MBA in Food & Agribusiness

Financial Management

Inventories (IAS2) Perpetual System

Perpetual vs. Periodic

Inventory cost Under the Perpetual Inventory System (individueel)

Inventory cost is determined using one of the following generally accepted methods, each *based on a different assumption of cost flow*:

1. Specific identification method
2. Average-cost method
3. First-in, first-out (FIFO) method
4. Last-in, first-out (LIFO) method

FIFO Under the Perpetual Inventory System: Example

Keep track of inventory costs and amounts in date order as purchases and sales are made

Inventory Data					
June 1	Inventory	80 units	@ $10.00		$ 800
June 6	Purchase	220 units	@ $12.50		2,750
June 10	Sale	80 units	@ $10.00	($ 800)	
		200 units	@ $12.50	(2,500)	(3,300)
June 10	Balance	20 units	@ $12.50		$ 250
June 25	Purchase	200 units	@ $14.00		2,800
June 25	Inventory	20 units	@ $12.50	$250	
		200 units	@ $14.00	2,800	$3,050
Cost of goods sold					**$3,300**

Cost of goods sold is the total of sales on June 10

LIFO Under the Perpetual Inventory System: Example

Keep track of inventory costs and amounts in date order as purchases and sales are made

Inventory Data

June 1	Inventory	80 units	@ $10.00		$ 800
June 6	Purchase	220 units	@ $12.50		2,750
June 10	Sale	220 units	@ $12.50	($2,750)	
		60 units	@ $10.00	(600)	$\boxed{(3,350)}$
June 10	Balance	20 units	@ $10.00		$ 200
June 25	Purchase	200 units	@ $14.00		2,800
June 25	Inventory	20 units	@ $10.00	$200	
		200 units	@ $14.00	$2,800	$3,000
Cost of goods sold					**$3,350**

Cost of goods sold is the total of sales on June 10

Using the same information as in exercise P2 (depicted below) that we examined in Tutorial2 slides, try to answer the questions on the next two slide under **<u>PERPETUAL SYSTEM</u>** assumptions

LO1, LO3 **Periodic Inventory System and Inventory Costing Methods**

CASH FLOW

P 2. The inventory, purchases, and sales of Product ISO for March and April a[...] listed below. The company closes its books at the end of each month [...] uses the periodic inventory system.

Mar.	1	Beginning inventory	60 units @ $49
	10	Purchase	100 units @ $52

Mar.	19	Sale	90 units
	31	Ending inventory	70 units
Apr.	4	Purchase	120 units @ $53
	15	Purchase	50 units @ $54
	23	Sale	200 units
	25	Purchase	100 units @ $55
	30	Ending inventory	140 units

Required

1. Compute the cost of the ending inventory on March 31 and April 30 using the average-cost method. In addition, determine cost of goods sold for March and April. Round unit costs to cents and totals to dollars.
2. Compute the cost of the ending inventory on March 31 and April 30 using the FIFO method. Also determine cost of goods sold for March and April.
3. Compute the cost of the ending inventory on March 31 and April 30 using the LIFO method. Also determine cost of goods sold for March and April.
4. **User Insight:** Do the cash flows from operations for March and April differ depending on which inventory costing method is used—average-cost, FIFO, or LIFO? Explain.

Answer Average Cost

Date			Units	Cost*	Amount*
Mar.	1	Beginning inventory	60	$49,00	$ 2.940
	10	Purchase	100	52,00	5.200
	10	Balance	160	50,88	$ 8.140
	19	Sale	(90)	50,88	(4.579)
	31	Ending inventory	70	50,88	$ 3.561
Apr.	4	Purchase	120	53,00	6.360
	4	Balance	190	52,22	$ 9.921
	15	Purchase	50	54,00	2.700
	15	Balance	240	52,59	$12.621
	23	Sale	(200)	52,59	(10.518)
	23	Balance	40	52,59	$ 2.104
	25	Purchase	100	55,00	5.500
	25	Balance	140	54,31	$ 7.604
	30	Ending inventory	140	54,31	$ 7.604

*Rounded.

Cost of goods sold for March equals the total cost of the sale made on March 19, or $4,579.

Cost of goods sold for April equals the total cost of the sale made on April 23, or $10,518.

Answer FIFO

Date			Units	Cost	Amount
Mar.	1	Beginning inventory	60	$49	$ 2.940
	10	Purchase	100	52	5.200
	10	Balance	60	49	
			100	52	$ 8.140
	19	Sale	(60)	49	
			(30)	52	(4.500)
	31	Ending inventory	70	52	$ 3.640
Apr.	4	Purchase	120	53	6.360
	4	Balance	70	52	
			120	53	$10.000
	15	Purchase	50	54	2.700
	15	Balance	70	52	
			120	53	
			50	54	$12.700
	23	Sale	(70)	52	
			(120)	53	
			(10)	54	10.540
	23	Balance	40	54	$ 2.160
	25	Purchase	100	55	5.500
	25	Balance	40	54	
			100	55	$ 7.660
	30	Ending inventory	40	54	
			100	55	
			140		$ 7.660

Cost of goods sold for March equals the total cost of the sale made on March 19, or $4,500.

Cost of goods sold for April equals the total cost of the sale made on April 23, or $10,540.

Answer LIFO

3.	Perpetual inventory system– LIFO method				
Date			Units	Cost	Amount
Mar.	1	Beginning inventory	60	$49	$ 2.940
	10	Purchase	100	52	5.200
	10	Balance	60	49	
			100	52	$ 8.140
	19	Sale	(90)	52	(4.680)
	31	Ending inventory	60	49	
			10	52	$ 3.460
Apr.	4	Purchase	120	53	6.360
	4	Balance	60	49	
			10	52	
			120	53	$ 9.820
	15	Purchase	50	54	2.700
	15	Balance	60	49	
			10	52	
			120	53	
			50	54	$12.520
	23	Sale	(50)	54	
			(120)	53	
			(10)	52	
			(20)	49	(10.560)
	23	Balance	40	49	$ 1.960
	25	Purchase	100	55	5.500
	25	Balance	40	49	
			100	55	$ 7.460
	30	Ending inventory	40	49	
			100	55	
			140		$ 7.460

Cost of goods sold for March equals the total cost of the sale made on March 19, or $4,680.

Cost of goods sold for April equals the total cost of the sale made on April 23, or $10,560.

Journal entries Summary for Inventory under Perpetual and Periodic Systems

	Perpetual system	Periodic system
Sales	DR Accounts receivable CR Sales + DR Cost of Goods Sold CR Merchandise Inventory	DR Accounts receivable CR Sales
Purchase	DR Merchandise Inventory (B/S) CR Accounts Payable	DR Purchases (I/S) CR Accounts Payable

Journal entries Summary for Inventory under Perpetual and Periodic Systems

	Perpetual system	Periodic system
y/e ad just		DR Inventory CR COGS
COGS	Maintained for every sale	Calculated once a year as: Inventory op. pos. + net purchases – Inventory clos. pos. = COGS.

Merchandising Income Statement: Periodic Inventory System

P 3. The data below are selected accounts from the adjusted trial balance of Dan's Sports Equipment on September 30, 20x7, the fiscal year end. The company's beginning merchandise inventory was $81,222 and ending merchandise inventory is $76,664 for the period.

Dan's Sports Equipment
Partial Adjusted Trial Balance
September 30, 20x7

Sales		$433,912
Sales Returns and Allowances	$ 11,250	
Purchases	221,185	
Purchases Returns and Allowances		30,238
Freight-In	10,078	
Store Salaries Expense	107,550	
Office Salaries Expense	26,500	
Advertising Expense	18,200	
Rent Expense	14,400	
Insurance Expense	2,800	
Utilities Expense	18,760	
Store Supplies Expense	464	
Office Supplies Expense	814	
Depreciation Expense–Store Equipment	1,800	
Depreciation Expense–Office Equipment	1,850	

Required

1. Prepare a multistep income statement for Dan's Sports Equipment. Store Salaries Expense; Advertising Expense; Store Supplies Expense; and Depreciation Expense–Store Equipment are selling expenses. The other expenses are general and administrative expenses. The company uses the periodic inventory system. Show details of net sales and operating expenses.

Answer

Dan's Sports Equipment, Inc.			
Income Statement			
For the Year Ended September 30, 20x6			
Net sales			
Sales			**$433.912**
Less sales returns and allowances			**11.250**
Net sales			**$422.662**
Cost of goods sold			
Merchandise inventory, September 30, 20x5		**$ 81.222**	
Purchases	**$221.185**		
Less purchases returns and allowances	**30.238**		
Net purchases	**$190.947**		
Freight-in	**10.078**		
Net cost of purchases		**201.025**	
Goods available for sale		**$282.247**	
Less merchandise inventory, September 30, 20x6		**76.664**	
Cost of goods sold			**205.583**
Gross margin			**$217.079**

Answer (cont)

Operating expenses			
Selling expenses			
Store salaries expense	$107.550		
Advertising expense	18.200		
Store supplies expense	464		
Depreciation expense– store equipment	1.800		
Total selling expenses		$128.014	
General and administrative expenses			
Office salaries expense	$ 26.500		
Rent expense	14.400		
Insurance expense	2.800		
Utilities expense	18.760		
Office supplies expense	814		
Depreciation expense– office equipment	1.850		
Total general and administrative expenses		65.124	
Total operating expenses			193.138
Income before income taxes			$ 23.941

Cash and Receivables

Estimating Uncollectible Accounts

Dec. 31, 20x6: Management estimated that approximately $6,000 of the was uncollectible.

Two commonly used methods for estimating loss

1. Percentage of net sales method

2. Accounts receivable aging method

Percentage of Net Sales Method Illustrated

Dec. 31, 20x9: Account balances: Sales, \$645,000; Sales Returns and Allowances, \$40,000; Sales Discounts, \$5,000; Allowance for Uncollectible Accounts, \$3,600. **Management estimates that uncollectible accounts will average about 2 percent of net sales.**

Uncollectible accounts expense = .02 x (\$645,000 – \$40,000 – \$5,000) = \$12,000

Dec. 31	Uncollectible Accounts Expense	12,000	
	Allowance for Uncollectible Accounts		12,000
	To record the uncollectible accounts expense at 2 percent of \$600,000 net sales		

Percentage of Net Sales Method Illustrated

Dec. 31	Uncollectible Accounts Expense	12,000	
	Allowance for Uncollectible Accounts		12,000
	To record the uncollectible accounts expense at 2 percent of $600,000 net sales		

After the above entry is posted, Allowance for Uncollectible Accounts will have a credit balance of $15,600

Allowance for Uncollectible Accounts

	Dec. 31	3,600
	Dec. 31 adj.	12,000
	Dec. 31 bal.	15,600

P 2. On December 31 of last year, the balance sheet of Vaslor Company had Accounts Receivable of $298,000 and a credit balance in Allowance for Uncollectible Accounts of $20,300. During the current year, Vaslor Company's records included the following selected activities: (a) sales on account, $1,195,000; (b) sales returns and allowances, $73,000; (c) collections from customers, $1,150,000; and (d) accounts written off as worthless, $16,000. In the past, 1.6 percent of Vaslor Company's net sales have been uncollectible.

Required

1. Prepare T accounts for Accounts Receivable and Allowance for Uncollectible Accounts. Enter the beginning balances, and show the effects on these accounts of the items listed above, summarizing the year's activity. Determine the ending balance of each account.
2. Compute Uncollectible Accounts Expense and determine the ending balance of Allowance for Uncollectible Accounts under (a) the percentage of net sales method and (b) the accounts receivable aging method. Assume that an aging of the accounts receivable shows that $20,000 may be uncollectible.
3. Compute the receivable turnover and days' sales uncollected, using the data from the accounts receivable aging method in requirement 2.

Answer

1.	T accounts prepared and data entered				
		Accounts Receivable			
Bal.		298.000	(b)	Sales returns and allowances	73.000
(a)	Credit sales	1.195.000	(c)	Collections from customers	1.150.000
			(d)	Write-offs	16.000
Bal.		*254.000*			
		Allowance for Uncollectible Accounts			
(d)	Write-offs	16.000		Bal.	20.300
				Bal.	*4.300*

Answer (cont)

2.	**Uncollectible Accounts Expense and ending balance of Allowance for Uncollectible Accounts determined**							
a.	**Percentage of net sales method:**							
	Uncollectible Accounts Expense	**=**	**Net Credit Sales**	x	**1.6 percent**			
		=	**($1.195.000**	**œ**	**$73.000**	**)**	x	**0,016**
		=	**$17.952**					
	Allowance for Uncollectible Accounts	**=**	**$17.952**	**+**	**$4.300**			
		=	**$22.252**					
	Accounts Receivable, Net	**=**	**$254.000**	**œ**	**$22.252**			
		=	**$231.748**					
b.	**Accounts receivable aging method:**							
	Uncollectible Accounts Expense	**=**	**$20.000**	**œ**	**$4.300**			
		=	**$15.700**					
	Allowance for Uncollectible Accounts	**=**	**$20.000**					
	Accounts Receivable, Net	**=**	**$254.000**	**œ**	**$20.000**			
		=	**$234.000**					

Answer (cont)

3.	Receivable turnover and days' sales uncollected calculated								
Receivable Turnover =		$1.195.000		œ	$73.000				
	(	$234.000	* +	$277.700	**)	÷	2		
=		$1.122.000 / $255.850	=	4,4	times				
Days' Sales Uncollected =		365 days / 4,4	=	83	days†				
*	$254.000	œ	$20.000	=	$234.000				
**	$298.000	œ	$20.300	=	$277.700				
†	Rounded								

Accounts Receivable Aging Method Illustrated

Myer Company
Analysis of Accounts Receivable by Age
December 31, 20xx

Customer	Total	Not Yet Due	1–30 Days Past Due	31–60 Days Past Due	61–90 Days Past Due	Over 90 Days Past Due
A. Arnold	$ 150		$ 150			
M. Benoit	400			$ 400		
J. Connolly	1,000	$ 900	100			
R. Deering	250				$ 250	
Others	42,600	21,000	14,000	3,800	2,200	$1,600
Totals	$44,400	$21,900	$14,250	$4,200	$2,450	$1,600
Estimated percentage uncollectible		1.0	2.0	10.0	30.0	50.0
Allowance for Uncollectible Accounts	$ 2,459	$ 219	$ 285	$ 420	$ 735	$ 800

To the balance sheet

Accounts Receivable Aging Method Illustrated

Dec. 31, 20x6: Management has estimated that $2,459 of Accounts Receivable are uncollectible. Allowance for Uncollectible Accounts has a credit balance of $800.

Allowance for Uncollectible Accounts

	Dec. 31	800
	Dec. 31 adj.	?
	Dec. 31 bal.	2,459

Accounts Receivable Aging Method Illustrated

Allowance for Uncollectible Accounts

		Dec. 31	800
		Dec. 31 adj.	**1,659**
		Dec. 31 bal.	2,459

A credit adjustment of $1,659 will bring the account to its target balance

Dec. 31	Uncollectible Accounts Expense	1,659	
	Allowance for Uncollectible Accounts		1,659
	To bring the allowance for uncollectible accounts to the level of estimated losses		

Accounts Receivable Aging Method

P 3. Thant Company uses the accounts receivable aging method to estimate uncollectible accounts. At the beginning of the year, the balance of the Accounts Receivable account was a debit of $88,430, and the balance of Allowance for Uncollectible Accounts was a credit of $7,200. During the year, the store had sales on account of $473,000, sales returns and allowances of $4,200, worthless accounts written off of $7,900, and collections from customers of $450,730. At the end of year (December 31), a junior accountant for Thant Company was preparing an aging analysis of accounts receivable. At the top of page 6 of the report, the following totals appeared:

Customer Account	Total	Not Yet Due	1–30 Days Past Due	31–60 Days Past Due	61–90 Days Past Due	Over 90 Days Past Due
Balance Forward	$89,640	$49,030	$24,110	$9,210	$3,990	$3,300

To finish the analysis, the following accounts need to be classified:

Account	Amount	Due Date
B. Singh	$ 930	Jan. 14 (next year)
L. Wells	620	Dec. 24
A. Roc	1,955	Sept. 28
T. Cila	2,100	Aug. 16
M. Mix	375	Dec. 14
S. Price	2,685	Jan. 23 (next year)
J. Wendt	295	Nov. 5
	$8,960	

From past experience, the company has found that the following rates are realistic for estimating uncollectible accounts:

Time	Percentage Considered Uncollectible
Not yet due	2
1–30 days past due	5
31–60 days past due	15
61–90 days past due	25
Over 90 days past due	50

Required

1. Complete the aging analysis of accounts receivable.
2. Compute the end-of-year balances (before adjustments) of Accounts Receivable and Allowance for Uncollectible Accounts.
3. Prepare an analysis computing the estimated uncollectible accounts.
4. Calculate Thant Company's estimated uncollectible accounts expense for the year (round the amount to the nearest whole dollar).

Answer

1.	Aging analysis completed

Thant Company
Aging Analysis of Accounts Receivable
December 31, 20xx

Customer Account	Total	Not Yet Due	1–30 Days Past Due	31–60 Days Past Due	61–90 Days Past Due	Over 90 Days Past Due
Balance Forward	$89.640	$49.030	$24.110	$9.210	$3.990	$3.300
B. Singh	930	930				
L. Wells	620		620			
A. Roc	1.955					1.955
T. Cila	2.100					2.100
M. Mix	375		375			
S. Price	2.685	2.685				
J. Wendt	295			295		
	$98.600	$52.645	$25.105	$9.505	$3.990	$7.355

Answer (cont)

2.	End-of-year balances computed			
Accounts Receivable				
	Beginning balance			$ 88.430
	Credit sales			473.000
	Subtotal			$561.430
	Less:	Sales returns and allowances	$ 4.200	
		Accounts written off	7.900	
		Collections from customers	450.730	462.830
	Ending balance			$ 98.600
Allowance for Uncollectible Accounts				
	Beginning credit balance			$ 7.200
	Less accounts written off			7.900
	Debit balance at end of year			$ 700

Answer (cont)

3.	Analysis of estimated uncollectible accounts prepared		
	Thant Company		
	Estimated Uncollectible Accounts		
	December 31, 20xx		
	Amount	**Percentage Considered Uncollectible**	**Allowance for Uncollectible Accounts**
Not yet due	$52.645	2	$1.052,90
1œ30 days past due	25.105	5	1.255,25
31œ60 days past due	9.505	15	1.425,75
61œ90 days past due	3.990	25	997,50
Over 90 days past due	7.355	50	3.677,50
	$98.600		$8.408,90

Answer (cont)

4.	Uncollectible accounts expense calculated
Desired balance	$8.409
Debit balance in allowance account	700
Amount of adjustment	$9.109

Allowance for uncollectible accounts

700	X
	8409

X → X - 700 = 8409 => X = 9109

Provision Expense (I/S) 9109
Allowance for uncollectible accounts 9109