

COSTING METHODS

1. Job order costing
2. Batch costing
3. Service costing
4. Process costing

1. Job order costing

This is a costing method where the jobs are produced as per customer specification. In this costing method, the customer requirements must be taken into account before the job starts.

Features of job costing

1. The costs are normally accumulated for each individual activity.
2. Direct purchases are charged to a specific job
3. Each job is given a unique code i.e. the serial number
4. Each job is undertaken as per the customer requirements/specification.
The costs and the revenues are ascertained for individual activity and if it is possible, the profit of that particular activity.

CPA JUNE 2009 Q/N 2

Subira Enterprises manufacturers heavy specialized equipment. In March 2009 the company started three jobs whose details are provided below:

	Job X	Job Y	Job Z	
Direct materials (sh)	650000	734000	428000	
Direct expenses (sh)	21000	13000		
Direct labour:				
Skilled hours	238	222	100	
Semi – Skilled hours	252	108	80	
Part completed by 31 march 2009	100%	80%	25%	
Selling price (sh.)	1,900,000	1,200,000	1,200,000	

Additional information:

1. Direct labour hours were as follows:
Skilled labour – sh. 500 per hour
Semi – skilled labour - sh.400 per hour
2. Administration expenses amounted to sh.600, 000 and are allocated to the jobs on the basis of labour hours.
3. On completion of the jobs the manufacturer allocates 20% of the profit as bonus and the remaining 80% company.
4. Losses are absorbed by the company in total.

Required:

- a) Calculate the profit or loss made by the company on job X
- b) Calculate the projected profit or loss for the company on jobs Y and Z
- c) Comment on your results in (a) above

Answer

	Job X	Job Y	Job Z
Material cost	650,000	734,000	428,000
Direct labour: skilled : semi-	119,000 100,800	111,000 43,200	50,000 32,000
Direct expenses	21,000	13,000	-
Adm. expenses	294,000	198,000	108,000
Total cost	1,184,800	1,099,200	618,000

Job Y 365,200 = 80%

? = 100%

= 456,500 + 734,000

= 1,190,500

i.e. 365200 = (111000+43200+13000+198000)

Job Z: 80% = 190,000

100% = ?

= 237,500 + 428,000

= 665,500

	Job X	Job Y	Job Z
Sales revenue	1,900,000	1,200,000	1,200,000
Total costs	1,184,800	1,190,500	665,500
Bonus	143,040	1,900	106,900
Profit	572,160	7,600	427,600

	Job Z
Sales revenue	1,200,000
Total costs	1,188,000
Bonus	2,400
Profit	9600

$$190,000 = 25\%$$

$$\begin{aligned} ? &= 100\% \\ &= 760,000 + 428,000 \\ &= 1,188,000 \end{aligned}$$

The co. is making profits in all the three jobs above.

CPA DEC 2012 Q 4

Smarta Ltd. Manufacturers flower pots for sale. The company does not carry any stock of finished goods, as it manufacturers specifically to customers' orders. However, the company holds a range of raw materials in the store.

The following information relates to the company operations for the month of August and September **2012**:

1. As at 31 August 2012, there were two incomplete jobs in progress whose details were as follows:

	Job J14	Job J15
	Sh.	Sh.
Direct materials	2500	1444
Direct labour	1640	1200
Factory overheads	3280	2400

2. During the month of September 2012, the company accepted three more jobs J16, J17 and J18 and incurred additional costs as follows:

	Job J14	Job J15	Job J16	Job J17	Job J18
	Sh.	Sh.	Sh.	Sh.	Sh.
Direct materials	840	1396	3800	2442	1032
Direct materials returned	(240)	-	(140)	-	-
Direct labour	520	720	3120	1510	580

3. During the month of September 2012 direct materials worth sh.200 were transferred from Job J14 to job J16

4. During the month of September 2012 job J14, J15 and J16 were completed.

5. The factory production overhead is absorbed at the rate of 200% of direct labour cost.

6. On completion of a job, the company adds 20% to the total factory production cost in order to recover its selling, distribution and administrative costs.

7. The amounts invoiced to customers during the month of September 2012, were as follows:

	Job J14	Job J15	Job J16
Amount invoiced	Sh. 12,500	Sh. 12000	Sh. 15800

Required:

(i) Compute the total cost for the work done as at 30th September 2012 (10 marks)

(ii) Compute the profit or loss for the jobs completed and invoiced to customers as at 30 September

2012 (2mks)

Solution:

- I) In batch costing, the units produced are normally in large quantity with similar characteristics. The customer specification is normally not taken into account. This normally applies where the nature of the product is the same throughout.
In job costing, the orders are made as per the customer specification and therefore the products are unique.

Jobs	J14	J15	J16	J17	J18
Material issued Aug	2500	1444	-	-	-
Material Issued: Sept	840	1396	3800	2442	1032
Material returned	(240)	-	(140)	-	-
Material transfers	(200)	-	200	-	-
Material used	2900	2840	3860	2442	1032
Direct labour: Aug	1640	1200	-	-	- 580
: Sep	520	780	3120	1510	
Production overheads	4320	3960	6240	3020	1160
Total production cost	9380	8780	13220	6972	2772
Selling, distribution & admin	1876	1756	2644		
Total cost	11256	10,536	15,864		
Sales revenue	12,500	12,000	15,800		
Profit	1244	1464	64		

Service costing

Manufacturing firms normally use product costing, however service industries e.g. transport sector, and insurance firms, banking industry etc. also need to prepare their income statements. In these industries the raw material is not included in their cost statements but direct wages and production overheads are included.

JUNE 2008 QUESTION ONE

- (a) Safiri Salama Ltd owns a fleet of eighteen buses. Each bus has a carrying capacity of 29 passengers.

The company operates for 6 days a week and 52 weeks a year. Further the company serves two routes, Eastern and Western, with nine buses on each route.

Each bus on the Eastern and Western routes makes ten and thirteen trips per day respectively.

Over the last 52 weeks, the management of the company has collected the following data for the purpose of analyzing the performance of the buses:

Per trip details	Route	
	Eastern	Western
Average number of passengers	15	12
Average fare paid per passenger (sh.)	30	40
Distance covered (kilometers)	15	20

2. Operating costs incurred during the period:

Driver's wages	sh.500 per bus per working day.
Conductor's wages	sh.300 per bus per working day.
Fuel and maintenance	sh. 8 per Kilometer.
Apportioned fixed costs	sh.52, 000 per route for the period
Vehicle insurance	sh. 61000 per bus for the period.

Required:

- (i) Total operating cost per bus on each route (4mks)
- (ii) Operating cost per kilometer on each route (3mks)
- (iii) Profit per kilometer on each route (3 mks)

	Eastern	Western
Drivers' wages(500x6x52)	156,000	156,000
Conductors' wages (300x6x52)	93,600	93,600
Fuel and maintenance(15x10x6x52x 8)	374,400	648,960
Apportioned fixed costs	52,000	52,000
Vehicle insurance	61,000	61,000
Total cost per bus	737,000	101,560

	Eastern	Western
Cost per kilometer	$\frac{737,000}{46,800}$	$\frac{1,011,560}{81,120}$
	=15.75	=12.47
Revenue per kilometer	$15 \times 30 = \frac{450}{15}$	$12 \times 40 = \frac{480}{20}$
	=30	=24

Cost per day	$\frac{12,162,000}{300}$	=40,540
Add mark up	40,540	
Charge per day	$\frac{81,080}{18}$	
Charge per day per patient	45,000	
Rent (225,000)	2,700,000	

$$\text{BEP} = F/\text{CM} = \frac{150,000 + 2,700,000 + 1,080,000}{4504 - 1524}$$

$$\frac{8,232,000}{300} = 1319 \text{ patients}$$

$$\frac{27,440}{18} = 1524$$

Batch costing

This is a method of costing in which the items are produced in large quantities, the cost of the batch depends on the number of units in that particular batch. The cost of production include the direct material, direct labour, direct expenses if any and production overheads. In this costing, the customer specification is not taken into account i.e. the units produced have got similar characteristics.

Features of the batch costing

- (i) Production is made or services are rendered for the specific batch order.
- (ii) Cost are charged to each batch
- (iii) The production is identical in nature

ATD NOV 2010 Q5

The budgeted overheads for Eagle Diaries Limited for the year are provided as follows

Variable overheads

Department	Amount of overhead (sh)	Overhead absorption base (hours)
Typesetting	150000	15000 labour
Plate making	200000	25000 labour
Printing	300000	30000 Machine
Binding	120000	20000 labour

The company received an order to supply a batch of 2000 diaries to flying Dove Limited.

The following information relates to the batch.

Materials sh. 87,000

Labour:

Typesetting 150 hours at sh. 12 per hour

Plate making 40 hours at sh.15 per hour

Printing 60 hours at sh. 20 per hour

Binding 100 hours at sh.10 per hour

Additional information

1. The machine hours used on this job were 50
2. Selling and administration overheads are charged at 10% of the production cost.
3. Profit is charged at 25% on total cost

Required:

- (i) Total cost of the batch
- (ii) Selling price of the batch
- (iii) Cost per unit
- (iv) Selling price per unit

ANSWER

OAR (Dept.) Type setting = $\frac{\text{Total budgeted setting costs}}{\text{Total budgeted labour hrs}}$

$$= \frac{150,000}{15,000} = \text{shs. } 10/\text{labour hrs}$$

$$\text{Plate making} = \frac{200,000}{25,000} = \text{shs. } 8/\text{labour hrs}$$

$$\text{Printing} = \frac{300,000}{30,000} = \text{sh. } 10/\text{machine hr}$$

$$\text{Binding} = \frac{120,000}{20,000} = \text{sh. } 6/\text{labour hr}$$

Total cost of the batch

Material	87000
Labour cost: typesetting (150 x 12)	1800
: Plate making (40 x 15)	600
: printing (50 x 20)	1000
: binding (100 x 10)	1000
Production OHS: typesetting (150 x 10)	1500

	: Plate making (40 x 8)	320
	: binding (100 x 6)	<u>600</u>
Production costs		94,320
Selling & distribution (10%)		<u>9,439</u>
Cost of the job		103,752

Total cost = 103,752
 Mark up (25%) = 25,938
 Selling price = 129,690

Cost per unit = $\frac{103,752}{2000}$
 = 51,876

Selling price per unit = $\frac{129,690}{2000}$ = 64.845

Process costing

Process costing is applied to determine the cost of production in industries where product pass through different phases of production before completion.

Features/characteristics of process costing

1. Similar items are produced
2. Production is in a continuous manner
3. The output of a given process is normally the input of the next process.
4. The cost per unit is usually the average cost
5. The costs are not directly related to individual items but are usually accumulated for the entire process.
6. The losses may be experienced in the process.
7. The WIP at the end of the process is valued in terms of equivalent units (assumed completed units).
8. Sometimes a process may produce multiple products known as joint products.

Terms used in process costing

1. Normal loss

This is the loss which is normally expected from the beginning of the process. It is caused by factors which cannot be avoided in the normal production process e.g. evaporation

2. Abnormal loss

This is the loss which was not expected from the beginning of the process. It is normally caused by the factors which can be avoided in the production process e.g. the shortage of the material. This loss is also known as the loss above expected loss.

3. Abnormal gain

This arises where the actual loss is less than the expected. It normally arises where the working conditions have improved.

4. The scrap

These are discarded materials with recoverable value i.e. the materials which do not meet the standards but can be sold.

5. Wastes

These are discarded materials with no recoverable value.

Nov 2011 Q 4b

Usafi limited manufacturers a brand of shampoo branded “urembo” The company blends a liquid soap with a special ingredient which has no significant volume. The resultant liquid is then put into bottles costing sh.5 each

The following data relates to processing for the month of August 2011:

Input into blending process:

	Sh.
Liquid soap 11,400litres	381,150
Special ingredient	769,500
Process labour	131,475

Additional information:

1. General overheads costs are absorbed on the basis of process labour costs at the rate of 100%
2. The normal output of the blending process is 90% of input liquid soap
3. The losses in the process take the form of a thicker soap which is sold for sh. 25 per litre.
4. The output from the process was 10800litres of Urembo which is equivalent to the monthly budgeted output
5. Each bottle of Urembo contains one third of a litre of shampoo and is sold for sh.75

Required:

1. Process account for the blending in the month of August 2011
2. Normal profit per bottle of shampoo

Details	Units	u/c	Amount	Details	Units	u/c	Amount
Liquid soap	11400	33.4	381150	Normal loss	1140	25	28500
Special ingredient	-	-	769500	Finished goods	10800	135	1458000

Process labour cost	-	-	131475				
Overheads			131475				
Abnormal gain	540	135	72900				
	11940		1486500			11940	1486500

$$\text{Normal loss} = 100 - 90 = 10 \times 11400 = 1140$$

$$\text{Expected output} = 11400 - 1140 = 10260$$

$$\text{Abnormal gain / loss} = \text{actual} - \text{expected}$$

$$10800 - 10260 = 540$$

$$\text{Product cost at unit} = \frac{-\text{Scrap value}}{\text{expected}}$$

$$1 \text{ bottle} = 1/3 \text{ litres}$$

$$? = 10800 \text{ litres}$$

$$= 3 \times 10800 = 32400 \text{ bottles.}$$

INCOME STATEMENT

			Sh.
Sales revenue	32400*75		2430000
Scrap value			28000
Less Cost:			
Cost of bottles	32400*5	162000	
Liquid soap		381150	
Special ingredient		769500	
Labour cost		131475	
overheads		131475	(1575600)
profit			882900
Profit per bottle	882900/32400 = Sh.27.25		

C) The marketing department of Usafi Limited has made a proposal to rebrand Urembo as follow:

1. Change the name of the shampoo to "Urembo" extra
2. Use a different special ingredient costing 10% more than the existing one.
3. Use a different bottle design costing sh.7.50 each but with the same capacity of one third of a litre.
4. Undertake an advertising campaign costing Sh. 4374000
5. Maintain a maximum monthly budgeted output of 10800litres
6. The production manager has forecasted the maximum shelf life of "Urembo extra" at 6months.
7. Urembo extra has a potential of trading at a higher price than urembo according to market trend analysis.

Required:

Minimum price per bottle at which urembo extra must be sold to maintain the company's current profit level (5marks)

		Sh.
Cost of bottles	$32400 * 7.50$	243000
Liquid soap		381150
Special ingredient	$110% * 769,500$	846450
Labour cost		131475
Advertising	$4374000/6$	729000
overheads		131475
Total cost		2462550
Cost per bottle = $2462550/32400 = 76$	Minimum price per bottle $= 76 + 27.5 = \text{Sh.} 103.5$	

Process costing with WIP

- In a manufacturing concern, where production is done in continuous process at the end of the period there are some units which are incomplete.
- Therefore items which are partly manufactured and are not yet finished goods are known as the work in progress (W.I.P)
- The main problem in this case is how to value the closing WIP for the purpose of determining the amount to be recorded in the financial statement
- The approach to be adopted in this case to determine the value of W.I.P is the equivalent units approach.
- There are two method used to value the closing WIP
 - FIFO
 - Weighted average method.

1. FIFO

- Under this method, the opening WIP is processed first until its complete joining the already completed items which are then processed to the finished goods and which are transferred to the next process.

2. WEIGHTED AVERAGE METHHOD

- It does not give any priority to the opening WIP but it assumes that opening WIP is part of the finished goods.

NB/=

- When the question is structured as having units transferred from the previous process to the current process and some direct materials are added then in the equivalent unit statement, there will be material 1&2.
- When the question is structured as having material 1 &2 and their degree of completion for both materials are not given, the percentage of completion if they are given without

Distinguishing if they are for material 1&2 then its assumed that material 1 is 100% complete and the percentage given will be for material 2

- When the question has abnormal loss occurring but the degree of completion for normal loss are not given then abnormal loss is assumed to be 100% complete for all the elements of the cost

➤ Difference between weighted average and FIFO method

WEIGHTED AVERAGE	FIFO METHOD
Units started and completed in the current period are equal to the actual output	Units started and completed in the current period are equal to the actual output minus the opening WIP
Opening WIP units are not part of the output	Opening WIP is part of the output in the Statement of the equivalent units.

The cost per unit takes into account both the opening WIP cost of the period production cost	The cost per unit only takes into account the period production cost.
The finished goods are valued at the total production cost unit in the process account	The finished goods value is a balancing figure in the process account.

CPA NOVEMBER 2010 Q1

Nyungu Limited is a manufacturer of earth ware products. The products undergo two processes; A and B. The following information relates to the month of September 2010:

	Process A	Process B
Opening work in progress: Units	10,000	12,000
Stage of completion	2/5	2/3
Material cost (Sh)	6000,000	9,800,000
Conversion cost (Sh.)	1,500,000	11,200,000
Units started in the month	40,000	?
Material cost in the month (sh.)	22,600,000	13,200,000
Conversion cost in the month (Sh)	18,000,000	63,000,000
Units completed in the month	44000	38500
Closing work in progress: units	2000	16000
Stage of completion	1/2	1/2

Additional information:

- (i) Conversion costs are applied uniformly throughout the two processes.
- (ii) Normal loss is 5% of throughput in both processes

- (iii) Scrap for normal loss is Sh.250 per unit in process A and sh. 500 per unit in process B.
- (iv) Actual loss is 4000 units in process A and 1500 units in process B

Required:

- (a) Statement of equivalent units for processes A and B (4 Marks)
- (b) For process A:
 - (i) Total cost of production transferred to process B. (4Marks)
 - (ii) Total cost of closing work – in progress (4 Marks)
- (c) For process B:
 - (i) Total cost of production transferred to process B (4 Marks)
 - (ii) Total cost of closing work – in- progress (4 Marks)

Using Weighted Average Method

Flow of production	Units
Opening WIP	10,000
Add; input materials	40,000
Less closing WIP	(200)
Production/ throughput	48000
Less: Normal loss 5% 4800	(2400)
Expected output	45600
Actual output	44000
Abnormal loss	1600

Statement of equivalent units

Input	Units	Output	Units	Element of cost			
				Material		Conversion	
				Units	%	Units	%
Opening WIP	10000	Normal loss	2400	-		-	
Input materials	40000	Abnormal loss	1600	1600	100	1600	100
		Units started and completed	44000	44000	100	44000	100

		Closing WIP	2000	2000	100	1000	50
	50000		50,000	47,600		46,600	

Cost per unit

Element of cost	Total cost <i>opening WIP cost + periodic cost</i>	Equivalent units	Cost per unit
Material cost	6000000 + 22600000		
Less scrap value of normal loss (2400 × 250)	(600000) = 28000000	47600	588.2353
Conversion cost	1500000 + 18000000 = 19500000	46600	418.4549356
			1006.6902

Total production cost transferred to process B

$$1006.6902 \times 44000 = 44294370.11$$

Valuation of closing WIP

Material = $2000 \times 588.2352941 = 1176470.588$

Conversion cost = $1000 \times 418.4549356 = 418454.9356$

1594925.524

Process B

Flow of production	Units
Opening WIP	12000
Add; input materials	44000
Less closing WIP	(16000)

Production/ throughput	40000
Normal loss 5% 4800	(2000)
Expected output	38000
Actual output	38000
Abnormal loss	500

Statement of equivalent units

Inputs	Units	Output	Units	Elements of cost			
				Material		Conversion	
				Units	%	Units	%

Opening WIP	12000	Normal loss	2000	-	-	-	-
From process A	44000	Abnormal gain	(500)	(500)	100	(500)	100
		Units started and completed	38500	38500	100	38500	100
		Closing WIP	16000	16000	100	8000	50
	56000		56000	54000		46000	

Cost per units

Elements of cost	Total cost <i>opening WIP cost + periodic Cost</i>	Equivalent units	Cost per units
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Material cost	9,800,000+44294370		
	+13,200,000		
Less scrap value	(1000000) =		
	66294370	54000	1227.6735
Conversion cost	1200000 + 63000000 = 74200000	46000	1613.043
			2840.716

Total cost of production transferred to finished goods.

$$= 2840.716997 \times 38500 = 109367604$$

Valuation of closing WIP

$$\text{Material } 16000 \times 1227.673519 = 19642776.3$$

$$\text{Conversion } 8000 \times 1613.043478 = \underline{12904347.82}$$

$$\underline{32547124.1}$$

Aug 2009 Q5

(a) Oxfan Ltd produces a product jay in three process. During the month of August 2009, 5000 units were transferred from process one at a cost of sh. 37 per unit

In addition the following costs were incurred in process two:

	Sh.
Material added to process 2	44906
Direct labour	86400
Overheads	61800

At the beginning of the month there was opening stock of work in progress of 600 units which were completed as follows:

Material from process 1	100%	18900
Added Material	60%	3600
Labour	30%	8100
Overheads	30%	2700

Work in progress at the end was 1000 units completed as follows:

Material from process 1	100%
Material added	75%
Labour	40%
Overheads	20%

While material loss is expected to be 10% of input, 800units were actually scraped and were sold for sh.10 per unit. The company uses First in First out (FIFO) method of accounting for opening work in progress

Required:

Prepare process account

(10marks)

Using FIFO METHOD

Flow of production	Units
Opening WIP	600
Add; input materials	5000
Less closing WIP	(1000)
Production/ thro' put	4600
Normal loss 10% 5000	(500)
Expected output	4100
Actual output Balancing figure	3800
Abnormal loss 800 - 300	300

Units Started and completed in the current period = Actual output – opening wip
 $3800 - 600 = 3200$ units

Statement of equivalent units

Input	Units	Output	Units	Element of cost							
				Material I		Material 2		Labour		Overheads	
				units	%	Units	%	Units	%	Units	%
		Opening WIP	600		0%	240	40%	420	70%	420	70%
Opening WIP	600	Normal loss	500	-		-		-			
Input materials	5000	Abnormal loss	300	300	100%	300	100%	300	100%	300	100%
		Units started	3200	3200	100%	3200	100%	3200	100%	3200	100%

		and complete d									
		Closing	1000	1000	100	750	75 %	400	40%	200	20%
		wip			%						
	5600		5600	4500		4490		4320		4120	

Cost per unit statement

Elements of cost	Periodic cost	Equivalent units	Cost per unit
Material 1 5000x37	185000		
Less Normal loss scrapvalue 500x10	(5000) = 180000	4 500	40
Material 2	44906	4490	10
Labour	86400	4320	20
Overheads	61800	4120	15
			85

Valuation of closing W.I.P.

Material 1	1000x40	40000	
Material 2	750x10	7500	
Labour	400x20	8000	
Overheads	200x15	3000	
	Total value	58,500	

Valuation of Abnormal Loss 300x85 = 25500

Process account

<i>Details</i>	<i>Units</i>	<i>u/c</i>	<i>Amount</i>	<i>Details</i>	<i>Units</i>	<i>u/c</i>	<i>Amount</i>
<i>Opening wip</i>	600		33300	<i>Normal Loss</i>	500	10	5000

Material 1	5000	37	185000		Abnormal Loss	300		25500
Material 2			44906		Finished goods	3800	85	323000
Labour			86400		Closing W.I.P.	1000		58500
Overheads			61800					
			412000					412000

CPA JUNE 2007 Q3

Usafi Limited operates a single process to manufacturer soap. The process cost for the month of February 2007 were as follows:

	Sh. "000"
Material input 20,000 kilograms	5000
Labour	4500
Overheads	2500

Additional information:

- The normal output of the process is 95% of material input. The loss from the process is sold for sh.60 per kilogram.
- The output for the month of February 2007 was as follows:
 Finished goods 18,800 kilograms
 Closing work in progress 1000 kilograms
- The degree of completion of closing work in progress was 50% for labour and overheads and 100% for materials.

Required:

- Process account
- Abnormal gain account

Using Weighted Average Method

Flow of production	Units
Opening WIP	-
Add; input materials	20000
Less closing WIP	(1000)
Production/ throughput	19000
Less: Normal loss 5% 20000	(1000)
Expected output	18000
Actual output	18800
Abnormal gain	800

ii) Statement of Equivalent units

Inputs	Units	Output	Units	Elements of cost					
				Material		Labour		Overheads	
				Units	%	Units	%	Units	%
Opening WIP	-	Normal loss	1000	-	-	-	-	-	-
Material	20000	Abnormal	(800)	(800)	100%	(800)	100%	(800)	100%

input		gain							
		Units Started and completed	18800	18800	100%	18800	100%	18800	100%
		Closing wip	1000	1000	100%	500	50%	500	50%
			20000	19000		18500		18500	

Cost per unit statement

Elements of cost	Total cost: Opening wip cost + periodic cost	Equivalent units	Cost per unit
Material input	0 + 5000000		
Less: scrap value for normal loss 1000*60	60000 = 4940000	19000	260
Labour cost	4500000	18500	243.243
Overheads	2500000	18500	135.135
	Total		638.3783

Valuation of wip

Material cost	1000*260	260000
Labour cost	500*243.243	121621.6216
Overhead cost	500*135.135	67567.56
Total		449189.1892

Valuation of Abnormal gain = 800*638.378 = 510702.7027

Process account

Details	Units	Cost per unit	Amount	Details	Units	Cost per unit	Amount
Opening wip	-	-	-	Normal loss	1000	60	60000
Material input	20000		5000000	Finished goods	18800	638.3783783	12001506.4
Labour cost	-		4500000	Closing wip	1000		449189
Overheads			2500000				
Abnormal gain	800		510702.7027				
Total	20800		12510703		20800		12510703

Abnormal gain account

Details	Units	Cpu	Amount	Details	Units	Amount
Scrap value	800	60	48000	Process account	800	510703
Profit & Loss			462703			

PROCESS COSTING WITH JOINT COSTS

- Joint cost
 - Are cost incurred when processing 2 or more products together with or without a by-product.
 - The joint products emerge from the same process, and after the 1st process they are separated and either to be sold at the split of point or to be processed further.
 - They have high selling value than the by-products.

BY product is an inferior product processed alongside main product e.g. petroleum products and tar from crude oil, timber and sawdust, sugar and molasses, meat and bones

Methods of apportioning Joint Product

- 1) Physical unit method/ output.
 - Under this method the joint cost are apportioned based on the number of the units emerging from the same process.
- 2) Sales value method
 - The joint cost are apportioned based on the sales value of at product emerging from the same process.
 - The sales value is determined by multiplying the number of the units produced and sold by the selling price units.
- 3) Net realizable value method
 - The joint costs are apportioned on the basis of the Net Realizable value at product
 - The net realizable value – is the amount realized in the open market after subtracting the cost incurred in putting the item in a condition in which can be sold e.g. the packaging costs/ further processing cost.

Example Cpa June 2009

Good hope Pharmaceutical Company purchases raw materials that is processed to yield three chemicals namely: Zetamol, Paramol, and Bethamol. In January 2009, the company purchased 10,000 kilogrammes of the raw material at a cost of Sh2500000 and incurred conversion costs of sh.700,000 . Sales and production information for the month of January were as follows;

	Kilograms produced	Price at split off (Sh.)	Further processing cost per kg (shs)	Eventual selling price (shs)
Zetamol	2000	550		
Paramol	3000	400		
Bethamol	5000	300	50	600

Zetamol and Paramol are sold to other pharmaceutical companies at the split off point. Bethamol can be sold at the split off point or processed further and packaged for sale as an asthma medication

Required:

- (i) Allocate the joint costs to the three products using:
- (ii) The physical units sold
- (iii) The sales value at split off method
- (iv) The net realizable value method
- (v) Suppose that half the production of Paramol could be purified and mixed with all production of Zetamol to yield Parazetamol. All further processing costs amounts to sh. 350000. The selling price for parazetamol is sh 1120 per kilograms. Advise the company on whether to further process zetamol into 2000 kilograms' of parazetamol

Solution:

Total joint costs	Shs.
Raw material	2500000
Conversion cost	700000
Total cost	3200000

(i) Physical units methods

Units produced	Units
Zetamol	2000
Paramol	3000
Bethamol	5000
Total	10000

Joint cost allocation

Zetamol	$2000/10000 \times 3200000$	= 640000
Paramol	$3000/10000 \times 3200000$	= 960000
Bethamol	$5000/10000 \times 3200000$	= 1600000

(ii) Sales value at Split off method

Sales value		Shs.
Zetamol	2000×550	1100000
Paramol	3000×400	1200000
Bethamol	5000×300	1500000
	Total	3800000

Joint cost allocation

Zetamol	$1100000/3800000 \times 3200000$	= 926,315.79
Paramol	$1200000/3800000 \times 3200000$	= 1010526.32

Bethamol	$1500000/3800000 \times 3200000$	= 1263157.90
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(iii) Realizable value method = Sales – Further processing cost.

Net realizable value		Shs.
Zetamol	1100000-0	=1100000
Paramol	1200000-0	= 1200000
Bethamol	$3000000 - (5000 \times 50)$	=2750000
		5050000

Joint cost allocation

Zetamol	$1100000/5050000 \times 3200000$	= 697029.7
Paramol	$1200000/5050000 \times 3200000$	= 760396.04
Bethamol	$1500000/5050000 \times 3200000$	= 1742574.3

(iv) Profit = Sales revenue – Total cost

$$(2000 \times 1120) - (960000/2 + 640000 + 35000) = 70000$$

Advice: process zetamol into paracetamol since the company will increase in profit.

CPA DEC 2006 Q2

(a) Lenga Juu Ltd. Produces three products; exe, wye, zed in a single process. For the month of September 2006 the following budgeted figures were available:

Raw materials input	240000 kilograms at sh.30 per kilogram
Labour	9000 hours at sh. 90 per hour
Variable overheads	9000 hours at sh. 45 per hour

Additional information:

- Fixed overheads were absorbed at 50% of labour cost.
- There was a normal loss of 10% of material input and no abnormal loss. The normal value was sold as scrap at sh. 15 per kilogram which was credited to the process account.
- Exe, wye, and Zed were produced in the ratio of 5:3:2 respectively.
- There is neither opening nor closing work in progress.
- The products were sold as follows:

product	Selling price per Kilograms
	Sh.
Exe	225
Wye	180
Zed	150

Required:

Apportion the joint costs to the joint products, Exe, wye and Zed using the following methods:

- Relative weight of output

(ii) Sales value of output

(b) On further processing products Exe, wye, Zed were converted to product A, B and C respectively. The selling prices per kilograms were sh.270, sh. 225 and sh. 180 for products A, B and C respectively.

The further processing cost the company sh.15 per kilograms of material input. In addition the normal loss was 10% of material input with no sales value.

Required:

Profit or loss on further processing of each of the products.

Total joint cost

Raw materials	$240000 \times 30 =$	7200000
Labour	$9000 \times 90 =$	810000
Variable overheads	$9000 \times 45 =$	405000
Fixed overheads	$0.5 \times 810000 =$	405000
		8820000
Less scrap value normal loss	$10\% \times 2400000 \times 15 =$	(360000)
Net joint costs		8460000

(i) Using relative weight /physical output

Expected output = Input – Normal loss

= $240000 - (10\% \times 240000) = 216000$

Ratio 5:3:2 = 10

Exe = $5/10 \times 216000 = 108000$

Wye = $3/10 \times 216000 = 64800$

Zed = $2/10 \times 216000 = 43200$

Apportioning of joint costs

Exe = $108000/216000 \times 8460000 = 4230000$

Wye = $64800/216000 \times 8460000 = 2538000$

Zed = $43200/216000 \times 8460000 = 1692000$

(ii) Using sales value of output

Sales value of output

Exe = $108000 \times 225 = 24300000$

Wye = $64800 \times 180 = 11664000$

Zed = $43200 \times 150 = 6480000$

Total sales = 424440000

Apportionment of joint costs:

Exe $24300000/42444000 \times 8460000 = 484351.145$

Wye = $11664000/42444000 \times 8460000 = 2324885.5$

Zed = $6480000/42444000 \times 8460000 = 1291603.05$

(b) Profit/loss = sales revenue – Total cost

Product A		
Output 90%*108000	97200	
Sales revenue	97200×270	26244000

Total cost	Joint cost + further processing cost	$423000+(108000*15)=5850000$
	profit	$26244000-5850000=20394000$

Product B		
Output 90%*64800	58320	
Sales revenue	$58320*225$	1312200
Total cost	Joint cost + further processing cost	$2538000+(64800*15)=351000$
	profit	$13122000-3510000=9612000$

(c)

Product C		
Output 90%*43200	38800	
Sales revenue	$38800*180$	6998400
Total cost	Joint cost + further processing cost	$1692000+(43200*15)=2340000$
	profit	$6998400-2340000=4658400$

CPA JUNE 2010 Q2

ABC Company Ltd. Produces four products A, B, C and D

The following information is provided:

1. The joint processing requires 10,000 kilograms of raw materials input, costing sh. 6 million.
2. Joint process labour and material costs are sh. 5,920,000.
3. Normal loss is 20% of raw material input with product A's output being 2000 kilograms product B's output being 2,500 kilograms, product C's output being 2,500 kilograms and the balance being from product D. No abnormal loss was reported.
4. Product A enters into process 2 incurring a further cost of sh. 1,255,000 product B enters into process 3 incurring a further cost of sh. 1,493,750, product C enters into process 4 incurring a further cost of sh. 1,118,750. Product D does not require additional processing. There are no further processing costs.
5. The company's policy is to apportion joint costs on the basis of output.
6. The selling price of each unit of products A, B, C and D is sh. 1,500, sh. 3,460, sh. 2760 and sh.1000 respectively.
7. The company is in the process of analyzing the performance of each product in order to make better decisions.

Required:

(a) (I) Cost per unit of product A (2mks)

(iii) Profit and loss statement for each individual product and for the company in a columnar format (8mks)

- (b) The company's management intends to start using the net realizable value method to allocate joint cost. Show how the method would affect the profitability of individual products and that of the company in (a) (ii) above. (10mks)

Total Joint costs

6000,000 + 5,920,000 = 11,920,000

Units produced		
A	2000	Output = 80% input
B	2500	80% *10,0000 = 8000
C	2500	
D (bal fig)	1000	
	8000	

Allocation			
A: 2000/8000 * 11,920,000	2,980,000		
B:2500/8000 * 11,920,000	3,725,000		
C: 2500/8000 * 11,920,000	3,725,000		
D 1000/8000 *11,920,000	1,490,000		
Cost per unit of A			
Joint cost Account	2,980,000	4235000/2000 = sh.2117.5 per kg	
Further processing cost	1,255,000		
Total cost	4235000		

	A	B	C	D	Total
Sales	3,000,000	8,650,000	6,900,000	1000,000	19,550,000
Less: costs					
Joint costs	2980,000	3,725,000	3,725,000	1,490,000	11,920,000
Further processing	1,255,000	1,493,750	1,118,750	0	3,967,500
	(1,235,000)	3,431,250	2,056,250	(490,000)	3,762,500

Allocate using NRV

	A	B	C	D	
Sales	3000,000	8,650,000	6,900,000	1,000,000	
Further processing cost	1,255,000	1,493,750	1,118,750	0	
	1,745,000	7,156,250	5,781,250	1000,0000	15,682,500

Allocation

A	$1745000/15682500 * 11,920,000 =$	1,326,344.65
B	$7156250/15682500 * 11,920,000 =$	5,439,343.22
C	$5781250/15682500 * 11,920,000 =$	4,394,229.24
D	$1000000/15682500 * 11,920,000 =$	760,082.89

	A	B	C	D	Total
Sales	3000,000	8,650,000	6,900,000	1,000,000	19,550,000
Less costs:					
Joint costs	1,326,344.65	5,439,343.22	4,394,229.9	760,082.89	11,920,000
Further processing cost	1,255,000	1,493,750	1,118,750	0	3,867,500
Profit	418,655.35	1,716,906.78	1,387,020.76	239,917.1	3,762,5000