60,000

Joint cost to be apportioned over Joint products A, B, C, D after crediting the sales value of By products to Joint cost

= ₹10,00,000 − ₹60,000
= ₹9,40,000/-

(b) crediting the sales value of By products to costing P&L A/c

Question 1 :

The joint cost of making 50 units of product A, 100 units of product B and 150 units of product C is ₹900. The selling prices of product A, B and C are ₹2, ₹3 and ₹4 per unit respectively. The product do not require any further processing after split-off point. You are required to apportion the joint cost on sales value basis.

Statement showing apportionment of Joint cost on the basis of sales value at split-off point

Particulars	Joint products A	B	C	Total
(a) Quantity produced at split off points (units)	50	100	150	300
(b) Selling price p.u. (₹)	2	3	4	
(c) Sales value at split off point (a x b) (₹)	100	300	600	1,000
(d) Joint cost apportioned in the ratio of sales value at split off point (1 : 3 : 6) (₹)	90	270	540	900
(e) Profit / (Loss) (₹) (1 - d)	10	30	60	100

Question 2 :

X Co. Ltd., manufactures two joint products A and B and sells them at ₹8 and ₹10 per unit respectively. During a particular period 300 units of A and 200 units of B were produced and sold. The joint cost incurred was ₹3,520 and no record has been kept of further processing costs. Apportion joint cost on market value after further processing.

Statement showing apportionment of Joint cost on the basis of Final sales value

Particulars	Joint products A	B	Total
(a) Quantity produced units	300	200	500
(b) Final selling price p.u. (₹)	8	10	
(c) Final sales value (a x b) (₹)	2,400	2,000	4,400
(d) Joint cost apportioned in the ratio of Final sales value (6 : 5) (₹)	1,920	1,600	3,520

llwe

We have not calculated the profit as data about further processing cost is not available.

have not calculated the profit as data about further processing cost is not available.Marginal

Question 3 :

From the following information apportion marginal cost and fixed cost on suitable basis and obtain profit/loss under each of the joint products -
Sales A - 100 kg. @ ₹60 per kg. and B - 120 kg. @ ₹30 per kg.
Total Cost: Marginal cost ₹4,400 and Fixed cost ₹3,900.

Marginal cost = Incremental cost = Differential cost = variable cost

(1) Statement showing apportionment of Joint cost by Marginal cost (contribution method)

Particulars	Joint products A	Joint products B	Total
a Sales volume (kgs)	100	120	220
b Selling price per kg (₹)	60	30	
c Sales value (₹) (a × b)	6,000	3,600	9,600
d Variable Joint cost apportioned in the ratio of sales volume	2,800	1,600	4,400
e Contribution (c − d) (₹)	3,200	2,000	5,200
f Fixed Joint cost apportioned in the ratio of contribution earned by each product (3:2) (₹)	1,920	1,280	3,200
g Profit / (Loss) (e − f) (₹)	1,280	720	2,000

Question 4 :

In a certain period 300 units of main product are produced and 200 units are sold at ₹30 per unit. The by-product emerging from the main product is sold at ₹600. The total cost of production of 300 units is ₹4,500. Calculate the amount of gross profit after crediting by-product value -
(a) To cost of production and
(b) To cost of sales.

Statement showing calculation of Gross profit after crediting sales value of By product to :

(a) cost of production		(b) cost of sales	
Particulars	Amount (₹)	Particulars	Amount (₹)
cost of production of 300 units	4,500	cost of production of 300 units	4,500
Sales value of By product	(600)	closing stock value (1,500/300 units) x 100 units	(500)
cost of production after crediting the sale of By product	3,900	cost of sales of 200 units (a-b)	3,000
closing stock value (3900/300 units) x 100 units	(1,300)	Sales value of By product	(600)
cost of goods sold (a-d) i.e. cost of sales	2,600	cost of sales after crediting the sales value of By product (c-d)	2,400
sales (200 units x ₹30)	6,000	sales (200 units x ₹30)	6,000
Gross profit (f-e)	3,400	Gross profit (f-e)	3,600

productionAmount
500particularsAmount
units4,5001,500600b
100a
productunits
of3,900600
300By
tno
dunits2,400c

Question 5 :

A factory produces three products A, B and C which originate from a joint process. Costs are -

Particulars	Joint cost ₹	Subsequent Processing Cost		
		A ₹	B ₹	C ₹
Material	10,000	700	650	290
Labour	1,800	210	200	190
Overheads	800	90	50	120
Total cost	12,600	1,000	900	600
Total sales values		10,000	7,000	6,000
Estimated profit on sales values		20%	30%	40%

Prepare a statement showing apportionment of joint costs of manufacture.
Find the total cost for each product.

(1) Statement showing apportionment of Joint cost by Reverse cost method

Particulars	Joint products A	B	C	Total
(a) Final sales value (₹)	10,000	7,000	6,000	23,000
(b) Estimated profit % on sales value	20%	30%	40%	
(c) Estimated profit (₹) (axb)	2,000	2,100	2,400	6,500
(d) Further processing cost (₹)	1,000	900	600	2,500
(e) Reverse cost (₹) (a-c-d)	7,000	4,000	3,000	14,000
(f) Joint cost apportioned in the ratio reverse cost (₹) (7:4:3)	6,300	3,600	2,700	12,600
(g) Total cost (d+f)	7,300	4,500	3,300	15,100
(h) Actual profit (a-g)	2,700	2,500	2,700	7,900

Question 6 :

X Ltd., manufactures product A which yields two by-products B and C. In a period the amount spent up to the point of separation was ₹20,600. Subsequent expenses were :-

Particulars	A ₹	B ₹	C ₹
Materials	300	200	150
Direct Wages	400	300	200
Overheads	300	270	280
Total Cost	1,000	770	630

Gross sales value of products A, B and C was ₹15,000; ₹10,000 and ₹5,000 respectively. It was estimated that the net profit as a percentage of sales in case of B and C would be 25% and 20% respectively. Ascertain the profit earned on A.

(1) statement showing calculation of Joint cost attributable to By products B&C & Main product A

particulars	By products		Total
a sales value (₹)	10,000	5,000	15,000
b Estimated profit on sales (%)	25%	20%	
c Estimated profit (₹) (a x b)	2,500	1,000	3,500
d Further processing cost (₹)	770	630	1,400
e Joint cost attributable to By products (a - c - d)	6,730	3,370	10,100
f Joint cost attributable to Main product	= ₹20,600 - (₹6730 + ₹3370) = ₹10,500/-		10,500

(2) statement showing profit earned on Main product A

particulars	Amount (₹)
a sales value	15,000
b Joint cost attributable to Main product A	10,500
c Further processing cost	1,100
d Total cost (b+c)	11,600
e profit on main product A (a - d)	3,400

Question 7 :

In manufacturing the main product X, company processes the incidental waste into two by-products, A and B. From the following data relating to the products, you are required to prepare a Comparative Profit and Loss Statement showing the individual cost and other details. The total cost upto separation period was ₹3,10,400. Reverse cost method to be followed for separation of Joint Cost.

Particulars	Main Product x ₹	By-Product A ₹	By-Product B ₹
Sales	8,00,000	64,000	96,000
Costs after separation	80,000	12,800	14,400
Estimated Net Profit % to sales value	–	20%	30%
Estimated Selling Exp. as % of sales value	20%	10%	15%

(1) Statement showing calculation of Joint cost attributable to By products – A & B (Reverse cost method)

Particulars	By products A	By products B	Total
(a) Final sales value (₹)	64,000	96,000	1,60,000
(b) Estimated profit (₹)	12,800 (64,000 × 20%)	28,800 (96,000 × 30%)	41,600
(c) Estimated selling exp. (₹)	6,400 (64,000 × 10%)	14,400 (96,000 × 15%)	20,800
(d) Further processing cost (₹)	12,800	14,400	27,200
(e) Joint cost attributable to By products (₹) (a - b - c - d)	32,000	38,400	70,400

(2) Joint cost attributable to Main product – X

= Total Joint cost – (Joint cost attributed to BY products A & B by reverse wst method)

= ₹ 3,10,400 – (₹32,000 + ₹38,400)

= ₹ 2,40,000

(3) comparative profit & Loss statement

particulars	Main product X	By products A	By products B	Total ₹
a Final sales value (F)	8,00,000	60,000	96,000	9,60,000
b Joint cost apportioned (F)	2,40,000	36,000	38,400	3,10,400
c Estimated selling expenses (800000x)	1,60,000	6,400	14,400	1,80,800
d Further processing cost (E)	[redacted]	12,800	14,400	1,07,200
e Total cost (b+c+d) (E)	4,80,000	51,200	67,200	5,98,400
f profit / (Loss) (a-e)	3,20,000	12,800	28,800	3,61,600

Question 8 :

From the following particulars make out a weekly cost sheet showing profit on main product of Mini Petroleum Company. Also show the percentage of each product to the weight of Crude Oil used.

Crude Oil used 5,00,000 Liters @ ₹0.50

Petrol produced (Main product) 1,50,000 Liters @ ₹2.50

By-Products:

1. Lubricating Oil produced	50,000 Liters @ ₹2.00
2. Fuel Oil produced	2,50,000 Liters @ ₹1.00
3. Kerosene Oil produced	30,000 Liters @ ₹0.80

Joint Cost Incurred :	**₹**
Raw Materials consumed	48,000
Wages paid	1,20,000
Repairs and Renewals	86,000
Salaries and General Charges	50,000

(1) statement showing calculation of Joint cost particulars

	Amount (₹)
(a) cost of crude oil used (5,00,000 litres x 0.50)	2,50,000
(b) raw material consumed	48,000
(c) wages paid	1,20,000
(d) Repairs & renewals	86,000
(e) salaries & General charges	50,000
(f) Total Joint cost (allocatable)	5,54,000/-

(2) statement showing calculation of Joint cost attributable to Main product petrol after crediting sales value of By products to Joint cost

particulars	Amt (₹)	Amt (₹)
(a) Total Joint cost (refer (1))		
(b) sales value of By products		
Lubricating oil : (50,000 litres x ₹2)	1,00,000	
Fuel oil : (2,50,000 litres x ₹1)	2,50,000	
kerosene oil : (30,000 litres x ₹0.80)	24,000	
(c) Joint cost attributed to Main product petrol (a-b)		1,80,000

3 statement showing profit on Main product petrol

particulars	Amount (₹)
a sales value (1,50,000 litres × ₹ 2·50)	3,75,000
b Joint cost apportioned	1,80,000
c profit (a - b)	1,95,000

4 statement showing percentage of each product to the weight of crude oil used

product	calculations	% to the weight of crude oil used
a Main product petrol	(1,50,000 litres / 5,00,000 litres × 100)	30%
b Lubricating oil	(50,000 litres / 5,00,000 litres × 100)	10%
c Fuel oil	(2,50,000 litres / 5,00,000 litres × 100)	50%
d Kerosene oil	(30,000 litres / 5,00,000 litres × 100)	6%
e process loss	(Balancing figure)	4%
f Total		100%

Question 9 :

In an oil mill four products emerge from a refining process. The total cost of input during the quarter ending March, 2018 is ₹1,48,000. The output, sales and additional processing costs are as under -

Product	Output in Liters	Additional processing costs after split-off point ₹	Sales Value ₹
AOXE	8,000	43,000	1,72,500
BOXE	4,000	9,000	15,000
COXE	2,000	–	6,000
DOXE	4,000	1,500	45,000

In case these products were disposed off at the split-off point that is before further processing the selling price would have been -

AOXE = ₹15.00	BOXE = ₹6.00
COXE = ₹3.00	DOXE = ₹7.50

Prepare a statement of profitability based on -

1. If the products are sold after further processing is carried out in the mills.
2. If they are sold at the split-off point.
3. Comment upon the results.

(I) Statement showing calculation of profit when :

(i) Products are sold at split-off point

Particulars	Joint products AOXE	BOXE	COXE	DOXE	Total
(a) Quantity produced at split off point (Litres)	8,000	4,000	2,000	4,000	18,000
(b) Selling price per litre at split off point (₹)	150	60	30	7.50	
(c) Sales value at split off point (₹) (axb)	1,20,000	24,000	6,000	30,000	1,80,000
(d) Joint cost apportion in the ratio of sales value at split-off point (20:4:1:5) (₹)	98,667	19,733	4,933	24,667	1,48,000
(e) Profit/(Loss) (₹) (c-d)	21,333	4,267	1,067	5,333	32,000

(ii) Products are sold after further processing

Particulars	Joint products AOXE	BOXE	COXE	DOXE	Total
(a) Quantity produced at split off point (Litres)	8,000	4,000	2,000	4,000	18,000
(b) Final sales value (₹)	1,73,500	15,000	6,000	45,000	2,38,500
(c) Further processing cost (₹)	43,000	9,000	–	1,500	53,500
(d) Joint cost apportion in the ratio of sales value at split-off point (20:4:1:5) (₹)	98,667	19,733	4,933	24,667	1,48,000
(e) Total cost (c+d) (₹)	1,41,667	28,733	4,933	26,167	2,01,500
(f) Profit/(Loss) (₹) (b-e)	31,833	1,267	1,067	18,833	37,000

2 Decisions regarding further processing

Particulars	Joint Products AOXE	BOXE	COXE	DOXE	Total
a Final sales value (F)	1,72,500	15,000	6,000	45,000	2,38,500
b Sales value at split-off point (E)	1,20,000	24,000	6,000	30,000	1,80,000
c Incremental Revenue (a-b)	52,500	(9,000)	—	15,000	58,500
d Incr. Wst (F)	43,000	9,000	—	1,500	53,500
e Incr. profit / (Loss) (c-d) (E)	9,500	(18,000)	—	13,500	5,000
f whether to further process ?	Yes	No	No	Yes	

From above table it is clear that products AOXE, DOXE should be further processed and sold whereas products BOXE, COXE should be sold at split off point.

3 Statement of profitability on implementation of above decision

Particulars	Joint Products AOXE	BOXE	COXE	DOXE	Total
a Sales value (F)	1,72,500	15,000	6,000	45,000	2,38,500
b Joint cost (E)	98,667	19,733	4,933	24,667	1,48,000
c Further processing cost (F)	43,000	—	—	1,500	44,500
d Total cost (E) (b+c)	1,41,667	19,733	4,933	26,167	1,92,500
e profit / (Loss) (Xi) (a-d)	30,833	(4,267)	1,067	18,833	46,000

Question 10: (V. Important) (JP & BP costing + process costing)

Three joint products are produced by passing chemical through two consecutive processes. Output from process 1 is transferred to process 2 from which three joint products are produced and immediately sold. The data regarding the processes for April 2017 is given below -

Particulars	Process-1	Process- 2
Direct materials 2500 kilos @ ₹4 per kilo	₹10,000	--
Direct Labour	₹6,250	₹6,900
Overheads	₹4,500	₹6,900
Normal Loss	10% of input	Nil
Scrap value of loss	₹2 per kilo	--
Output	2,300 kilo	**Joint products**
		A-900 Kilos
		B-800 Kilos
		C-600 Kilos

There were no opening or closing stocks in either process and the selling price of the output from process 2 were:

Joint Product A ₹24 per kilo
Joint Product B ₹18 per kilo
Joint Product C ₹12 per kilo

Required:

a. Prepare an account for process 1 together with any Loss or Gain Account you consider necessary to record the month's activities.

b. Calculate the profit attributable to each of the joint products of process 2 using the following methods

i. According to weight of output;

ii. By the market value of production

(2) Abnormal Gain A/c

Particulars	legs	Rate (₹)	Amt (₹)	Particulars	legs	Rate (₹)	Amt (₹)
To Normal loss (sale of scrap)	50	2	100	By process - I A/c	50	9	450
To costing P & L A/c			350*				
	50		450		50		450

Contact no. 7740060125/126

(1) Process - 1 account for April 2017

Dr — Cr

Particulars	Legs	Rate (₹)	Amt (₹)	Particulars	Legs	Rate (₹)	Amt (₹)
To Input Direct materials	10,000	2500	4,006,250	By Normal Loss (10% of 2500 legs)	500	2	500
To Direct Labour			4,500	By Sale of scrap	250	2	500
To overheads			2,300	By process - 2 A/c	4,500	9	20,700
To Abnormal Gain	50	9	450				
Total	2,550		21,200	Total	2,550		21,200

cost per kg of output of process - 1

$= \frac{\text{Total cost incurred} - \text{Realisable value of normal scrap}}{\text{Total input quantity} - \text{Normal loss quantity}}$

$= \frac{₹20,750 - ₹500}{10,000 \text{ legs} - 2500 \text{ legs}} = \frac{₹20,250}{7500 \text{ legs}} = ₹9 \text{ per leg}$

(3) Statement showing calculation of Joint cost

	Particulars	Amount (₹)
(a)	cost of output of process - (1) transferred to process - (2)	20,700
(b)	Direct labour	6,900
(c)	overheads	6,900
(d)	Total Joint cost (at btc)	34,500

(a) Statement showing apportionment of Joint cost

Particulars	Joint products A	B	C	Total
(a) Quantity produced at split off point (kgs)	900	800	600	2,300
(b) Joint cost apportioned in the ratio of weight of output (Physical output method) (₹) (9:8:6)	13,500	12,000	9,000	34,500
(c) Selling price per kg at split off point (₹)	24	18	12	
(d) Market value of products at split off point (axc) (₹)	21,600	14,400	7,200	43,200
(e) Joint cost apportioned in the ratio of Market value of products (216:144:72 = 3:2:1) (₹)	17,250	11,500	5,750	34,500
(f) profit / (Loss) when Joint cost is apportioned in the ratio of				
i) weight of output (d-b) (₹)	8,100	2,400	(1,800)	8,700
ii) market value (d-e)	4,350	2,900	1,450	8,700

Question 11:

C & Co. Ltd. produces two joint products J and K in Dept. A from a basic raw material. The input-output ratio of Dept. A is 100 : 90. Product J which becomes the input of Dept. B can be further processed in Dept. B to make one of the most popular industrial product N. The input-output ratio of Dept. B is 100 : 95. Alternatively product J can be sold at split-off stage.
The selling prices are :-

Product	₹ per kg
J	29.40
K	26.00
N	31.50

The relevant data envisaged in budget for 2017 are as under -

1. Production data -

Product	Kgs.
N	4,75,000
K	8,50,000

2. Departmental Expenses -

₹ in lakhs	A	B
Raw material @ ₹16 per kg.	?	--
Direct Materials	10	3
Direct Wages	15	5
Variable Overheads	20	7
Fixed Overheads	25	10

3. Selling Expenses -

Product	₹
J	1,00,000
K	2,00,000
N	2,00,000

i. Apportion the joint cost between product J and K.
ii. Advise on processing of product J into N.
iii. Prepare profitability statement based on your decision.

① Given data

Given data

Raw material

Dept - A

Input : output = 100 : 90

Input output

90

Dept

A

product

product - J

(output = 5,00,000 kgs)

output 6 kg

product - K

(output = 8,50,000 kgs)

output 8,50,000 kg

Further processing in Dept B

Input : output = 100 : 95

Input output

0

product N

(output = 4,75,000 kgs)

output 4,75,000 kgs

OR statement

OR

showing raw material consumed in Dept A

particulars	kgs
(a) output of product - N (Dept B)	4,75,000
(b) Input to Dept B for producing 4,75,000 kgs of product N = (4,75,000/95) x 100 = 5,00,000 kgs of product J	5,00,000
(c) Total output of Dept - A = (5,00,000 kgs of J + 8,50,000 kgs of K)	13,50,000
(d) Raw material consumed in Dept - A = (13,50,000 kgs / 90) x 100	15,00,000

(2) statement showing calculation of Joint costparticularsAm rangle

Particulars	Amount (₹)
(a) cost of raw material consumed (1500,000 kgs x ₹16)	2,40,00,000
(b) Direct materials	10,00,000
(c) Direct wages	15,00,000
(d) variable overheads	20,00,000
(e) fixed overheads	25,00,000
(f) Total Joint cost (at bctate)	3,10,00,000

(3) Statement showing apportionment of Joint cost over Joint product J, K on the basis of sales value at split off point

Particulars	Joint products J	K	Total
(a) quantity produced at split off point	5,00,000 kgs	8,50,000 kgs	13,50,000 kgs
(b) selling price per kg at split off point (₹)	29.40	26.00	
(c) sales value at split off point (₹) (axb)	1,47,00,000	2,21,00,000	3,68,00,000
(d) selling expenses (₹)	1,00,000	2,00,000	3,00,000
(e) net sales value at split off point (c-d) (₹)	1,46,00,000	2,19,00,000	3,65,00,000
(f) Joint cost apportioned in the ratio of net sales value at split off point (2:3 = 146:219)	1,24,00,000	1,86,00,000	3,10,00,000
(g) profit (e-f) (₹)	22,00,000	33,00,000	55,00,000

4 Decision regarding further processing of product J in to product N

Particulars	Amt (₹)
a Final sales value (975,000 kgs of N x ₹31.50)	1,49,62,500
b selling expenses of product N	2,00,000
c Net Final sales value of product N (a-b)	1,47,62,500
d net sales value of 5,00,000 kgs of product J at split off point	1,46,00,000
e Incremental revenue because of further product of 4,75,000 kgs of product N (c-d)	1,62,500
f Incremental cost (i.e Further processing cost) (i.e cost of Dept B) (3 + 5 + 7 + 10) lakhs	25,00,000
g Incremental profit / (Loss) (e-f)	(23,37,500)

Considering Incremental loss of ₹ 23,37,500, we advise not to further process product J in to product N. (i.e company should sell product J at split-off point)

Note: We have assumed that, If we close down Dept B then Total cost of ₹ 25 lakhs can be saved.

Question 12:

Inorganic Chemicals purchases salt and processes it into more refined products such as Caustic Soda, Chlorine and PVC. In the month of July, Inorganic Chemicals purchased Salt for ₹40,000. Conversion of ₹60,000 were incurred up to the spilt off point, at which time two sealable products were produced. Chlorine can be further processed into PVC. The July production and sales information is as follows.

Product	Production (tons)	Sales quantity (tons)	Selling price (per ton)
Caustic Soda	1,200	1,200	₹50
Chlorine	800	–	--
PVC	500	500	₹200

All 800 tons of Chlorine was further processed, at an incremental cost of ₹20,000 to yield 500 tons of PVC. There was no beginning or ending inventories of Caustic Soda, Chlorine or PVC in July. There is active market for Chlorine. Inorganic Chemicals could have sold all its July production of Chlorine at ₹75 per ton.

Required:

1) To calculate how joint cost of ₹1,00,000 would be apportioned between Caustic Soda and Chlorine under each of following methods: a) Sales value at split off,
   b) Physical measure, and
   c) Estimated net realizable value.
2) Lifetime Swimming Pool Products offers to purchase 800 tons of Chlorine in August at ₹75 per ton. This sale of Chlorine would mean that no PVC would be produced in August. How the acceptance of this offer for the month of August would affect operating income ?

(1) Statement showing apportionment of Joint cost

Particulars	Caustic Soda	Chlorine (PVC)	Total
(a) Quantity produced at split off point (₹)	1200 tons	800 tons	2000 tons
(b) Joint cost apportioned on the basis of physical measure (12:8) (₹)	60,000	40,000	1,00,000
(c) Selling price per ton at split off point (₹)	50	75	
(d) Sales value at split off point (₹) (axc)	60,000	60,000	1,20,000
(e) Joint cost apportioned on the basis of Sales value at split off point (₹) (1:1)	50,000	50,000	1,00,000
(f) Final sales value (₹)	60,000 (1200 tons of caustic soda x ₹50)	1,00,000 (500 tons of PVC x ₹200)	1,60,000
(g) Further processing cost (₹)	—	20,000	20,000
(h) Estimated net realisable value at split off point (₹) (f - g)	60,000	80,000	1,40,000
(i) Joint cost apportioned on the basis of Estimated net realisable value at split off point (3:4) (₹)	42,857	57,143	1,00,000

2 Evaluation of offer from Lifetime swimming pool products to buy 800 tons of chlorine

	particulars	Amount (₹)
a	final sales value of 500 tons of PVC produced from 800 tons of chlorine	1,00,000
b	sales value of 800 tons of chlorine at split off point (800 tons × ₹75)	60,000
c	Incremental Revenue (a - b)	40,000
d	Incremental cost of further processing 800 tons of chlorine into 500 tons of PVC	20,000
e	Incr. profit on further processing (c - d)	20,000

OR

Fall in operating income if product is sold at split off point

isORsold

∴ proposal from Lifetime swimming pool products should be rejected

Question 13:

SUNMOON Ltd. produces 2,00,000; 30,000; 25,000; 20,000 and 75,000 units of its five products A, B, C, D and E respectively in a manufacturing process and sells them at ₹17, ₹13, ₹8, ₹10 and ₹ 14 per unit. Except product D remaining products can be further processed and then can be sold at ₹25, ₹17, ₹12 and ₹20 per unit in case of A, B, C, and E respectively.

Raw material costs ₹35,90,000 and other manufacturing expenses cost ₹5,47,000 in the manufacturing process which are absorbed to the products on the basis of their 'Net realizable value'. The further processing costs of A, B, C and E are ₹12,50,000; ₹1,50,000; ₹50,000 and ₹1,50,000 respectively. Fixed costs are ₹4,73,000.

You are required to prepare the following in respect of the coming year :

a) Statement showing income forecast of the company assuming that none of its products are to be further processed.

b) Statement showing income forecast of the company assuming that products A, B, C and E are to be processed further.

Can you suggest any other production plan whereby the company can maximise its profits? If yes, then submit a statement showing income forecast arising arising out o of adoption of that plan.

(1) Statement showing income forecast of the company if products are sold after further processing

particulars	Joint products A	B	C	D	E	Amount (₹)
(a) quantity produced (units)	2,00,000	30,000	25,000	20,000	75,000	3,50,000
(b) final selling price p.u. (₹)	25	17			20	
(c) final sales value (₹) (a×b)	50,00,000	5,10,000			15,00,000	75,10,000
(d) further processing cost (₹)	12,50,000	1,50,000	50,000	—	1,50,000	16,00,000
(e) NRV at split off point (c-d) (₹)	37,50,000	3,60,000	2,50,000	2,00,000	13,50,000	59,10,000
(f) Joint cost apportioned in the ratio of NRV 375 : 36 : 25 : 20 : 135	26,25,000	2,52,000	1,75,000	1,40,000	9,45,000	41,37,000
(g) Total cost (₹) (d+f)	38,750	4,02,000	2,25,000	1,40,000	10,95,000	57,37,000
(h) Gross profit/(Loss) (₹) (c-g)	1125,00	1,08,000	75,000	60,000	4,05,000	17,73,000
(i) Fixed cost for the period						4,73,000
(j) Net profit						13,00,000

(2) Statement showing income forecast of the company if products are sold at split off point

particulars	Joint products A	B	C	D	E	Amount (₹)
(a) quantity produced (units)	2,00,000	30,000	25,000	20,000	75,000	3,50,000
(b) selling price p.u. at split off point (₹)	17	13	8	10	14	
(c) sales value at split off point (₹) (a×b)	34,00,000	3,90,000	2,00,000	2,00,000	10,50,000	52,40,000
(d) Joint cost apportioned in ratio of NRV (₹)	26,25,000	2,52,000	1,75,000	1,40,000	9,45,000	41,37,000
(e) Gross profit (c-d) (₹)	7,75,000	1,38,000	25,000	60,000	1,05,000	11,03,000
(f) fixed cost (₹)						4,73,000
(g) Net profit (₹)						6,30,000

③ Decisions regarding further processing of each of the product

particulars	Joint products A	B	C	D	E
a Final sales value (₹)	50,00,000	5,10,000	3,00,000	2,00,000	15,00,000
b sales value at split off point (₹)	34,00,000	3,90,000	2,00,000	2,00,000	10,50,000
c Incremental Revenue (₹) (a-b)	16,00,000	1,20,000	1,00,000	—	4,50,000
d Incr. cost (₹) (i.e. Further prose cost)	12,50,000	1,50,000	50,000	—	1,50,000
e Incr. profit (Loss) (c-d) (₹)	3,50,000	(30,000)	50,000	—	3,00,000
f Whether to further process ?	Yes	No	Yes	No	Yes

Decision: From above table, It is clear that products A, C, E should be further processed & sold whereas products B, D should be sold at split off point

④ Statement showing income forecast of the company based on above design

particulars	Joint products A	B	C	D	E	Amount (₹)
a sales value (₹)	50,00,000	3,90,000	3,00,000	2,00,000	15,00,000	73,90,000
b Joint cost apportioned (₹)	26,25,000	2,52,000	1,75,000	1,40,000	9,45,000	41,37,000
c Further processing cost (₹)	12,50,000	—	50,000	—	1,50,000	14,50,000
d Total cost (₹) (b+c)	38,75,000	2,52,000	2,25,000	1,40,000	10,95,000	55,87,000
e Gross profit (Loss) (₹) (a-d)	11,25,000	1,38,000	75,000	60,000	4,05,000	18,03,000
f Fixed cost (₹)						4,73,000
g Net profit (e-f)						13,30,000

Question 14:

The Chemco Company purchases Brimco in department 1, where it is split-off into products X, Y and Z. Product X is sold at the split-off point with no further processing. Products Y and Z require further processing to finish them before they can be sold. Product Y is finished in department 2 and Product Z is finished in department 3. The following is a summary of the costs and other related data for the year ending 30th September, 2018 -

Particulars	DEPARTMENTS		
	1	2	3
	₹	₹	₹
Direct Labour	28,000	90,000	1,30,000
Manufacturing Overhead	20,000	42,000	98,000
Subtotal	**48,000**	**1,32,000**	**2,28,000**
	PRODUCTS		
	X	Y	Z
Quantity Produced (Litres)	60,000	60,000	1,20,000
Quantity on hand on 30.9.2006 (Litres)	20,000	0	30,000
Sales (₹)	60,000	1,92,000	2,83,500

The cost of BRIMCO purchased during the year was ₹1,92,000. There were no inventories at the beginning and end of the year. All the products on hand at the year-end were complete as to processing.

Required :-

a. Calculate the total amount of joint costs to be allocated among products X, Y and Z.

b. Allocate the total joint costs to products X, Y and Z using market value as an allocation base.

c. Product X could have been processed in department 4 at a total separable cost of ₹1.20 per liter. The market price for the finished product X is ₹2.50 per liter. Did the management make the right decision to sell product X at the split-off point ?

(1) statement showing calculation of Joint cost

Particulars	Amt (₹)
(a) cost of Brimco (raw material) consumed in Dept 1	1,92,000
(b) Direct labour	28,000
(c) manufacturing overheads	20,000
(d) Total Joint cost (a+b+c)	2,40,000/-

(2) Statement showing apportionment of Joint cost over Joint products – X, Y, Z

Particulars	Joint products X	Joint products Y	Joint products Z	Total
(a) Quantity produced in litres	60,000	60,000	1,20,000	2,40,000
(b) Quantity on hand as on 30.09.208 (closing stock of FG) (litres)	20,000	0	30,000	50,000
(c) Quantity sold (litres) (a-b)	40,000	60,000	90,000	1,90,000
(d) Sales value (₹)	60,000	1,[illegible]0	2,[illegible]0	5,35,500
(e) Selling price per litre (₹) (d/c)	1.50	3.[illegible]	3.[illegible]	
(f) Final sales value of quantity produced (₹) (a×e)	90,000	1,92,000	3,78,000	6,60,000
(g) Further processing cost (₹)	–	1,32,000 (D[illegible]-3)	2,28,000	3,60,000
(h) NRV at split off point (f-g)	90,000	60,000	1,50,000	3,00,000
(i) Joint cost apportioned in the ratio of NRV (market value) (3:2:5)	72,000	48,000	1,20,000	2,40,000

③ Decision regarding further processing of product - X in Dept - 4

Particulars	Amt (₹)
(a) Selling price per litre after further processing of product - X in Dept - 4 (Final selling price)	2.50
(b) Selling price per litre at split off point	1.50
(c) Incremental Revenue per litre (a - b)	1.00
(d) Incremental cost per litre	1.20
(e) Incremental profit / (Loss) per litre (c - d)	(0.20)

From above table, it is clear that Management has taken right decision to sell product - X at split off point,

As further processing will result into incremental loss of ₹ 0.20 per litre.

Question 15:

Particulars	Joint Products				
	A	B	C	D	E
A. Selling Price p.u. @ split off point	5	9	18	20	26
B. Final Selling Price per unit	8	10	20	23	30
C. Quantity Produced (units)	5000	10000	15000	25000	30000
D. Further Processing Cost (₹)	5,000	12,000	18,000	90,000	50,000

Advice on whether to further process or not.

(1) Decisions regarding further processing

Decisions regarding further processing

Particulars	Joint Products				
	A	B	C	D	E
A. Selling Price p.u. @ split off point	5	9	18	20	26
B. Final Selling Price per unit	8	10	20	23	30
C. Quantity Produced (units)	5000	10000	15000	25000	30000
D. Further Processing Cost (₹)	5,000	12,000	18,000	90,000	50,000
E. Final sales value (B x C) (₹)	40,000	1,00,000	3,00,000	5,75,000	9,00,000
F. Sales value at split off point (A x C) (₹)	25,000	90,000	2,70,000	5,00,000	7,80,000
G. Incremental Revenue (E - F) (₹)	15,000	10,000	30,000	75,000	1,20,000
H. Incremental profit / (Loss) (₹) (G - D)	10,000	(2,000)	12,000	(15,000)	70,000
I. Whether to further process the product ?	Yes	No	Yes	No	Yes

From above table, It is clear that products A, E should be further processed and sold whereas products B, D should be sold at split - off point.

Question 16:

Joint Cost is ₹6,00,000 out of which ₹2,00,000 is fixed.
Joint Product A : 300 kgs; Selling Price per unit = ₹1000
Joint Product B : 500 kgs; Selling Price per unit = ₹600
Joint Product C : 200 kgs; Selling Price per unit = ₹1500
Apportion Joint cost by marginal cost and contribution method & Calculate Profit / (Loss)
(You can make suitable assumptions)

Statement showing apportionment of Joint cost by Marginal cost & contribution method

particulars	Joint products A	B	C	Total (₹)
a Sales volume (kgs)	300	500	200	1,000
b Selling price per kg (₹)	1000	600	1,500	
c Sales value (₹) (a x b)	3,00,000	3,00,000	3,00,000	9,00,000
d Variable Joint cost apportioned in the ratio of sales volume (3:5:2)	1,20,000	2,00,000	80,000	4,00,000
e Contribution (₹) (c-d)	1,80,000	1,00,000	2,20,000	5,00,000
f Fixed Joint cost apportioned in the ratio of contribution (9:5:11)	72,000	40,000	88,000	2,00,000
g Profit / (Loss) (e-f) (₹)	108,000	60,000	1,32,000	3,00,000

In the absence of any specific information we have apportioned variable Joint cost in the ratio of sales volume. Alternatively it can be apportioned in the ratio of sales value also.

Question 17:

From the following information apportion joint cost on a suitable basis under each of joint products
Sales A - 1000kgs @ ₹60 per kg
Sales B - 800kgs @ ₹50 per kg
Total Cost : Marginal Cost = ₹15,000
Fixed Cost = ₹10,000

Statement showing apportionment of Joint cost by Marginal cost & contribution method & calculation of profit / (Loss) for each product

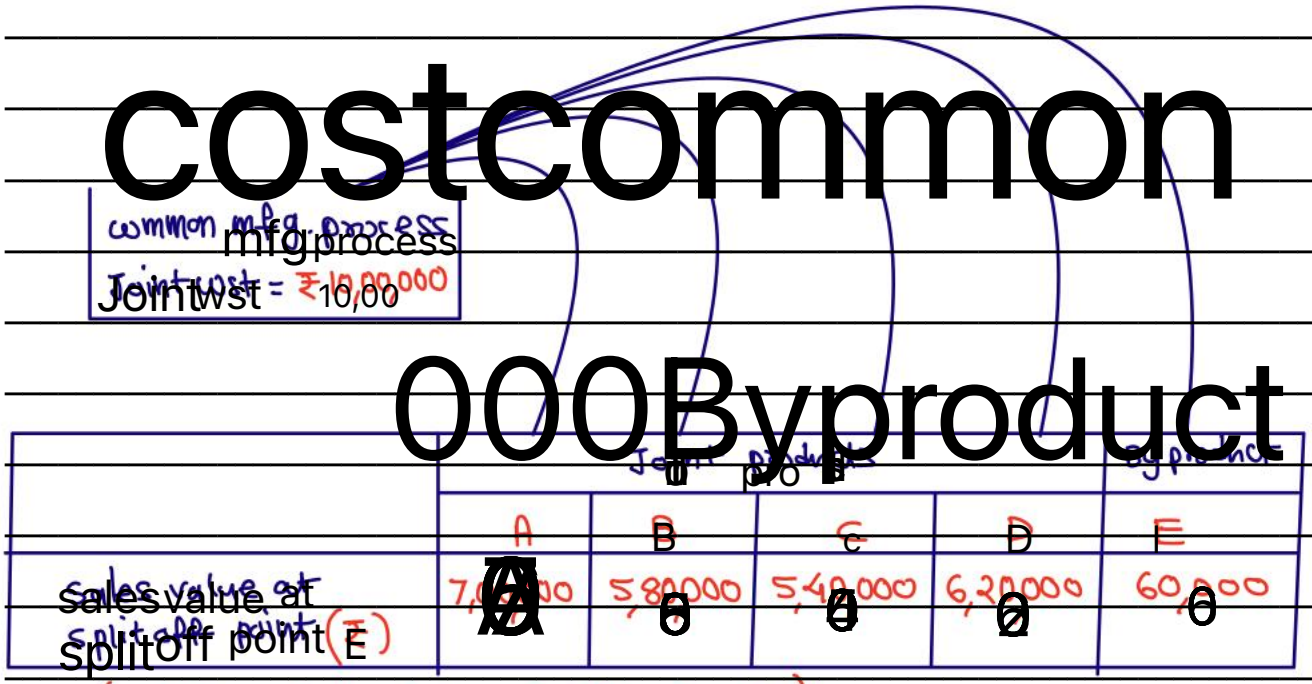
particulars	Joint products A	B	Total
a Quantity produced & sold (kgs)	1,000	800	1,800
b selling price per kg (₹)	60	50	
c sales value (axb) (₹)	60000	40,000	1,00,000
d variable (marginal) Joint cost appo. in the ratio of sales volume (5:4) (₹)	8,333.3333	6666.6666	15,000
e contribution (₹) (c-d)	51,666.6666	33,333.3333	85,000
f Fixed Joint cost apportioned in the ratio of contribution (51666.6666 : 33,333.333333)	6,078.43	3,921.57	10,000
g profit / (loss) (e-f) (₹)	45,589 (approx)	29,411 (approx)	75,000

Note: In the absence of any specific information, we have apportioned variable Joint cost in the ratio of sales volume, Alternatively it can be apportioned in the ratio of sales value.

Accounting Treatment for By - Products

(16) Accounting for By products

i) crediting sales value of By products to Joint cost



Joint cost to be apportioned over Joint products A B C D after crediting sales value of By product to Joint wst = ₹10,00,000 − ₹60,000 = ₹9,40,000/-

ii) crediting sales value of By products to costing P&L A/c & Apportion entire joint cost over joint products.

→ Here ₹60,000 will be credited to costing P&L A/c as Misc income & ₹10,00,000 will be apportioned over Joint products A B C D.

Write a short note on Co- Products

Co-products are :

ⓐ Two or more products

ⓑ considered to be of relatively equal importance

ⓒ Belonging to same line of activity but arising from different processes or operations

example.

Maruti udyog Ltd manufactures diff variety of cars e.g. Maruti 800, Alto, wagon R, Ritz etc.

These are co-products because they are produced in same factory using same manufacturing facilities. However they are not results of common manufacturing process.