

2. Techniques / Formula for Inventory Valuation

2.1 Cost Formulas

Cost should be ascertained in the following manner –

Item	Method
<ul style="list-style-type: none">For items that are not ordinarily interchangeable, andFor goods or services produced & segregated for specific projects.For other items (See Notes below the diagram.)	<p>Specific Identification of Cost Method.</p> <p>Refer Diagram below.</p>



Notes:

- (a) Items marked in **bold letters** above are included in CA Foundation Syllabus. The other methods are discussed only in the next level CA Inter.
- (b) Each of the above methods is discussed in separate questions below.
- (c) Though different techniques / formula are described above, AS – 2 recognises the use of First-In-First-Out (FIFO), or Weighted Average Cost (WAC) methods only.

2.2 Specific Identification of Cost

1. Meaning	<ul style="list-style-type: none"> (a) Specific Identification of Cost means that specific costs are attributed to specific or identified items of inventory. (b) This applies for items that are segregated or identified for a specific project, regardless of whether they have been purchased or produced. (c) When there are large numbers of items of inventory, which are ordinarily interchangeable, specific identification of costs should not be applied.
2. Merits	<ul style="list-style-type: none"> (a) Cost of materials issued for production / specific jobs represent actual and correct costs. (b) This method is best suited for non-standard and specific products.
3. Demerits	This method is difficult to operate when purchases and issues are numerous.
4. Example	AB Ltd is engaged in construction of high rise buildings. The cost of lifts / elevators (one or two units in each building complex) is ascertained by specific identification of costs. On the other hand, Steel and Cement being regularly used (high quantity inventory item) can be measured by FIFO or WAC Method.

2.3 First-In-First-Out Method (FIFO)

1. Meaning	<ul style="list-style-type: none"> (a) FIFO is a method of pricing the issues of materials, in the order in which they are purchased. So, the earliest prices at which materials were received are exhausted first before subsequent prices are taken up. (b) Hence, Closing Stock will be valued at the prices relating to the latest consignments.
2. Merits	<ul style="list-style-type: none"> (a) It is simple to understand and easy to operate. (b) In the case of falling prices, the use of this method gives better results. (c) Closing Stock of material will be represented very closely at current market price.
3. Demerits	This method may lead to clerical errors, when the prices fluctuate frequently.
4. Impact	Cost of Goods Sold (COGS) will consist of the Oldest Prices, while Closing Stock will be valued at most recent price.

2.4 Last-In-First-Out (LIFO)

1. Meaning	<ul style="list-style-type: none"> (a) It is a method of pricing the issues of materials, in the reverse order in which they are purchased. So, Closing Stock will be generally valued at the earliest prices. (b) The prices of the most recently received consignments, i.e. immediately last available consignment, are exhausted first before previous consignment prices are taken up.
2. Merits	<ul style="list-style-type: none"> (a) Cost of materials issued will reflect the current market price approximately. This enables the matching of cost of production with current sales revenues. (b) Use of LIFO method during the period of rising prices does not reflect undue high profit in the income statement.

	(c) In the case of falling prices, profit tends to rise due to lower material cost, yet the finished products appear to be more competitive and are at market price. (d) In the long run, the use of LIFO helps to iron out the fluctuations in profits. (e) During inflation, LIFO will tend to show the correct profit.
3. Demerits	(a) Calculation becomes complicated and cumbersome when frequent purchases are made at highly fluctuating rates. (b) In time of falling prices, there will be need for writing off stock value considerably to stick to the principle of stock valuation, i.e. Cost or Market Price whichever is lower. (c) This method is not acceptable under Accounting Standards or to Income Tax Authorities.
4. Impact	COGS will consist of Recent Prices, while Closing Stock will be valued at Older Prices.

Illustration 2: FIFO and LIFO Methods

Following information regarding Product K is provided by Ratnavel Ltd for the fortnight of April.

Stock	on 1 st April	100 units at ₹ 5 p.u.	Purchases	5 th April	300 units at ₹ 6 p.u.	Sales	6 th April	250 units
	8 th April	500 units at ₹ 7 p.u.		10 th April	400 units		12 th April	500 units
							14 th April	

Calculate using FIFO & LIFO methods – (a) cost of goods sold during the period, (b) value of stock of materials on 15th April.**Solution:****1. Stock Ledger under FIFO Method**

Date	Particulars	Receipts			Issues			Balance		
		Quantity	Rate	Value	Quantity	Rate	Value	Quantity	Rate	Value
1	Opg.balance	–	–	–	–	–	–	100	5	500
5	Receipt	300	6	1,800	–	–	–	100	5	500
								300	6	1,800
6	Sales	–	–	–	100	5	500	150	6	900
					150	6	900			
8	Receipt	500	7	3,500	–	–	–	150	6	900
								500	7	3,500
10	Sales	–	–	–	150	6	900	250	7	1,750
					250	7	1,750			
12	Receipt	600	8	4,800	–	–	–	250	7	1,750
								600	8	4,800
14	Sales	–	–	–	250	7	1,750	250	8	2,000
					250	8	2,000			
	Total	1,400		10,100	1,150			7,800	350	8
										2,800

Cost of Goods Sold = Opening Stock + Purchases – Closing Stock = 500 + 10,100 – 2,800 = ₹ 7,800.**2. Priced Stores Ledger under LIFO Method**

Date	Particulars	Receipts			Issues			Balance		
		Quantity	Rate	Value	Quantity	Rate	Value	Quantity	Rate	Value
1	Opg.balance	–	–	–	–	–	–	100	5	500
5	Receipt	300	6	1,800	–	–	–	100	5	500
								300	6	1,800
6	Sales	–	–	–	250	6	1,500	100	5	500
								50	6	300
8	Receipt	500	7	3,500	–	–	–	100	5	500
								50	6	300
								500	7	3,500

Date	Particulars	Receipts			Issues			Balance		
		Quantity	Rate	Value	Quantity	Rate	Value	Quantity	Rate	Value
10	Sales	—	—	—	400	7	2,800	100	5	500
								50	6	300
								100	7	700
12	Receipt	600	8	4,800	—	—	—	100	5	500
								50	6	300
								100	7	700
								600	8	4,800
14	Sales	—	—	—	500	8	4,000	100	5	500
								50	6	300
								100	7	700
								100	8	800
	Total	1,400		10,100	1,150		8,300	350		2,300

Cost of Goods Sold = Opening Stock + Purchases – Closing Stock = 500 + 10,100 – 2,300 = ₹ 8,300.

2.5 Simple Average Price Method

1. Meaning	Closing Stock is valued at Average Price, which is calculated by dividing the total of all units rate by the number of unit rates. Simple Avg Price = Total of Unit Prices of each purchase ÷ Total No. of purchases Example: If there were three consignments with prices of ₹ 20, ₹ 27 and ₹ 22, the Simple Average Price would be ₹ (20 + 27 + 22) ÷ 3 = ₹ 23
2. Merits	(a) Useful when materials are received in uniform lots of similar quantity. (b) Useful when purchase prices do not fluctuate considerably. (c) Simple to understand and easy to operate.
3. Demerits	(a) Materials Issue Cost does not represent actual cost price. Since the materials are issued at a price obtained by averaging cost prices, a profit or loss may arise from such type of pricing. (b) This method will give incorrect results, if the prices of material fluctuate frequently. (c) The price determination is unscientific, since there is averaging of prices without considering quantity.

2.6 Weighted Average Price Method

1. Meaning	Weighted Average Price Method gives due weightage to quantities purchased and the purchase price to determine the issue price. Closing Stock is valued at Weighted Average Cost, calculated as under – Total Cost of Goods received ÷ Total Quantity purchased
2. Merits	(a) It smoothens the price fluctuations, if any, due to material purchases. (b) Issue prices need not be calculated for each issue unless new lot of materials is received.
3. Demerits	(a) Material Cost does not represent actual cost price and so, there is a profit or loss. (b) It may be difficult to compute since every new lot received would require re-computation of issue prices.

Illustration 3: Simple Average and Weighted Average Cost Method

A Company has the following record of purchases –

Date	December 4	December 10	December 11	December 19	December 28
Quantity (units)	900	400	300	200	800
Price p.u. (₹)	50	55	55	60	47.50

Sales were made as under:

Date	December 5	December 12	December 29
Quantity (Units)	600	400	600

Compute the value of Closing Inventory under – (a) Simple Average Cost, (b) Weighted Average Cost.

Solution:**Method 1: Computation of Inventory Value without Daily Stock Ledger**

1. Purchase Quantity during the period = $900 + 400 + 300 + 200 + 800$	2,600 units
2. Sale Quantity during the period = $600 + 400 + 600$	1,600 units
3. Quantity of Closing Inventory at the end of the period ($1 - 2$)	1,000 units
4. Simple Average Cost = Total of Unit Prices of each purchase \div Total No. of purchases $= (50 + 55 + 55 + 60 + 47.50) \div 5 =$	₹ 53.50 p.u
5. So, Value of Closing Inventory under Simple Average Cost Method = (3×4)	₹ 53,500
6. Weighted Average Cost = Total Cost of Goods received \div Total Quantity purchased $= [(900 \times 50) + (400 \times 55) + (300 \times 55) + (200 \times 60) + (800 \times 47.50)] \div (900 + 400 + 300 + 200 + 800)$ $= 1,33,500 \div 2,600 \text{ units} =$	₹ 51.35 p.u
7. So, Value of Closing Inventory under Weighted Average Cost Method = (3×6)	₹ 51,350

Method 2: Computation of Inventory Value under WAC Method when Daily Stock Ledger is prepared

Note: When Daily Stock Ledger is maintained, recording receipts / issues daily, a new average rate would be calculated on receiving every fresh consignment. The Stock Ledger is shown below –

Stock Ledger under WAC Method

Date	Particulars	Receipts			Issues			Balance		
		Quantity	Rate	Value	Quantity	Rate	Value	Quantity	Rate	Value
4	Receipt	900	50.00	45,000				900	50.00	45,000
5	Sale				600	50.00	30,000	300	50.00	15,000
10	Receipt	400	55.00	22,000				700	52.86	37,000
11	Receipt	300	55.00	16,500				1,000	53.50	53,500
12	Sale				400	53.50	21,400	600	53.50	32,100
19	Receipt	200	60.00	12,000				800	55.13	44,100
28	Receipt	800	47.50	38,000				1,600	51.31	82,100
29	Sale				600	51.31	30,788	1,000	51.31	51,312

Note: Weighted Average Cost (i.e. Rate) is computed as Total Value divided by Total Quantity.

2.7 Retail Method

- Applicability:** This method is applicable in the following situations –
 - (a) Retail Trade,
 - (b) Similar profit margins,
 - (c) Inventories of large numbers of rapidly changing items, and
 - (d) Impracticable to use other costing methods.
- Retail Method may be used for **convenience** if the results approximate the actual cost.
- Measurement:** Cost of Inventory = Sales Value of Inventory Less **Appropriate** Gross Margin Percentage.

Note: Adjusted GP Percentage is used for inventories marked down to below its Original Selling Price.
An average percentage for each Retail Department is often used.

Note: In making calculations relating to Profit as a % on Cost and % on Selling Prices, the student should bear in mind, the following relationships.

Cost	+	Profit	=	Sales	So, the relationship to be remembered is –
100%	+	50%	=	150%	$(50 \div 100) = 1/2^{\text{nd}}$ on Cost = $1/3^{\text{rd}}$ on Sales = $(50 \div 150)$
100%	+	33%	=	133%	$(33 \div 100) = 1/3^{\text{rd}}$ on Cost = $1/4^{\text{th}}$ on Sales = $(33 \div 133)$
100%	+	25%	=	125%	$(25 \div 100) = 1/4^{\text{th}}$ on Cost = $1/5^{\text{th}}$ on Sales = $(25 \div 125)$
100%	+	20%	=	120%	$(20 \div 100) = 1/5^{\text{th}}$ on Cost = $1/6^{\text{th}}$ on Sales = $(20 \div 120)$

Illustration 4: Adjusted Selling Price or Retail Inventory Method

Shri Thangavel sells goods at 20% GP on Cost. He provides the following data. Find out the value of Closing Inventory.

- Opening Inventory at Market Prices = ₹ 1,20,000 (Cost = ?)
- Sales made during the period = ₹ 38,40,000
- Purchases during the period (at Cost) = ₹ 34,00,000.

Solution:

- Since GP = 20% on Cost = $1/5^{\text{th}}$ on Cost, it is equal to $1/6^{\text{th}}$ on Selling Price.
- So, Cost of Sales = Sales **less** GP at $1/6^{\text{th}}$ thereon = ₹ 38,40,000 – $1/6^{\text{th}}$ = ₹ 32,00,000.
- Similarly, Cost of Opening Inventory = ₹ 1,20,000 **less** GP at $1/6^{\text{th}}$ thereon = ₹ 1,00,000
- Also, Cost of Sales = Opening Inventory + Purchases – Closing Inventory.
- From this equation, we get Closing Inventory = Opening Inventory + Purchases – Cost of Sales.
- So, Closing Inventory = 1,00,000 + 34,00,000 – 32,00,000 = ₹ **3,00,000**.

Illustration 5: Adjusted Selling Price or Retail Inventory Method

Shri Singaravelan commenced retail business during the year, and provides the following data for the year –

- Sales during the year = ₹ 85,00,000
- Closing Inventory at Market Prices = ₹ 13,50,000
- Purchases during the period = ₹ 78,80,000.

Find out the value of Closing Inventory.

Solution:

Sales during the year	85,00,000
Add: Closing Inventory at Market Prices	13,50,000
Total of above	98,50,000
Less: Cost of Purchase during the year	78,80,000
Gross Profit	19,70,000
Gross Profit Margin as a % of Sales = $19,70,000 \div 98,50,000$	20%
So, Value of Closing Inventory = Market Price Less 20% GP	13,50,000 – 20% = 10,80,000

Illustration 6: Adjusted Selling Price or Retail Inventory Method

Shri Swaminathan operates a retail business. For a financial year, the following data is given –

Particulars	At Retail Price	At Cost
Value of Opening Inventory	₹ 80,000	₹ 60,000
Value of Purchases	₹ 1,40,000	₹ 1,20,000

Calculate the cost of Closing Stocks, if the Sales made during the period is ₹ 2,00,000.

Solution:

1. Value of Closing Inventory at Retail Prices	= Opening Stock + Purchases – Sales = ₹ 80,000 + ₹ 1,40,000 – ₹ 2,00,000 = ₹ 20,000 .
2. Average Percentage of Cost to Retail Prices	= Total Average Cost ÷ Total Average Retail Value = (₹ 60,000 + ₹ 1,20,000) ÷ (₹ 80,000 + ₹ 1,40,000) = 81.82% . So, GP Margin = 100% - 81.82% = 18.18% .
3. Value of Closing Inventory at Cost Prices	= Retail Values Less Margin of 18.18% = ₹ 20,000 – 18.18% thereon = ₹ 16,364 .

2.8 Standard Cost Method

1. Features:

- Under this method, Materials are priced at a Pre-determined Rate or Standard Price irrespective of the actual purchase cost of the materials.
- Standard Cost is usually determined considering factors like – (i) Current prices, (ii) Anticipated market trends, and (iii) Discount available and Transport Charges, etc.

2. Advantages:

- Simplifies the task of valuing issues of materials.
- Reduces clerical work.
- Facilitates the control of Material Cost, and the task of judging the efficiency of the Purchase Department.

3. Disadvantages:

- Standard Price does not reflect the Market Price, and thus results in a profit or loss.
- Fixing Standard Price becomes difficult when prices fluctuate frequently.