PYQ MAY 19_5M_1c

A Factory is engaged in the production of chemical Bomex and in the course of its manufacture a by-product Cromex is produced which after further processing has a commercial value. For the month of April 2019 the following are the summarised cost data:

	Joint Expenses (₹)	Separate Expenses (₹)	
		Bomex	Cromex
Materials	1,00,000	6,000	4,000
Labour	50,000	20,000	18,000
Overheads	30,000	10,000	6,000
Selling Price per unit		100	40
Estimated profit per unit on sale of Cromex			5
Number of units produced		2,000 units	2,000 units

The factory uses net realisable value method for apportionment of joint cost to by-products.

You are required to prepare statements showing :

(i) Joint cost allocable to Cromex

(ii) Product wise and overall profitability of the factory for April 2019.

Solution:

(i) Statement Showing Joint Cost Allocation to 'Cromex'

Particulars	Cromex (₹)
Sales (₹ 40 × 2,000 units)	80,000
Less: Post Split Off Costs (4,000+18,000+6,000)	(28,000)
Less: Estimated Profit (₹ 5 × 2,000 units)	(10,000)
Joint cost allocable	**42,000**

(ii) Statement Showing Product Wise and Overall Profitability

Particulars	Bomex (₹)	Cromex (₹)	Total (₹)
Sales	2,00,000	80,000	2,80,000
Less: Share in Joint Expenses	**(1,38,000)***	(42,000)	(1,80,000)
Less: Post Split Off Costs	(36,000)	(28,000)	(64,000)
Profit	**26,000**	**10,000**	**36,000**

(*) 1,80,000 – 42,000

PYQ NOV 19_5M_1c

A Factory produces two products, 'A' and 'B' from a single process. The joint processing costs during a particular month are :

Direct Material	*₹30,000*
Direct Labour	*₹ 9,600*
Variable Overheads	*₹ 12,000*
Fixed Overheads	*₹ 32,000*

Sales: A- 100 units@ ₹ 600 per unit; B – 120 units @ ₹ 200 per unit.

I. Apportion joints costs on the basis of:

(i) Physical Quantity of each product.

(ii) Contribution Margin method, and

II. Determine Profit or Loss under both the methods.

Solution:

Total Joint Cost

	Amount (₹)
Direct Material	30,000
Direct Labour	9,600
Variable Overheads	12,000
Total Variable Cost	51,600
Fixed Overheads	32,000
Total joint cost	83,600

Apportionment of Joint Costs:

			Product-A	Product-B
I.	(i)	Apportionment of Joint Cost on the basis of 'Physical Quantity'	**₹ 38,000** $\left(\frac{₹\,83,600}{100+120\,\text{units}}\times 100\right)$	**₹ 45,600** $\left(\frac{₹\,83,600}{100+120\,\text{units}}\times 120\right)$
	(ii)	Apportionment of Joint Cost on the basis of 'Contribution Margin Method':		
		- Variable Costs (on basis of physical units)	**₹ 23,455** $\left(\frac{₹\,51,600}{100+120\,\text{units}}\times 100\right)$	**₹ 28,145** $\left(\frac{₹\,51,600}{100+120\,\text{units}}\times 120\right)$
		Contribution Margin	**36,545** (₹600×100 – 23,455)	**-4,145** (₹200×120 – 28,145)
		Fixed Costs*	₹ 32,000	
		Total apportioned cost	₹ 55,455	₹ 28,145

II.	**(iii)**	**Profit or Loss:**		
	When Joint cost apportioned on basis of physical units			
	A.	Sales Value	₹ 60,000	₹ 24,000
	B.	Apportioned joint cost on basis of 'Physical Quantity':	₹ 38,000	₹ 45,600
	A-B	**Profit or (Loss)**	**22,000**	**(21,600)**
	When Joint cost apportioned on basis of 'Contribution Margin Method'			
	C	Apportioned joint cost on basis of 'Contribution Margin Method'	₹ 55,455	₹ 28,145
	A-C	**Profit or (Loss)**	₹ 4,545	₹ (4,145)

* The fixed cost of ₹ 32,000 is to be apportioned over the joint products A and B in the ratio of their contribution margin but contribution margin of Product B is Negative so fixed cost will be charged to Product A only.

PYQ NOV 20_5M_1c

A company's plant processes 6,750 units of a raw material in a month to produce two products 'M' and 'N'.

The process yield is as under:

Product M 80%

Product N 12%

Process Loss 8%

The cost of raw material is ₹ 80 per unit.

Processing cost is ₹ 2,25,000 of which labour cost is accounted for 66%. Labour is chargeable to products 'M' and 'N' in the ratio of 100:80.

Prepare a Comprehensive Cost Statement for each product showing:

(i) Apportionment of joint cost among products 'M' and 'N' and

(ii) Total cost of the products 'M' and 'N'.

Solution:

Comprehensive Cost Statement

Particulars	Total Cost (₹)	Product-M (₹)	Product-N (₹)
No. of units produced *		5,400 units	810 units
Cost of raw material (₹ 80 × 6,750 units)	5,40,000		
Processing cost:			
- Labour cost (₹ 2,25,000 × 66%)	1,48,500		
- Other costs (₹ 2,25,000 - 1,48,500)	76,500		
Total joint cost	**7,65,000**		
(i) Apportionment of joint costs between the joint products			
Labour cost in the ratio of 100:80	1,48,500	**82,500** $\left(\frac{1,48,500\times100}{180}\right)$	**66,000** $\left(\frac{1,48,500\times80}{180}\right)$
Other joint costs (including material) in the ratio of output (5,400:810)	6,16,500	**5,36,087** $\left(\frac{6,16,500\times5,400}{6,210}\right)$	**80,413** $\left(\frac{6,16,500\times810}{6,210}\right)$
(ii) Total product cost	7,65,000	**6,18,587**	**1,46,413**

* No. of units produced of Product M = 6750 units x 80% = 5400 units

No. of units produced of Product N = 6750 units x 12% = 810 units

PYQ JAN 21_10M_4b

Mayura Chemicals Ltd buys a particular raw material at ₹ 8 per litre. At the end of the processing in Department- I, this raw material splits-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 before they can be sold. Product Y is processed in Department-2, and Product Z is processed in Department-3. Following is a summary of the costs and other related data for the year 2019-20:

Particulars	**Department**		
	1	**2**	**3**
Cost of Raw Material	₹ 4,80,000	-	-
Direct Labour	₹ 70,000	₹ 4,50,000	₹ 6,50,000
Manufacturing Overhead	₹ 48,000	₹ 2,10,000	₹ 4,50,000
	Products		
	X	**Y**	**Z**
Sales (litres)	10,000	15,000	22,500
Closing inventory (litres)	5,000	-	7,500
Sale price per litre (₹)	30	64	50

There were no opening and closing inventories of basic raw materials at the beginning as well as at the end of the year. All finished goods inventory in litres was complete as to processing. The company uses the Net-realisable value method of allocating joint costs.

You are required to prepare:

(i) Schedule showing the allocation of joint costs.

(ii) Calculate the Cost of goods sold of each product and the cost of each item in Inventory.

(iii) A comparative statement of Gross profit. ***(10 Marks)***

(i) Statement of Joint Cost allocation of inventories of X, Y and Z

	Products			Total (₹)
	X (₹)	Y (₹)	Z (₹)	
Final sales value of total production (Working Note 1)	4,50,000 (15,000 x ₹ 30)	9,60,000 (15,000 x ₹ 64)	15,00,000 (30,000 x ₹ 50)	29,10,000
Less: Additional cost	--	6,60,000	11,00,000	17,60,000
Net realisable value (at split-off point)	4,50,000	3,00,000	4,00,000	11,50,000
Joint cost allocated (Working Note 2)	2,34,000	1,56,000	2,08,000	5,98,000

(ii) Calculation of Cost of goods sold and Closing inventory

	Products			Total (₹)
	X (₹)	Y (₹)	Z (₹)	
Allocated joint cost	2,34,000	1,56,000	2,08,000	5,98,000
Add: Additional costs	--	6,60,000	11,00,000	17,60,000
Cost of goods sold (COGS)	2,34,000	8,16,000	13,08,000	23,58,000
Less: Cost of closing inventory (Working Note 1)	78,000 (COGS × 100/3%)	--	3,27,000 (COGS × 25%)	4,05,000
Cost of goods sold	1,56,000	8,16,000	9,81,000	19,53,000

(iii) Comparative Statement of Gross Profit

	Products			Total (₹)
	X (₹)	Y (₹)	Z (₹)	
Sales revenue	3,00,000 (10,000 x ₹ 30)	9,60,000 (15,000 x ₹ 64)	11,25,000 (22,500 x ₹ 50)	23,85,000
Less: Cost of goods sold	1,56,000	8,16,000	9,81,000	19,53,000
Gross Profit	**1,44,000**	**1,44,000**	**1,44,000**	4,32,000

Working Notes:

1. Total production of three products for the year 2019-2020

Products	Quantity sold in litres	Quantity of closing inventory in litres	Total production	Closing inventory percentage (%)
(1)	(2)	(3)	(4) = [(2) + (3)}	(5) = (3)/ (4)
X	10,000	5,000	15,000	100/3
Y	15,000	--	15,000	--
Z	22,500	7,500	30,000	25

2. Joint cost apportioned to each product:

$$= \frac{\text{Total Joint cost}}{\text{Total Net Realisable Value}} \times \text{Net Realisable Value of each product}$$

$$\text{Joint cost of product X} = \frac{₹\ 5,98,000}{₹\ 11,50,000} \times ₹\ 4,50,000 = ₹\ 2,34,000$$

$$\text{Joint cost of product Y} = \frac{₹\ 5,98,000}{₹\ 11,50,000} \times ₹\ 3,00,000 = ₹\ 1,56,000$$

$$\text{Joint cost of product Z} = \frac{₹\ 5,98,000}{₹\ 11,50,000} \times ₹\ 4,00,000 = ₹\ 2,08,000$$

Joint Product & By Product

- Intention to Produce
- No Intention to Produce

crude oil	x
conversion	x
Joint cost	x

Petrol, Diesel → Joint Product
Wax → By Product

JP & BP

- Apportionment of JC
- FP Decision
- Treatment of By product.

1. Apportionment of JC

Is information of Profit given?

Yes

- Prepare reverse cost sheet to get Joint cost

Sales	x
- Profit	x
Total cost	x
- Selling Exp	(x)
- FP cost	(x)
Joint cost	x

No

- Question has specified the method
  1. Sales value at SOP
  2. NRV { Sales after FP − FP cost }
  3. Physical measure (units)
  4. Contribution margin method { VC : units ratio; FC : contribution ratio }
- Question has not specified the method
  1. Sales value at SOP
  2. NRV { Sales after FP − FP cost }
  3. Physical measure (units)

2. Further Processing Decision

Incremental Approach

Sales after FP	x
Sales at SOP	x
Incremental Sales	x
Incremental FP cost	(x)
Incremental Profit / (loss)	x / (x)

- Profit: Sales after FP
- (loss): Sale at SOP

Total Approach

a) Profit at SOP

Sales at SOP	x
- Joint cost	(x)
	x

b) Profit after FP:

Sales after FP	x
- Joint cost	(x)
- FP cost	(x)
	x

IF (a) is higher: Sale at SOP
IF (b) is higher: Sale after FP

3. Treatment of By Product

Treated as Scrap

Total Joint cost	x
- NRV of By Product	(x)
Net Joint cost	x

will be apportioned between Joint Products.
(Petrol & Diesel)

Treated as main product

Total Joint cost (x)

will be apportioned between Joint Products & By Product
(Petrol, Diesel & wax).

MAY 19

1. Joint cost of Cromex:

Sales	(2000 x 40)	80,000
Profit	(2000 x 5)	(10,000)
Total cost		70,000
- FP cost		(28000) (4000 + 18000 + 6000)
Joint cost of Cromex		42000

(WN-1): Joint cost of Bomex:

Total Joint cost	180,000	(100,000 + 50,000 + 30,000)
- Joint cost of Cromex	(42000)	
Joint cost of Bomex	138000	

2. Profitability:

Particulars	Bomex	Cromex	Total
Sales	200,000 (2000 x 100)	80,000 (2000 x 40)	280,000
- Cost:			
Joint cost	(138000)	(42000)	(180,000)
FP cost	(36000)	(28000)	(64000)
Profit	26000	10,000	36000

Nov 19

(@N-1): Joint cost:

Direct material	30,000
Direct labour	9600
variable OH	12000
variable cost	51600
Fixed OH	32000
	83600

1. Apportionment of Joint cost:

a) Physical Quantity:

Product	units	Joint cost	
A	100	38000	(83600 × 100/220)
B	120	45600	(83600 × 120/220)
Total	220	83600	

b) Contribution margin: — VC : units ratio; FC : contribution ratio

Product	units	variable cost	sales (units × SP)	contribution	Fixed cost
A	100	23455	60,000	36545	32000
B	120	28145	24000	~~(4145)~~	—
Total	220	51600	84000	~~32400~~	32000

(Ratio of units) (Ratio of contribution)

Since contribution is negative for product B. Entire FC will be allocated to Product A.

2. Profitability:

	Physical measure		Contribution margin	
Particulars	A	B	A	B
sales	60,000	24000	60,000	24000
↳ Joint cost	(38000)	(45600)	(55455) (23455+32000)	(28145)
Profit	22000	(21600)	4545	(4145)

Nov 20

(WN-1): Joint cost:

material	(6750 x 80)	540,000
Processing		
· Labour	(225000 x 66%)	148500
· other	(225000 - 148500)	76500
		765000

Labour : 148500 : (100:80)
other Jc : 616500 : units ratio

2. Apportionment of Joint cost:

Products	units	other Jc	+ Labour	= Total Joint Cost
m	5400 (6750 x 80%)	536087	82500 (148500 x 100/180)	618587
N	810 (6750 x 12%)	80413	66000 (148500 x 80/180)	146413
	6210	616500 (540,000+76500)	148500 (100:80)	765000

JAN 21

(WN-1): Summary:

Dept 1

Material	480,000
Labour	70,000
Manufacturing OH	48000
Joint cost	598000

	X	Y	Z
Quantity Produced	15000	15000	30,000
x SP	x 30	x	x
Sales at SOP	450,000	x	x

Dept 2

FP cost	450,000
Labour OH	210,000
	660,000

Dept 3

	650,000
	450,000
	1100,000

	Y	Z
Quantity Produced	15000	30,000
x SP	x 64	x 50
Sales after FP	960,000	1500,000

(WN-2) : Quantity Produced:

Particulars	X	Y	Z
Quantity sold	10,000	15000	22500
+ Closing FG	5000	-	7500
- Opening FG	-	-	-
Quantity Produced	15000	15000	30,000

3. Apportionment of Joint Cost: (NRV method)

Product	(Sales after FP - FP cost)	NRV	Joint Cost
X		450,000	234000
Y	(960,000 - 660,000)	300,000	156000
Z	(1500,000 - 1100,000)	400,000	208000
Total		1150,000	598000

2. COGS & Profit:

Particulars	X	Y	Z
Joint cost	234000	156000	208000
FP cost	-	660,000	1100,000
Cost of production	234000	816000	1308000
- Closing stock	(78000)	-	(327000)
	{234000/15000 x 5000}		(1308000/30,000 x 7500)
COGS	156000	816000	981000
+ Profit	144000	144000	144000
Sales (Qty sold x SP)	300,000	960,000	1125000
	(10,000 x 30)	(15000 x 64)	(22500 x 50)

PYQ NOV 23_5M_1c

XYZ Limited manufactures three joint products A, B and C from a joint process. Product B is sold at split off point whereas product A and C are sold after further processing. 10% of the quantity of product A is lost in further processing. Data regarding these products for the year ending 31st March,2023 are as follows:

	A	B	C
Number of units produced and sold	3,60,000	2,10,000	4,50,000
Selling price per unit at split off point	-	₹ 6	-
Selling price per unit after further processing	₹ 9.50	-	₹ 12
Further processing costs	₹ 8,60,000	-	₹10,40,000

The joint production cost upto the split off point at which A, B and C become separable products is ₹ 57,26,000.

Required:

(i) Prepare a statement showing apportionment of joint cost to the products using Net realizable value method.

(ii) Assume XYZ Limited has received an offer from D Limited to purchase product 'A' at the split off point at ₹ 7 per unit and another company PQR Limited has offered to purchase product 'C' at split off point at 9 per unit.

Advise whether these offers should be accepted or not? ***(5 Marks)***

PYQ MAY 23_10M_4a

ABC Company produces a Product 'X' that passes through three processes: R, S and T. Three types of raw materials, viz., J, K, and L are used in the ratio of 40:40:20 in process R. The output of each process is transferred to next process. Process loss is 10% of total input in each process. At the stage of output in process T, a by-product 'Z' is emerging and the ratio of the main product 'X' to the by-product 'Z' is 80:20. The selling price of product 'X' is ₹60 per kg.

The company produced 14,580 kgs of product 'X'

Material price : Material J @ ₹15 per kg; Material K @ ₹9 per kg.

Material L@ ₹7 per kg Process costs are as follows:

Process	Variable cost per kg (₹)	Fixed cost of Input (₹)
R	5.00	42,000
S	4.50	5,000
T	3.40	4,800

The by-product 'Z' cannot be processed further and can be sold at ₹30 per kg at the split-off stage. There is no realizable value of process losses at any stage.

Required:

Present a statement showing the apportionment of joint costs on the basis of the sales value of product 'X' and by-product 'Z' at the split- off point and the profitability of product 'X' and by-product 'Z. ***(10 Marks)***

PYQ NOV 22_5M_5c

ASR Ltd mainly produces Product 'L' and gets a by-Product 'M' out of a joint process. The net realizable value of the by-product is used to reduce the joint production costs before the joint costs are allocated to the main product. During the month of October 2022, company incurred joint production costs of ₹ 4,00,000. The main Product 'L' is not marketable at the split off point. Thus, it has to be processed further. Details of company's operation are as under:

Particulars	Product L	By- Product M
Production (units)	10,000	200
Selling price per kg	₹ 45	₹ 5
Further processing cost	₹ 1,01,000	-

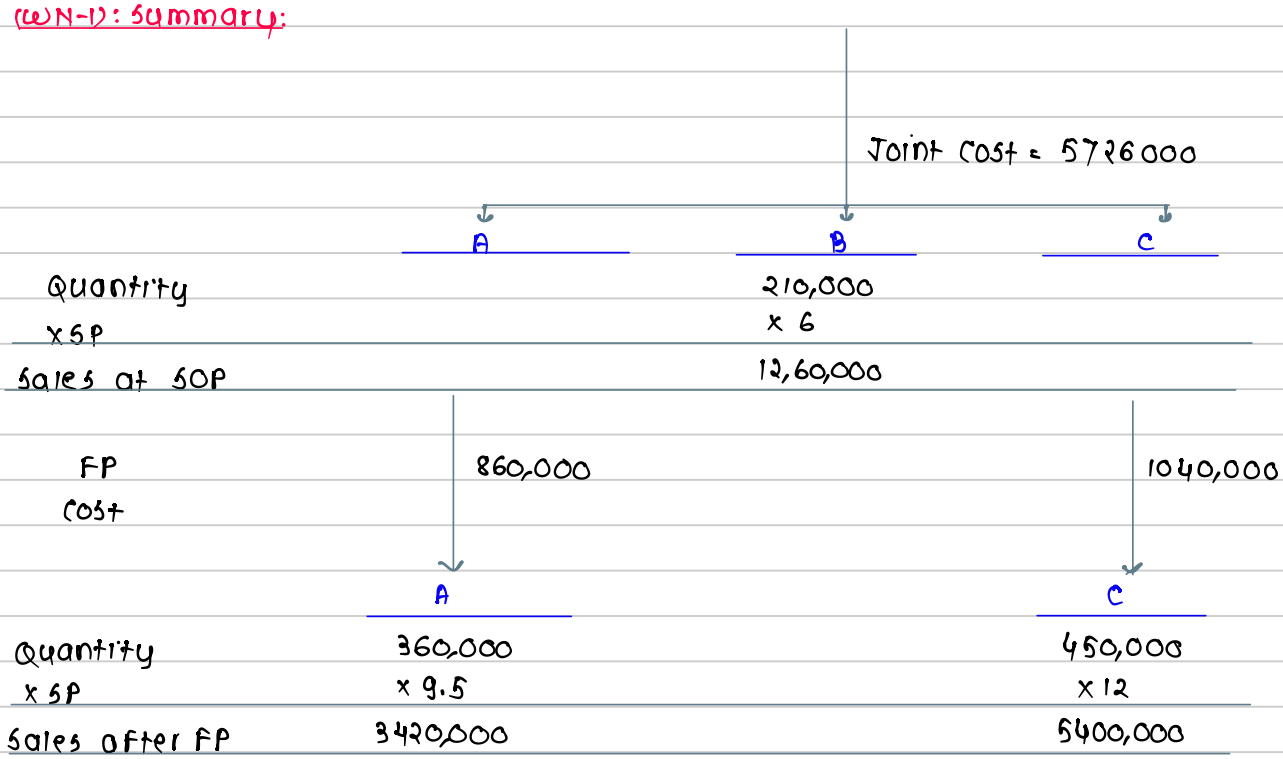
You are required to find out:

(i) Profit earned from Product 'L'.

(ii) Selling price per kg of product 'L', if the company wishes to earn a profit of ₹ 1,00,000 from the above production. ***(5 Marks)***

Nov 23

(W-1): Summary:



1. Apportionment of Joint Cost: (NRV method)

Products	(Sales after FP - FP cost)	NRV	Joint Cost
A	(3420,000 - 860,000)	2560,000	1792000
B		1260,000	882000
C	(5400,000 - 1040,000)	4360,000	3052000
		8180,000	5726000

2. Further Processing Decision:

Particulars	A	C
Sales after FP	3420,000	5400,000
- Sales at SOP (400,000 x 7)	2800,000	4050,000
		(450,000 x 9)
Product A (At SOP) 100 (?)		
- FP Loss (10)		
Product A (After FP) 90 360,000		
Incremental Revenue	620,000	1350,000
- Incremental FP Cost	(860,000)	(1040,000)
Incremental Profit / (Loss)	(240,000)	310,000

Sale at SOP : Product A
Sale After FP : Product C

Decision: Offer to sale product A at SOP should be accepted.
Offer to sale product C at SOP should be rejected.

N 22

(W N-1): Joint cost of Product L:

Total Joint cost	400,000
- NRV of By Product (200 x 5)	(1000)
	399000

1. Profit from Product L:

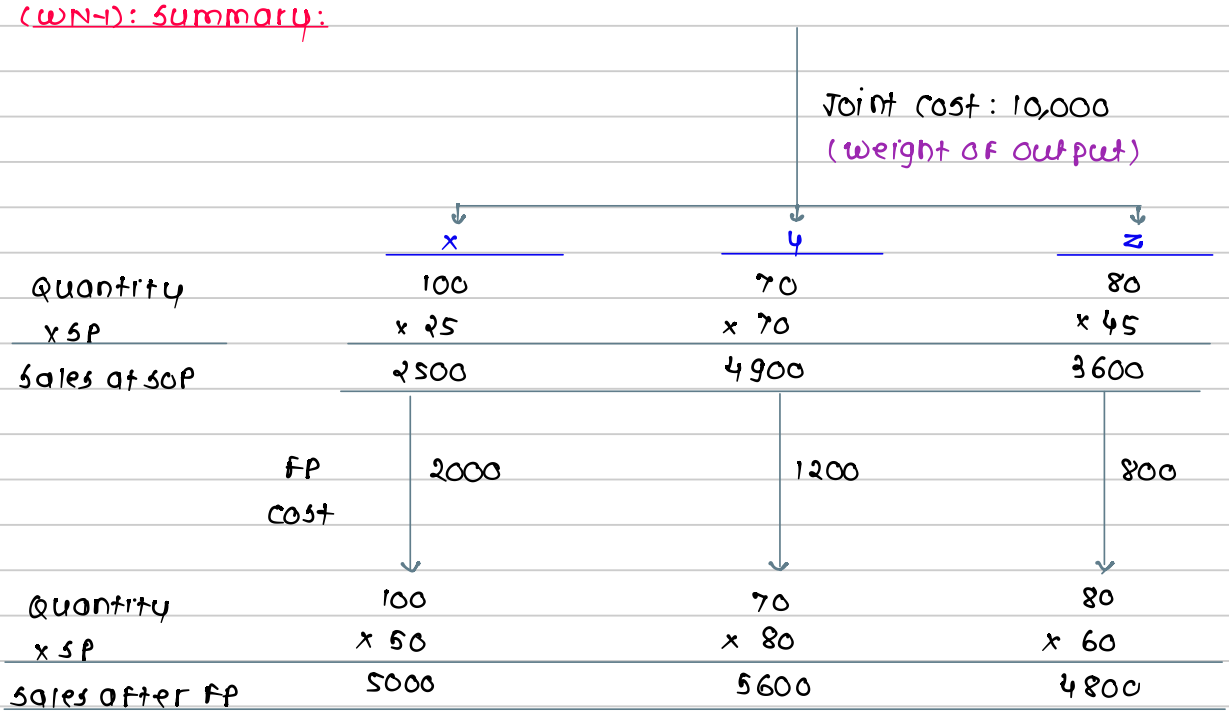
Sales (10,000 x 45)	450,000
- Joint cost (W N-1)	(399000)
- FP cost	(101000)
Loss	(50,000)

2. Selling Price of Product L:

Joint cost (W N-1)	399000
FP cost	101000
Total cost	500,000
Profit	100,000
Sales	600,000
÷ Sales Quantity	÷ 10,000
Selling Price per unit.	60

MAY 22

(WN-1): Summary:



(WN-2): Joint Cost apportionment: (weight of output)

Products	units	Joint Cost
X	100	4000
Y	70	2800
Z	80	3200
	250	10,000

1. Profitability after FP:

Particulars	X	Y	Z
Sales after FP	5000	5600	4800
(-) Joint cost	(4000)	(2800)	(3200)
FP Cost	(2000)	(1200)	(800)
Profit	(1000)	1600	800

(WN-3): Profitability at SOP:

Particulars	X	Y	Z
Sales at SOP	2500	4900	3600
- Joint cost	(4000)	(2800)	(3200)
Profit	(1500)	2100	400

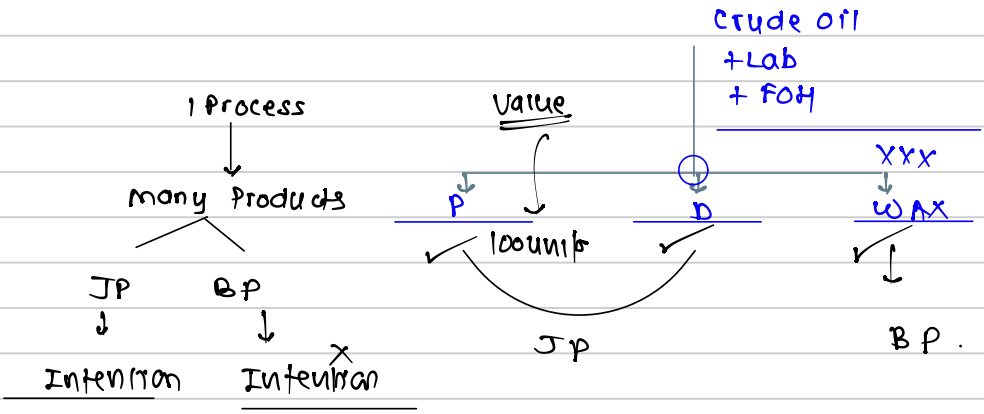
2. Further Processing Decision:

Sale at SOP: Product Y.

Sale after FP: Product X & Z

RM → P1 → P2 → P3 → FG
(Cloth) (T-Shirt)

1 Product (FG)
Many Processes



Q 5

In an Oil Mill four products emerge from a refining process. The total cost of input duri ng the quarter ending March 20X8 is ₹1,48,000. The output, sales and additional processing costs are as under:

Products	Output in Litres	Additional processing cost after split off (₹)	Sales value (₹)
ACH	8,000	43,000	1,72,500
BCH	4,000	9,000	15,000
CSH	2,000	-	6,000
DSH	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 per litre would have been:

ACH (₹)	BCH (₹)	CSH (₹)	DSH (₹)
15.00	6.00	3.00	7.50

PRODUCE a statement of profitability based on:

(i) If the products are sold after further processing is carried out in the mill.

(ii) If they are sold at the split off point.

Solution:

(WN-1): Summary:

Joint cost: 148000

	A	B	C	D
Quantity	8000	4000	2000	4000
x SP	x 15	x 6	x 3	x 7.5
Sales at SOP	120,000	24000	6000	30,000
FP cost :	43000	9000		1500
Sales after FP	172500	15000		45000

(WN-2) : Apportionment of JC:

(If question is silent then we assume that company follows sales value at SOP method).

Products	Sales at SOP	Joint cost
A	120,000	98667
B	24,000	19733
C	6,000	4933
D	30,000	24667
Total	180,000	148000

1. Profit (If Products are sold after FP)

Particulars	A	B	C	D	Total
Sales after FP	172500	15000	6000	45000	238500
(-) Joint cost	(98667)	(19733)	(4933)	(24667)	(148000)
(-) FP cost	(43000)	(9000)	–	(1500)	(53500)
Profit / (loss)	30833	(13733)	1067	18833	37000

2. Profit (If Products are sold at SOP):

Particulars	A	B	C	D	Total
Sales at SOP	120,000	24000	6000	30,000	180,000
(-) Joint cost	(98667)	(19733)	(4933)	(24667)	(148000)
Profit / (loss)	21333	4267	1067	5333	32000

Q 14

A Company manufactures one main product (M1) and two by-products B1 and B2. For the month of January 2013, following details are available:

Total Cost up to separation Point ₹ 2,12,400

	M1	B1	B2
Cost after separation	-	₹ 35,000	₹ 24,000
No. of units produced	4,000	1,800	3,000
Selling price per unit	₹ 100	₹ 40	₹ 30
Estimated net profit as percentage to sales Value	-	20%	30%
Estimated selling expenses as percentage to sales value	20%	15%	15%

There are no beginning or closing inventories. Prepare statement showing:

i) Allocation of joint cost; and

ii) Product-wise and overall profitability of the company for January 2013.

Solution:

Statement showing Joint Cost & Profit:

Particulars	M1	B1	B2	Total
Joint cost	175100	11800	25500	212400
FP cost	-	35000	24000	59000
Selling Exp	80,000 (4L×20%)	10800 (72000×15%)	13500 (90,000×15%)	104300
Total cost	255100	57600	63000	375700
+ Profit	144900	14400 (72000×20%)	27000 (90,000×30%)	186300
Sales.	400,000 (4000×100)	72000 (1800×40)	90,000 (3000×30)	562000

Joint cost of M1 = 212400 - 11800 - 25500 = 175100

* Contribution margin Method.

VC : units Ratio
FC : contribution Ratio

Example:

VC	1000
FC	500
TC	1500

	A	B
Qty	60	40
x SP	x 15	x 20
Sales	900	800

Apportion Joint Cost using contribution margin method.

Solution:

Products	Qty	VC	Sales	Contribution	FC
A	60	600	900	300	214
B	40	400	800	400	286
Total	100	1000	1700	700	500

↓ Units Ratio

{ ↓ Contribution Ratio }

Q 1

A factory produces two products, 'Ghee' and 'Cream' from a single process. The joint-processing costs during a particular month are:

Direct Material	₹ 60,000
Direct Labour	₹ 19,200
Variable Overheads	₹ 24,000
Fixed Overheads	₹ 64,000

Sales: Ghee - 200 litre @ ₹ 600 per litre; Cream – 240 litre @ ₹ 200 per litre. REQUIRED:

I. Apportion joints costs on the basis of:
   (i) Physical Quantity of each product.
   (ii) Contribution Margin method, and

II. Determine Profit or Loss under both the methods.

Solution:

(WN-1): summary:

VC 103200 (60,000 + 19200 + 24000)
FC 64000
JC 167200

	Ghee	Cream
Quantity	200	240
x SP	x 600	x 200
Sales at SOP	120,000	48000

1) Physical Quantity method

Product	Quantity	Joint cost	Sales	Profit (Sales-Cost)
Ghee	200	76000	120,000	44000
Cream	240	91200	48000	(43200)
Total	440	167200	168000	800

2) Contribution margin method: (Sales-VC)

Product	Quantity	VC	Sales	Contribution	FC	Profit
Ghee	200	46909	120,000	73091	64000	9091
Cream	240	56291	48000	(8291)	-	(8291)
Total	440	103200	168000	64800	64000	800

{ units Ratio } { Contribution Ratio }

Q 4

'Buttery Butter' is engaged in the production of Buttermilk, Butter and Ghee. It purchases processed cream and let it through the process of churning until it separates into buttermilk and butter. For the month of January, 2020, 'Buttery Butter' purchased 50 Kilolitre processed cream @ ₹ 100 per 1000 ml. Conversion cost of ₹ 1,00,000 were incurred up-to the split off point, where two saleable products were produced i.e. buttermilk and butter. Butter can be further processed into Ghee.

The January, 2020 production and sales information is as follows:

Products	Production (in Kilolitre/tonne)	Sales Quantity (in Kilolitre/tonne)	Selling price per Litre/Kg (₹)
Buttermilk	28	28	30
Butter	20	—	—
Ghee	16	16	480

All 20 tonne of butter were further processed at an incremental cost of ₹ 1,20,000 to yield 16 Kilolitre of Ghee. There was no opening or closing inventories of buttermilk, butter or ghee in January, 2020.

Required:

(i) SHOW how joint cost would be apportioned between Buttermilk and Butter under Estimated Net Realisable Value method.

(ii) 'Healthy Bones' offers to purchase 20 tonne of butter in February at ₹ 360 per kg. In case 'Buttery Butter' accepts this offer, no Ghee would be produced in February. SUGGEST whether 'Buttery Butter' shall accept the offer affecting its operating income or further process butter to make Ghee itself?

Solution:

(W.N-1): Summary:

Cream: [(50 × 1000 L) × 100] = 50L
Conversion = 1L
Joint Cost = 51L

	Buttermilk		Butter	
Quantity	(28 × 1000)	28000	(20 × 1000)	20,000
× SP (per litre)		× 30		× 360
Sales at SOP		840,000		7200,000
			FP cost.	120,000

1 litre = 1000 ml
1 Kilolitre = 1000 litres

	Ghee	
Quantity	(16 × 1000)	16000
× SP		× 480
Sales after FP		7680,000

1. Apportionment of Joint Cost (NRV method)

Particulars	(Sales after FP - FP cost)	NRV	JC
Buttermilk		840,000	510,000
Butter	(7680,000 - 120,000)	7560,000	4590,000
		8400,000	5100,000

2. Further processing decision:

Particulars			Total
Sales after FP	(Ghee)		7680,000
Sales at SOP	(Butter)	(Offer)	7200,000
Incremental Sales			480,000
- Incremental FP Cost			- 120,000
Profit			360,000

Decision: Company should sell after FP (i.e. Ghee)
∴ Offer of Butter (i.e to sale at SOP) should be rejected.

Q 15

A Factory is engaged in the production of chemical Bomex and in the course of its manufacture a by-product Cromex is produced which after further processing has a commercial value. For the month of April 2019 the following are the summarised cost data:

	Joint Expenses (₹)	Separate Expenses (₹)	
		Bomex	Cromex
Materials	1,00,000	6,000	4,000
Labour	50,000	20,000	18,000
Overheads	30,000	10,000	6,000
Selling Price per unit		100	40
Estimated profit per unit on sale of Cromex			5
Number of units produced		2,000 units	2,000 units

(180K = 1,00,000 + 50,000 + 30,000; 36K = 20,000 + 10,000; 28K = 18,000 + 6,000)

The factory uses net realisable value method for apportionment of joint cost to by-products.

You are required to prepare statements showing :

(i) Joint cost allocable to Cromex

(ii) Product wise and overall profitability of the factory for April 2019.

Solution:

Statement showing Joint Cost & Profit

Particulars	Bomex	Cromex	Total
Joint cost (180K-42K)	138000	42000 (70,000-28000)	180,000
FP Cost	36000	28000	64000
Total cost	174000	70,000	244000
+ Profit	26000	10,000 (5X2000)	36000
Sales	200,000 (100X2000)	80,000 (40X2000) ↓ Reverse cost sheet	280,000

* Quantity

QP: Quantity Produced
QS: Quantity sold

300

	A	B
QP	100	100
QS	100	-
Closing	-	100
SP	10	20

Apportion JC based on Sales at SOP

Apportionment of JC

QP

Product	QP X SP	Sales	JC
A	100 X 10	1000	100
B	100 X 20	2000	200
		3000	300

(Right)

QS

Product	QS X SP	Sales	JC
A	100 X 10	1000	300
B	- X 20	-	-
		1000	300

∴ JC will be apportioned based on Sales value of Quantity produced (i.e. QP X SP)

Q 2

A company's plant processes 6,750 units of a raw material in a month to produce two products 'M' and 'N'.

The process yield is as under:

Product M	80%
Product N	12%
Process Loss	8%

The cost of raw material is ₹ 80 per unit.

Processing cost is ₹ 2,25,000 of which labour cost is accounted for 66%. Labour is chargeable to products 'M' and 'N' in the ratio of 100:80.

Prepare a Comprehensive Cost Statement for each product showing:

(i) Apportionment of joint cost among products 'M' and 'N' and

(ii) Total cost of the products 'M' and 'N'.

Solution:

(W.N-1) : Summary:

	Units	
	6750	material : (6750 × 80) : 540,000
		Labour (225000 × 66%) 148500
		other (225000 × 34%) 76500
		Joint cost 765000

	M	N
Quantity :	(6750 × 80%)	(6750 × 12%)
	5400	810

1. Statement showing Total cost:

Particulars	M	N
material (540,000 in 5400 : 810)	469565	70435
Labour (148500 in 100 : 80)	82500	66000
other (76500 in 5400 : 810)	66522	9978
Total Cost .	618587	146413