EXPERT

CA INTERMEDIATE – COST & MANAGEMENT ACCOUNTING

JOINT PRODUCT & BY - PRODUCT COSTING

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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

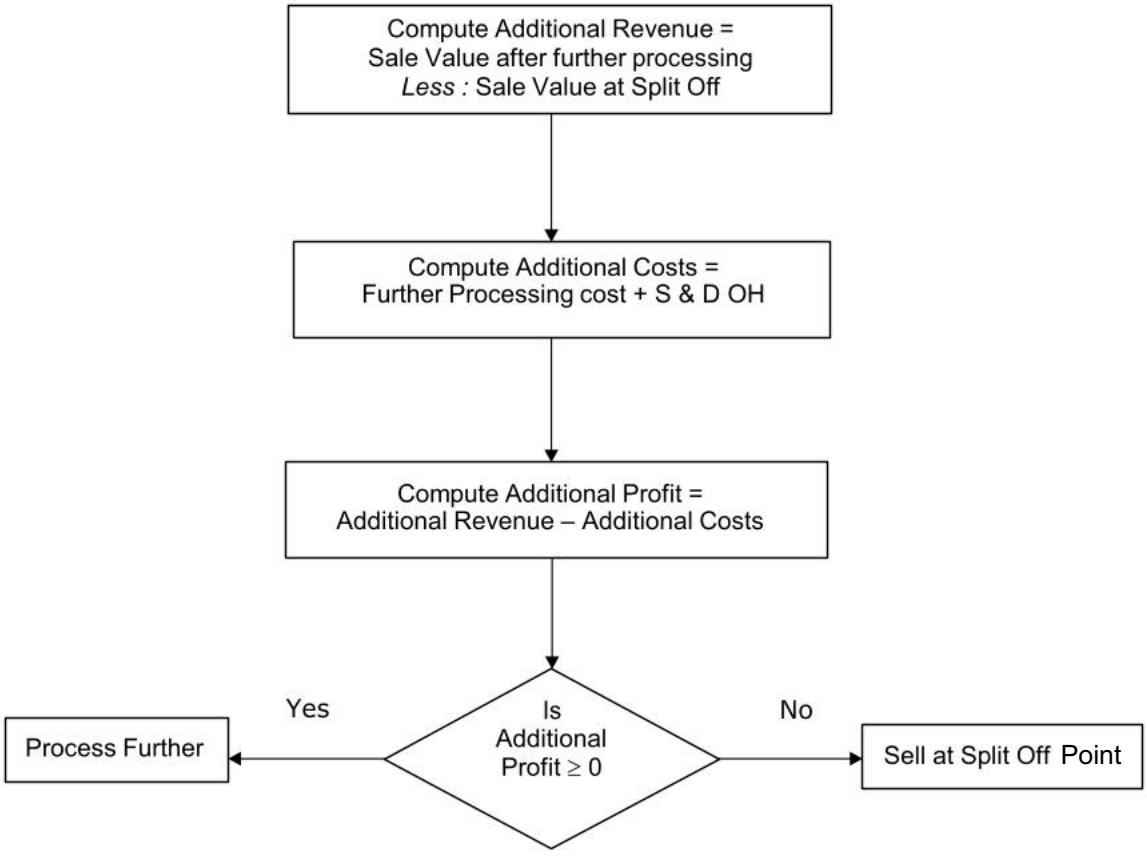
Step 1 Compute Additional Revenue = Sale Value after further Processing *Less* Sales Value at Split off

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 Joint product By product costing is a method of costing & Not a technique of costing.

② psittfftpoint

separation

mtatetsia.IE btoH

Fit_ Joint cost = (cost incurred up to split off point)

in many industries, a common manufacturing process yields 2 or more products, such products which arise jointly out of common process are known as Joint By products. Nature of such products is : They can not be individually separately produced.

③

commonmanufacturing

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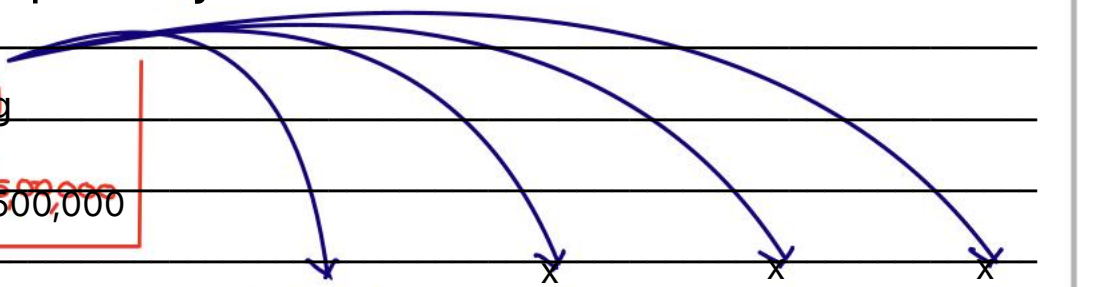


	product A	product B	product C	product D
sales value of split off point (₹)	10,09000	8,59000	980,000	60,000

whether to call such products as Joint or By products is dependent upon their economic value.

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

④ i) If economic value of products is significant in relation to total sales or more or less equal then products can be treated as Joint major products

ii) when economic value of products is neither so significant to call them as Joint products nor so insignificant to call them as waste/scrap then such products can be called as By products / minor products

iii) Accounting treatment for Joint products & By products is different.

5) Many times distinction both 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.

This chapter mainly deals with methods of apportionment of Joint cost.

6) common manufacturing process where Joint cost = ₹500,000

Physical output method

Joint products :	A	B	C	D
a) Quantity produced (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 at split off point (a x b) (₹)	200,000	525,000	150,000	200,000
d) Joint cost apportioned in the ratio of physical output at split off point i.e. 2 : 7 : 6 : 5 (₹)	50,000	1,75000	150,000	1,25000
e) profit / (loss) (c-d) (₹)	150,000	350,000	0	75,000

Total profit = ₹5,75,000/-

if we change the method of attotentuntent productwise profit / Loss may change but total profit will remain same i.e. ₹5,75,000/-

⑦ Joint cost

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

common manufacturing process where Joint cost incurred = ₹ 8100,000

Apportionment of Joint cost by physical output method & sales value at split off point

Joint products	A	B	C	D	Total
ⓐ Quantity produced at split off point (kg)	200	300	250	250	1,000
ⓑ selling price per kg (₹)	1,200	1,800	2000	2880	
ⓒ Sales value at split off point (₹) (axb)	2,40,000	5,40,000	5,00,000	7,20,000	2900,00
ⓓ Joint cost apportioned in the ratio of physical output 20 : 30 : 25 : 25	160,000	390,000	200,000	200,000	8,09000
ⓔ profit when Joint cost is apportioned in the ratio of physical output (₹) (c-d)	80,000	300,000	300,000	520,000	1300,00
ⓕ Joint cost apportioned in the ratio of sales value at split off point 24 : 54 : 50 : 72 (₹)	96,000	216,000	200,000	288,000	800,000
ⓖ profit when Joint cost is apportioned in the ratio of sales value at split off point (c-f)	199,000	329,000	300,000	932,000	1200,000

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

⑧ Sometimes for some of the products, sales value at split-off point might not be available as

i) products are not in saleable condition at split off point & they can be sold only after further processing

ii) products are used for captive consumption.

In such cases apportionment of Joint cost on the basis of sales value at split off point is not possible

∴ Joint cost can be apportioned in the ratio of Final sales value

common manufacturing process where Joint wst = ₹ 10,00,000

Joint products	A	B	C	D	Total
ⓐ Quantity produced (kgs)	500	200	700	600	2,000
ⓑ selling price per kg (₹) (Final)	1000	1500	900	950	
ⓒ Further processing cost	1,00,000	50,000	150,000	200,000	500,000
ⓓ Final sales value (₹)	5,00,000	3,00,000	6,30,000	5,70,000	20,00,000
ⓔ Joint cost apportioned in the ratio of Final sales value (Balancing)	2,50,000	1,50,000	3,15,000	2,85,000	10,00,000
ⓕ Total cost (Cte) (₹)	3,50,000	2,00,000	4,65,000	4,85,000	15,00,000
ⓖ profit (d - f) (₹)	1,50,000	1,00,000	1,65,000	85,000	5,00,000

⑨ NRV at split-off point = Final sales value − Further processing cost − Selling & distribution cost

common many process where Joint cost incurred = ₹ 8100,000

particulars	A	B	C	D
a Qty produced	200	300	250	250
b Final sales value	50,001000	10100,000	15100,000	500,000
c Farther processin cost	3500,000	300,000	1,00 000	100,000
d NRVaF's it off point (b - c)	1500,000	700,000	1400,000	4,09000
e Joint cost apportioned in the ratio of NRV at split off point (15 : 7 : 14 : 4)	300,000	190,000	280,000	80,000
f Total cost (c+e)	3800,000	440,000	380,000	180,000
g profit (b - f)	1200,000	560,000	1120,000	320,000

10 Reverse cost method

Reverse cost = (Final Sales value − Estimated profit − Further processing cost)

Actual Joint cost can be apportioned in the ratio of Reverse cost.

(11)

common many process where Joint cost incurred = ₹8,00,000 / 8100,000

particulars	A	B	C	D
(a) Qty produced	200	300	250	250
(b) Final sales value	50100,000	10100,000	15100,000	500,000
(c) Farther processing cost	3500,000	300,000	1,00,000	1,00,000
(d) Estimated profit on sales (Given)	7.50%	2.50%	12.00%	44.00%
(e) Estimated profit (b×d) (₹)	3,75000	25,000	1,80,000	220,000
(f) Reverse wst (b − c − e) (₹)	11,25000	6,75000	12,20,000	1,80,000
(g) Joint cost apportioned in the ratio of reverse wst 225 : 135 : 294 : 36	2,81250	1,68,750	3,05000	45,000
(h) Total cost (c+g) ctg	3781,250	4168,750	4,05000	1,95000
(i) profit (b − h)	1218,750	531,250	10,95000	3,55000

(12)

Methods for apportionment of Joint cost

Physical output Method

under this method Joint cost is apportioned in the ratio of quantity produced at split off point

Sales value Method

i) sales value at split off point
ii) Final sales value
iii) NRV at split off point
iv) Reverse cost method

where NRV at splitoff point = (Final sales value − Further cost) − Eoff

&

Reverse wst = Final sales value − (esti profit + FPC)

Marginal cost & contribution method

under this method first Joint cost is divided in 2 parts namely
i) Fixed Joint wst
ii) variable Joint cost

then variable Joint cost is apportioned over Joint products in the ratio of sales volume or sales value to arrive at contribution of each product then Fixed Joint wst is apportioned over Joint products in the ratio of contribution of each product & profit of each product can be calculated

Sales − variable cost of goods sold = contribution
contribution − Fixed cost = profit/(Loss)

Technical evaluation & survey method

Trial & error method or Management judgement memo

under this method management uses their own judgement for apportionment of Joint cost.

(13) Apportionment Joint cost by using Marginal cost & contribution method.

Joint products A : 800 units @ ₹25 p.u.
B : 700 units @ ₹30 p.u.
C : 500 units @ ₹50 p.u.

Joint cost : ₹36,000 (including variable Joint cost of ₹16000)

⟹

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

Particulars	Joint products A	B	C	Total
(a) Quantity produced & sold (units)	800	700	500	2,000
(b) selling price p.u. (₹)	25	30	50	
(c) Sales value (axb) (₹)	20,000	21,000	25,000	66,000
(d) variable Joint cost apportioned in the ratio of sales volume 8:7:5 (₹)	6,900	5,600	4,000	16,000
(e) contribution (₹) (c-d)	13,600	15,900	21,000	50,000
(f) Fixed Joint cost apportioned in the ratio of contribution (136:154:210) (₹)	5,440	6,160	8,900	20,000 (36000-16000) 36,000 16,000
(g) profit/(Loss) (₹) (e-f)	8,160	9,240	12,600	30,000

(14) whether to further process or sell at split off point?

Joint cost 1500,000

cost incurred Yp to split off point is known as agg.int

Joint products	A	B	C	Y D	E
a) Sales value at split off point (₹)	8100,000	10,001000	1850,000	3,00000	580,000
b) Final sales value (₹)	12,00000	18100,000	21,00000	400,000	780,000
c) Further processing cost (₹)	300,000	900,000	550,000	20,000	125,00
d) Incremental Revenue (₹) (b-a)	400,000	8100,000	2,50000	100,000	2,00000
e) Incremental profit/(Loss) (₹) (d-c) 2955717	200,000	1,00000	300,000	80,000	75,000
f) whether to further process or not ?	yes	No	No	Yes	Yes

products A, D, E should be further processed & sold whereas products B, C should be sold at split off point in order maximise the profit.

Note : In the context of decision making related to further processing, Joint cost is irrelevant as it is Historical or sunk cost.

(15) Decision related to whether to further process or To sell at split off point ?

calculate sales revenue of the product at split off point

↓

calculate Final sales value of product (i.e. sales value after further processing)

↓

calculate Incremental Revenue by formula = (Final sales value − Sales value at split off)

↓

Calculate Further processing cost i.e. incremental

↓

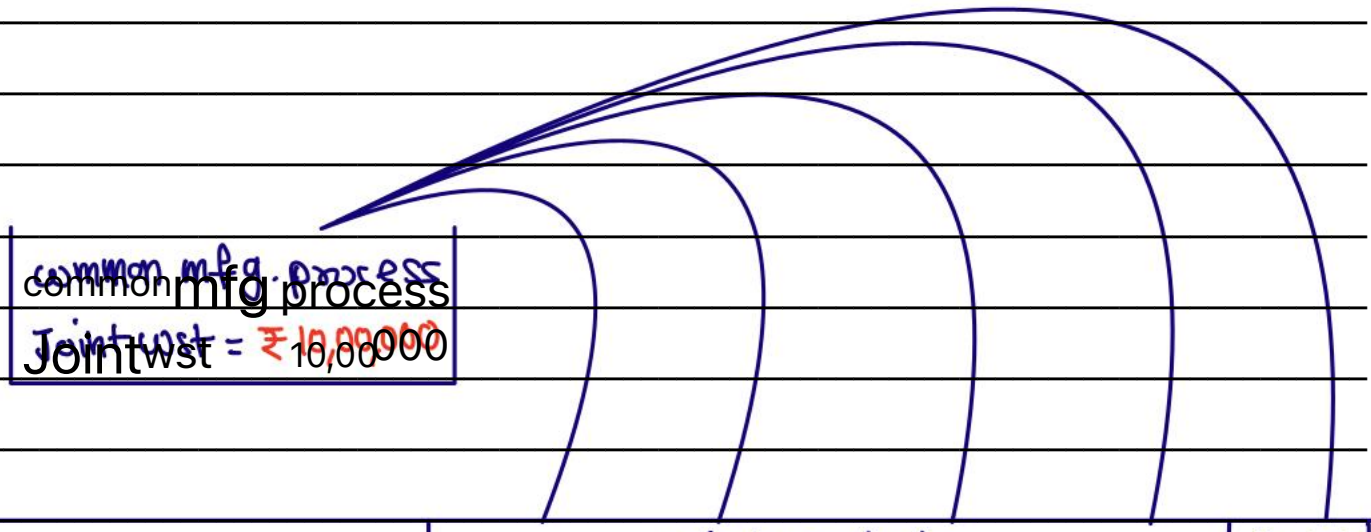
Whether (Incremental Revenue) ≥ (Incremental cost) ?

Yes → Sell the product after further processing

NO → Sell the product at split off point

(16) Accounting for By products

i) crediting sales value of By products to Joint cost



	Joint products				Byproduct
	A	B	C	D	E
Sales value at split off point (₹)	7109000	580,000	540,000	620,000	60,000

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 Miss. income & ₹10,00,000 will be apportioned over Joint products A, B, C, D.

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	products			Total
	A	B	C	
(a) Quantity produced (units)	50	100	150	300
(b) selling pair p.u. at split off point (₹)	2	3	4	
(c) Sales value at split off point (a x b) (₹)	100	300	600	1,000
(d) That has apportioned	90	270	540	900
(e) profit (₹) (c - 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	products		Total
	A	B	
(a) Quantity produced (units)	300	200	500
(b) Final selling price p.m. (₹)	8	10	
(c) Final sales value (₹) (a x b)	2,400	2,000	4,400
(d) Joint wstappo.in the ratio of Final sales value (6 : 5)	1,920	1,600	3,520

Question 3: Marginal cost = Differential cost = Additional cost = variable cost

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. Total joint cost = ₹ 8,300/ Total joint cost 8,3001

Statement showing apportionment of Joint cost Marginal cost & contribution method and calculation of profit (Loss)

particulars	products A	products B	Total
a) Quantity produced & sold	100 kgs legs	120 kgs legs	220 kgs legs
b) selling price per kg (₹)	60	30	
c) Sales value (₹) (a x b)	6,000	3,600	9,600
d) Marginal cost i.e vasi Inflation.EE items	2,000	2,900	4,400
e) contribution (c-d) (₹)	4,000	1,200	5,200
f) Fixed Joint cost apportioned in the ratio of contribution 10:3 (₹)	3,000	900	3,900
g) profit / (Loss) (e-f) (₹)	1,000	300	1,300

Joint cost apportioned in the ratio of sales value 6:6 (₹)

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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.

(i) Calculation of Gross profit after crediting sales value of By product to :

i) cost of production

particulars	Amt (₹)
(a) cost of production of 300 units of main product	4,500
(b) Sales value of By product	600
(c) Net cost of production after crediting sales value of By product (a-b)	3,900
(d) closing stock value (₹3900 / 300 units × 100 units) 5 89 5	1,300
(e) cost of sales (c-d)	2,600
(f) sales value (200 units × ₹30 p.u.)	6,000
(g) Gross profit (f-e)	3,400

ii) cost of sales

particulars	Amt (₹)
(a) cost of production of 300 units of main product	4,500
(b) closing stock value (₹4500 / 300 units × 100 units) 15	1,500
(c) cost of sales (a-b)	3,000
(d) sales value of By product	600
(e) Net cost of sales after crediting sales value of By product (c-d)	2,400
(f) sales value (200 units × ₹30 p.u.)	6,000
(g) profit / (loss) (f-e)	3,600

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.

Statement showing apportionment of Joint cost by Reverse cost method

Reverse cost = (Final sales value − Estimated profit − Subsequent processing cost)

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particulars	products A	B	C	Total
(a) Final sales value (₹)	10,000	7,000	6,000	23,000
(b) Estimated profit % onsales	20 %	30 %	40 %	
(c) Estimated profit (₹) (axb)	2,000	2,100	2,400	6,500
(d) Subsequent 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 of Reverse cost (₹) 7:4:3	6,300	3,600	2,700	12,600

(g)	Total cost (F) (dtf)	7,300	4,500	3,300	15,100
(h)	profit (Loss) (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 Joint cost attributable to By-products

BIC

Particulars	By-products B	By-products C
(a) Final sales value (₹)	10,000	5,000
(b) Esti. profit % on sales	25%	20%
(c) Estimated profit (₹) (a × b)	2,500	1,000
(d) Further processing cost (₹)	770	630
(e) Joint cost attributable to By-products (a - c - d) (₹)	6,730	3,370
(f) Joint cost attributable to Main product - A	= ₹20,600 − (₹6730 + ₹3370) = ₹10,500/-	

② Statement showing calculation of profit of Main product A

Particulars	Amt (₹)
(a) Final sales value	15,000
(b) Joint cost attributable to Main product - A (Refer ①)	10,500
(c) Further processing cost of A	1,000
(d) Total cost of main product - A (b+c)	11,500
(e) Profit earned on Main product - A (a - d)	3,500/-

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 Joint cost attributable to By products A & B

Particulars	By products A	By products B
(a) Final sales value (₹)	64,000	96,000
(b) Estimated profit % on sales	20%	30%
(c) Estimated profit (₹) (a×b)	12,800	28,800
(d) Estimated selling expenses as a % of sales	10%	15%
(e) Estimated selling expenses (₹) (a×d)	6,400	14,400
(f) Cost incurred after point of separation (₹)	12,800	14,900
(g) Joint cost attributable to By products (₹) (a − c − e − f)	32,000	38,900
(h) Joint cost attributable to Main product − X	= ₹ 3,10,400 − (₹32,000 + ₹38,900) = ₹ 240,000/-	

(2) Comparative profit & Loss statement

particulars	Main product	By products A	By products B	Total
(a) Final sales value (E)	8100,000	69,000	96,000	9,60,000
(b) Joint cost attributed (E)	240,000	32,000	38,400	3,10,400
(c) Further processing cost (i.e. cost incurred after point of separation) (E)	80,000	12,800	14,900	1,07200
(d) Estimated selling expenses	160,000 (800,000 x 20%) 8,090	6,400	14,900	1,80,800
(e) Total cost (btctd) (E)	9180,000	51,200	67,200	598,400
(f) Estimated profit / (Loss) (E) (a - e)	320,000	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	Amt (₹)
(a) Cost of crude oil used (500000 litres × ₹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 (at bt state)	5,54,000

② Statement showing net Joint cost after crediting sales value of By products to Joint cost

Particulars	Amt (₹)
(a) Total Joint cost (Refer ①)	554,000
(b) Sales value of By products	
i) Lubricating oil : 50,000 litres × ₹ 2.00	1,00,000
ii) Fuel oil : 2,50,000 litres × ₹ 1.00	2,50,000
iii) Kerosene oil : 30,000 litres × ₹ 0.80	29,000
Sub-total (b)	3,74,000
(c) Net Joint cost after crediting sale value of By products to Joint cost (a - b)	1,80,000

③ weekly cost-sheet showing profit earned on Main product-petrol

particulars	Amt (₹)
(a) Sales value of Main product petrol (1,50,000 litres × ₹2.50 per litre)	3,75,000
(b) Net Joint cost attributable to main product (Refer ②)	1,80,000
(c) profit (a-b)	1,95,000

④ calculation of percentage of each product to the weight of crude oil used

particulars	calculations	%
(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 / 500,000 litres × 100)	6%
(e) process Loss	Balancing figure	4%
(f) Total		100%

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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.

Also prepare profitability statement based on Your decision.

(1) Statement of profitability when :

i) products are sold at split off point

particulars	products				Total
	AOXE	BOXE	COXE	DOXE	
(a) Quantity produced in litres	8,000	4,000	2,000	4,000	18,000 litres
(b) selling price per litre at split off point (₹)	15·00	6.00	3.00	7.50	
(c) Sales value at split off point (₹) (a×b)	1,20,000	24,000	6,000	30,000	180,000
(d) Joint cost apportioned in the ratio of sales value at split off point (20:4:1:5)	98,667	19,733	4,933	24,667	1198,000
(e) profit (₹) (c-d)	21,333	4,267	1,067	5,333	32,000

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ii) products are sold after further processing

particulars	products				Total
	AOXE	BOXE	COXE	DOXE	
(a) Final sales value (₹)	1,72500	15,000	6,000	45,000	238,500
(b) Further processing cost (₹)	43,000	9,000	–	1,500	53,500
(c) Joint cost (₹) apportioned (refer above)	98,667	19,733	4,933	24,667	1,48000
(d) Total cost (₹) (b+c)	1,41667	28,733	4,933	26,167	2,01500
(e) profit/(Loss) (a-d) (₹)	30,833	(13,733)	1,067	18,833	37,000

② Decisions regarding further processing of each product

particulars	products			
	AOXE	BOXE	COXE	DOXE
ⓐ Find sales value (F)	172,500	15,000	6,000	45,000
ⓑ Sales value at split off point (F)	120,000	29,000	6,000	30,000
ⓒ Incremental Revenue (Egements)	52,500	19,000	—	15,000
ⓓ Incremental cost (i.e FPS) (F)	43,000	9,000	—	1,500
ⓔ Incremental profit (Loss) (c-d)	9,500	18,000	—	13,500
ⓕ whether to further process ?	yes	No	No	Yes

From above table It is clear that AOXE, DOXE should be further processed & sold whereas BOXE, COXE should be sold at split off point

③ profitability statement based on above decision (F)

particulars	products				Total
	AOXE	BOXE	COXE	DOXE	
ⓐ Sales value	172,500	29,000	6,000	45,000	2,97500
ⓑ Further Esthesing wst	43,000	—	—	1,500	44,500
ⓒ Joint cost apportioned	98,667	19,733	4,933	24,667	148,000
ⓓ Total cost (b+c)	191,667	19,733	4,933	26,167	192,500
ⓔ profit (a-d)	30,833	4,267	1,067	18,833	55,000

Question 10: (very important)

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; (physical output method) physical output

ii. By the market value of production (sales value at split off point) sales value at split off point

working note i)

working

$$\text{cost per kg of output of process - I} = \frac{\text{Total cost incurred} - \text{Realisable value of normal scrap}}{\text{Total input Quantity} - \text{Normal loss Quantity}}$$

$$= \frac{(₹10,000 + ₹6,250 + ₹4,500) - ₹500}{2500\text{kgs} - 250\text{kgs}} = \frac{₹20,750 - ₹500}{2500\text{kgs} - 250\text{kgs}}$$

$$= \frac{₹20,250}{2,250\text{kg}} = ₹9 \text{ per kg.}$$

per kg

① Process - I A/c for April - 2017

Dr

particulars	kgs	Rate (₹)	Amt (₹)	particulars	kgs	Rate (₹)	Amt (₹)
To Direct Materials	2,500	4.00	10,000	By Normal Loss (sale of scrap) (2500 × 10%)	250	2.00	500
To Direct Labour			6,250				
To overheads			4,500				
To Abnormal Gain A/c	50 *	9	450	By process - II A/c (units whheted transferred to process - II offers)	2,300	9.00 (WN)	20,700
Total	2,550		21,200	Total	2,550		21,200

② Abnormal Gain A/c

Dr

particulars	kgs	Rate (₹)	Amt (₹)	particulars	kgs	Rate (₹)	Amt (₹)
To Normal Loss	50	2.00	100	By process - I A/c	50	9	450
To costing P & L A/c			350 *				
Total	50		450	Total	50		450

③ Statement showing calculation of Joint cost

particulars	Amt (₹)
(a) cost of 2300 kgs transferred to process - II from process - I (2300 kgs × ₹9 per kg)	20,700
(b) Direct Labour	6,900
(c) overheads	6,900
(d) Total Joint cost (a+b+c)	34,500

④ Statement showing profit attributable to each of Joint product after apportionment of Joint cost by :

i) physical output method

particulars	Joint products A	B	C	Total
a) Quantity produced Kgs	900	800	600	2,300
b) selling price per kg (₹)	24	18	12	
c) Sales value of at split off point (a x b) (₹)	21,600	14,400	7,200	43,200
d) Joint cost apportioned in the ratio of weight of output (9 : 8 : 6) (₹)	13,500	12,000	9,000	34,500
e) profit (Loss) (c - d) (₹)	8,100	2,400	(1,800)	8,700

ii) sales value at split off point

particulars	Joint products A	B	C	Total
a) Quantity produced Kgs	900	800	600	2,300
b) selling price per kg (₹)	24	18	12	
c) Sales value of at split off point (a x b) (₹)	21,600	14,400	7,200	43,200
d) Joint cost apportioned in the ratio market value of production (3 : 3 : 1) (₹)	17,250	11,500	5,750	34,500
e) profit (Loss) (₹)	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 Basic data

Joint cost = ?

Dept A

Input output ratio = 100 : 90

Dept : A
100 : 90
? : 13,50,000 kgs

product - J
5,00,000 legs

product K
8,50,000 kgs

Further processing in Dept B

input output ratio = 100 : 95

product N
4,75,000 legs

Dept : B
100 : 95
? : 19,55,000

② Statement showing calculation of Raw material consumed in Dept A

particulars	legs
(a) Quantity of product - N produced in Dept - B	4,75,000
(b) Quantity of Raw material consumed by Dept B (i.e Quantity of product J produced in Dept A) (4,75,000 × 100/95)	5,00,000
(c) Quantity of products J & K produced in Dept A (5,00,000 kgs + 8,50,000 kgs)	13,50,000
(d) Raw material consumed in Dept A (13,50,000 kgs / 90) × 100	15,00,000
(e) cost of raw material consumed in Dept A (₹) (d × ₹16)	240 lakhs

③ Statement showing calculation of Joint cost

particulars	Amt (₹ in lakhs)
(a) cost of raw material consumed (refer 2)	240
(b) Direct material	10
(c) Direct wages	15
(d) variable overheads	20
(e) Fixed overheads	25
(f) Total Joint cost (a+b+c+d+e)	310

④ Statement showing apportionment of Joint cost

particulars	product - J	product - K	Total
(a) Quantity produced (kgs)	500,000	8150,000	13,50,000
(b) selling price per kg (₹)	29.40	26.00	
(c) Sales value at split off point (₹) (a×b)	1,4700,000	2,2100,000	3,6800,000
(d) selling expenses (₹)	100,000	200,000	300,000
(e) Net sales value at split off point (c-d) (₹)	1,9600,000	2,1900,000	3,6500,000
(f) Joint cost apportioned in the ratio of net sales value at split off point	1,2900,000	1,8600,000	3,1000,000

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⑤ Decision regarding further processing of product J in to product N in Dept B

particulars	Amt (₹)
(a) Final sales value (475000 kgs of N × ₹ 31.50)	1,47,62,500 (1,49,62,500 − 80,000)
(b) Sales value at split off point (net) (500000 kgs of product J × ₹ 29.40 per kg)	1,4600,000 (1,4700,000 − 1,00,000)
(c) Incremental Revenue (a-b)	1,62,500
(d) Incremental cost (cost of running Dept B (3+5+7+10) lakhs	2500,000
(e) Incremental profit / (Loss) (c-d)	(23,37,500)

From above table it is clear that product J should not be processed in Dept - B and it is better to sell product - J at split off point.

Note :

we have assumed that, If we do not further process product J into product N in Dept B then, Dept - B can be closed down & company can save ₹2500,00,01

(G) profitability statement based on above decision

particulars	product J	product K	Total
(a) Net sales value of products (₹)	1,96,00,000	2,19,00,000	3,65,00,000
(b) Joint cost apportioned (Refer (4)) (₹)	1,29,00,000	1,86,00,000	3,10,00,000
(c) profit / (Loss) (₹) (a-b)	2200,000	3300,000	5500,000

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 calculation of Joint cost

= cost of salt + conversion cost

= ₹60,000 + ₹40,000 = ₹1,00,000

② statement showing apportionment of Joint cost

particulars	caustic soda	chlorine (PVC)	Total
(a) Quantity produced at split off point	1,200 tons	800 tons of chlorine	2,000 tons
(b) Joint cost apportioned in the ratio of physical output 3:2 (E)	60,000	40,000	1,00,000
(c) selling price per ton at split off point (E)	50.00	75.00	

(d) Sales value at split off point (₹) (axc)	60,000	60,000	120,000
(e) Joint cost apportioned in the ratio of sales value at split off point (1:1) (₹)	50,000	50,000	100,000
(f) Final sales value (₹)	60,000 (1200 tons of caustic soda x ₹50 per ton) EE	1,00,000 (500 tons of PVC x ₹200 per ton) EEE	1,60,000
(g) Further processing cost (₹)	—	20,000	20,000
(h) NRV at split off point (₹) (f-g)	60,000	80,000	1,40,000
(i) Joint cost apportioned in the ratio of NRV at split off point (3:4)	42,857	57,143	1,00,000

③ Decision regarding further processing of 800 tons of chlorine into 500 tons of PVC

particulars	Amt (₹)
ⓐ Final sales value of PVC (500 tons of PVC × ₹ 200 per ton)	1,00,000
ⓑ Sales value at split off point (800 tons of chlorine × ₹ 75 per ton)	60,000
ⓒ Incremental Revenue (a − b)	40,000
ⓓ Incremental cost	20,000
ⓔ Incremental profit / (Loss)	20,000
ⓕ profit lost if we accept the offer of Lifetime swimming pool products	20,000

From above table it is clear that : offer 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.

Joint cost = ₹ 41,37000

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 out of adoption of that plan.

① Statement showing income before cost assuming

i) products are sold after further processing

particulars	products A	B	C	D	E	Total
a) Quantity (units)	200,000	30,000	25,000	20,000	75,000	3,50,000
b) Final selling price p.u. (₹)	25	17	12	10	20	
c) Final sales value (₹) (axb)	5000,000	510,000	300,000	200,000	1500,000	75,10,000
d) Further processing cost (₹)	1250,000	150,000	50,000	—	150,000	16,09000
e) NRV at split off point (c-d)	3750,000	3,60,000	250,000	200,000	1350,000	59,10,000
f) Joint cost apportie in ratio of NRV (375:36:25:20:135)	26,25000	2,52,000	175,000	140,000	9,45000	41,37000 (3s 3590,000 + 5,47,000)
g) Total wst (₹) (d+f)	38,75000	4,02000	2,25000	190,000	10,95000	57,37000
h) profit (c-g)	11,25000	108,000	75,000	60,000	9,05000	17,73,000

Net profit = 17,73,000 − Fixed cost = 17,73000 − 4,73000 = 13,00000

(ii) products are sold at split off point

particulars	products A	B	C	D	E	Total
(a) Quantity produced (units)	200,000	30,000	25,000	20,000	75,000	350,000
(b) selling price at split off point (₹)	17	13	8	10	14	
(c) Sales value at split off point (₹) (a x b)	3400000	390000	200000	200000	1050000	5240000
(d) Joint cost appo. in the ratio of NRV (Refer i)	2625000	252000	175000	190000	995000	4137000
(e) profit / (Loss) (c-d)	775000	138000	25000	60000	105000	1103000
(f) Less: Fixed cost (₹)						473000
(g) Net profit (₹)						630000

(2) Decisions regarding further processing of each product

particulars	products A	B	C	D	E (₹)
(a) Final sales value	5000000	510000	300000	200000	1500000
(b) Sales value at split off point	3400000	390000	200000	200000	1050000
(c) Incremental Revenue (₹) (a-b)	1600000	120000	100000	—	450000
(d) Further processing cost (i.e. Incr cost)	1250000	150000	50000	—	150000
(e) Incr. Profit / (Loss)	350000	(30000)	50000	—	300000
(f) whether to further process ?	Yes	No	Yes	No	Yes

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.

③ Profitability statement based on above decision

particulars	products A	B	C	D	E	Total
ⓐ Sales value (F)	5000,000	390,000	300,000	200,000	1500,000	7390,000
ⓑ Further processi cost (E)	12,501000	—	50,000	—	1,50000	14,50000
ⓒ Joint cost apportioned (E)	26,25000	2,52000	1,75000	140,000	9,45000	41,37000
ⓓ Total cost (btc) Toff)	38,750002	52,000	2,25000	140,000	10,95000	5587,000
ⓔ profit / (Loss) (a-d)	11,25000	138,000	75,000	60,000	4,05000	18,03000
ⓕ Less : Fixed cost						4,73000
ⓖ Net profit						1330,0001

Question 14: (Important)

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 Basic data

Raw material: Brimco = 1,92,000
+ D.L. = 28,000
+ manu. OH = 20,000
Total Joint cost = ₹ 2,40,000

Dept – 1

Dept

X → 4 (Further processed in Dept 4)

Y → 2

Σ → 3

(2) Statement showing calculation of Joint cost to be allocated to products - X, Y, Z

particulars	Amt (₹)
(a) cost of raw material Brimco used	192,000
(b) Direct Labour of Dept-1	28,000
(c) manufacturing o/h of Dept-1	20,000
(d) Total Joint cost (a+b+c)	240,000

(3) Statement showing allocation of Joint cost

particulars	products X	products Y	products Z	Total
(a) Quantity produced (in litres)	60,000	60,000	120,000	240,000
(b) Quantity on hand on 30.09.18	20,000	0	30,000	50,000
(c) Quantity sold (a-b) (litres)	40,000	60,000	90,000	190,000
(d) Sales (₹)	60,000	1,92,000	2,83,500	535,500
(e) selling price per litre (₹) (d/c)	1.50	3.20	3.15	
(f) sales value of Quantity produced (axe) (₹)	90,000	192,000	378,000	660,000
(g) Further processing cost (₹)	0	1,32,000 (Dept-2) p	2,28,000 (Dept-3) p	369000
(h) NRV (i.e. market value) at split off point (f-g) (₹)	90,000	60,000	150,000	3,00000
(i) Joint cost apportioned in the ratio of NRV at split off point (3:2:5)	72,000	48,000	120,000	240,000

(4) Decision regarding further processing of product - x in sept 4

particulars	Amt (₹)
(a) Final selling price per litre of product - x after further processing in Dept 4	2.50
(b) selling price per litre of product - x at split off point	1.50
(c) Incremental revenue per litre (a-b)	1.00
(d) Incremental cost per litre of further processing in Dept 4	1.20
(e) Incr. profit / (Loss) per litres (c-d)	(0.20)

considering incr. Loss of ₹ 0.20 per litre on further processing, we can say that management has taken correct decision in selling product - x at split off point

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.

Decisions regarding further processing for each product

particulars	products				
	A	B	C	D	E
a. selling price p.u. at split off point (₹)	5	9	18	20	26
b. Final selling price p.u. (₹)	8	10	20	23	30
c. Incremental Revenue per unit (₹) (b-a)	3	1	2	3	4
d. Quantity produced & sold	5,000	10,000	15,000	25,000	30,000
e. Incremental Revenue (c×d) (₹)	15,000	10,000	30,000	75,000	120,000
f. Incremental cost (i.e. further processing cost) (₹)	5000	13000	18,000	90,000	50,000
g. Incremental profit / (Loss) (₹) (e-f)	10,000	(3,000)	12,000	(15,000)	70,000
h. whether to further process or not ?	Yes	No	Yes	No	Yes

Decisions regarding further processing can be taken without knowing Joint cost also.

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 & calculation of profit / (Loss) for each product

particulars	Joint products A	B	C	Total
(a) Quantity produced (kgs)	300	500	200	1,000
(b) selling price per kg (₹)	1000	600	1500	
(c) Sales value (₹) (axb)	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	9,00,000 (6,00,000 - 2,00,000)
(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 (3:5:11) (₹)	72,000	40,000	88,000	2,00,000
(g) profit / (Loss) (e-f) (₹)	1,08,000	60,000	1,32,000	3,09000

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.

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

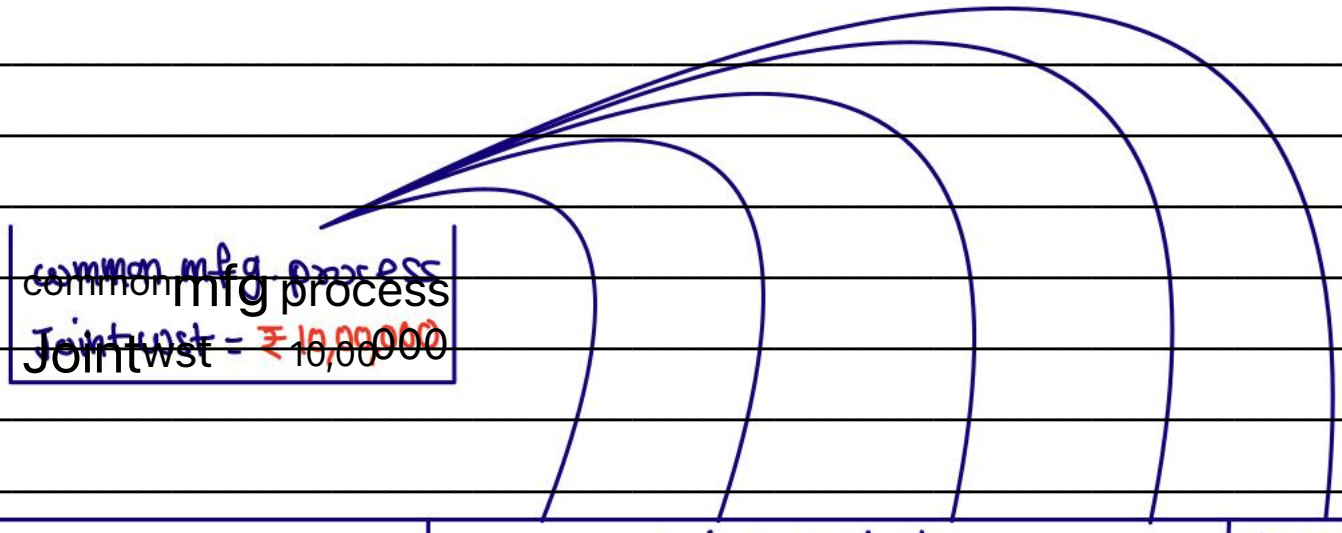
particulars	Joint products A	Joint products B	Total
(a) Quantity produced & sold (kgs)	1,000	800	1,800
(b) selling price per kg (₹)	60	50	
(c) Sales value (axb) (₹)	60,000	90,000	1100,000
(d) variable (marginal) Joint cost appo in the ratio of sales volume (5:4) (₹)	8,333.3333	6666.6666	15,000
(e) contribution (₹) (c – d)	51,666.6666	33,333.3333	85,000
(f) Fideed Joint cost apportioned in the ratio of contribution (51666.6666 : 33,333.333333)	6,078.93	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 products				By product
	A	B	C	D	E
sales value at split off point (₹)	7109000	580,000	540,000	620,000	60,000

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 = ₹9,90,000

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.