INVENTORIES (IAS 2)

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1. INTRODUCTION

IAS 2: *Inventories* prescribes the **accounting treatment for inventories**, including **measurement**, **cost determination**, **cost formulas**, **write-downs**, and **disclosures**.

Inventories are a major current asset for entities that sell goods, manufacture products, or hold materials for production. Correct measurement is essential because it directly affects **profit**, **cost of sales**, and **financial position**.

2. DEFINITION OF INVENTORIES (IAS 2.6)

Inventories are assets:

1. **Held for sale** in the ordinary course of business (e.g., finished goods).
2. **In the process of production** for such sale (work-in-progress).
3. **In the form of materials or supplies** to be consumed in production or rendering of services.

3. SCOPE OF IAS 2

IAS 2 applies to all inventories **except**:

- Construction contracts (IAS 11 / IFRS 15)
- Financial instruments (IFRS 9)
- Biological assets (IAS 41)
- Agricultural produce at point of harvest (IAS 41)

4. MEASUREMENT PRINCIPLE

Inventories must be measured at the **lower of**:

(a) Cost

(b) Net Realisable Value (NRV)

5. COMPONENTS OF INVENTORY COST

Inventory cost includes:

5.1 Cost of Purchase

- Purchase price
- Import duties and taxes (excluding recoverable VAT)
- Transport, handling, and other directly attributable costs
- Less: Trade discounts, rebates, settlement discounts

5.2 Cost of Conversion

Includes:

- **Direct labour**
- **Direct materials**
- **Production overheads**
    - *Fixed overheads* allocated based on **normal capacity**
    - *Variable overheads* allocated based on **actual production**

5.3 Other Costs

Only if the costs are **necessary** to bring inventory to its present **location** or **condition**.

6. COSTS EXCLUDED FROM INVENTORY

These are **expensed immediately**:

- Abnormal waste of materials/labour
- Storage costs (unless necessary in production)
- Administrative overheads not contributing to bringing inventory to condition/location
- Selling costs
- Foreign exchange losses
- Interest (unless qualifying asset under IAS 23)

7. COST FORMULAS (IAS 2.25–27)

Entities must use:

- **FIFO (First-In, First-Out)** or
- **Weighted Average Cost**

NOT allowed any longer:

- LIFO (Last-In, First-Out)

8. NET REALISABLE VALUE (NRV)

NRV = **Estimated selling price** – **Costs of completion** – **Selling costs**

NRV is assessed **item by item**, unless items are interchangeable.

9. WRITE-DOWNS AND REVERSALS

Write-down

If NRV < Cost → inventory is written down to NRV.

Journal entry:

Dr Inventory Write-down
  Cr Inventory

Year-end closing entry:
Dr Cost of Sales
  Cr Inventory Write-down

Reversal

If NRV increases later → reversal allowed (but only up to original cost).

Journal entry:

Dr Inventory
  Cr Reversal of Write-down of Inventory

Year-end closing entry:

Dr Reversal of Write-down of Inventory
  Cr Cost of Sales

10. INVENTORY SYSTEMS

10.1 Perpetual System

- Continuous tracking
- Cost of sales updated with each sale
- More accurate, real-time information

10.2 Periodic System

- Inventory counted at period-end
- Cost of sales calculated using formula:

$$\text{Cost of Sales} = \text{Opening Inventory} + \text{Purchases} - \text{Closing Inventory}$$

11. DETAILED WORKED EXAMPLES

11.1 Example: FIFO

Data:

- Opening inventory: 100 units @ R20
- Purchase 1: 150 units @ R22
- Purchase 2: 200 units @ R25
- Units sold: 300 units

FIFO Cost of Sales:

Oldest units sold first:

- 100 units @ R20 = R2 000
- 150 units @ R22 = R3 300
- 50 units @ R25 = R1 250

Total COGS = R6 550

Closing Inventory:

Remaining units = 150 units @ R25 = **R3 750**

11.2 Example: Weighted Average

Data:

- Opening: 100 units @ R20 = R2 000
- Purchases: 150 units @ R22 = R3 300
- Total units = 250
- Total cost = R5 300

Weighted Average Cost per Unit:

$$\text{WAC} = \frac{5\,300}{250} = R21.20$$

If 180 units sold:

→ COGS = 180 × 21.20 = **R3 816**

→ Closing inventory = 70 × 21.20 = **R1 484**

11.3 Example: NRV Write-down

Data:

- Cost per unit = R50
- Selling price = R55
- Selling costs = R10

➔ NRV = 55 – 10 = **R45**

Since NRV < Cost → write-down to R45.

Journal Entry:

Dr Inventory Write-down Expense (R5 per unit)
  Cr Inventory (R5 per unit)

12. GROSS PROFIT, MARK-UP & PROFIT MARGIN

These are essential for exam questions involving missing figures, inventory valuation, and cost-of-sales calculations.

12.1 Definitions

Gross Profit

$$\text{Gross Profit} = \text{Sales} - \text{Cost of Sales}$$

Mark-up %

Percentage **added to cost** to determine selling price.

$$\text{Mark-up \%} = \frac{\text{Gross Profit}}{\text{Cost of Sales}} \times 100$$

Profit Margin %

Percentage of **selling price** that is profit.

$$\text{Margin \%} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

12.2 Relationship Between Mark-up and Margin

If mark-up = 25%:

Cost = R100 GP = R25 Selling price = R125

Margin = 25 ÷ 125 = **20%**

12.3 Worked Examples

Example 1: Calculate Gross Profit

Data:

- Sales = R500 000
- Cost of Sales = R320 000

Gross Profit:

$$500\,000 - 320\,000 = \mathbf{R180\,000}$$

Example 2: Calculate Mark-up %

Data:

- Cost of Sales = R80 000
- Gross Profit = R20 000

Mark-up:

$$\frac{20\,000}{80\,000} \times 100 = \mathbf{25}\%$$

Example 3: Calculate Profit Margin %

Data:

- Sales = R150 000
- Gross Profit = R30 000

Margin:

$$\frac{30\,000}{150\,000} \times 100 = \mathbf{20}\%$$

Example 4: Find Selling Price Using Mark-up

Data:

- Cost = R400
- Mark-up = 30%

Selling Price:

$$400 + (400 \times 0.30) = \mathbf{R520}$$

Example 5: Find Cost Using Margin

Data:

- Selling price = R500
- Margin = 25%

Gross Profit:

$$500 \times 0.25 = \text{R}125$$

Cost:

$$500 - 125 = \mathbf{R375}$$

13. DISCLOSURE REQUIREMENTS (IAS 2.36)

Entities must disclose:

- Accounting policies for measuring inventories
- Total carrying amount of inventories
- Carrying amount by classification (raw materials, WIP, finished goods)

- Inventory recognised as expense (COGS)
- Write-downs and reversals
- Inventories pledged as security

14. EXAM-STYLE QUESTIONS WITH SOLUTIONS

Question 1: NRV Adjustment

Data:

- Inventory cost = R120 000
- NRV = R110 000

Required: Adjustment and journal entry.

Solution: Write-down = 120 000 – 110 000 = **R10 000**

Dr Inventory Write-down Expense 10 000
  Cr Inventory 10 000

Question 2: Missing Figures Using Mark-up

Data:

- Mark-up = 40%
- Cost of Sales = R300 000

Required: Sales.

Solution: Mark-up = 40% of cost = 0.40 × 300 000 = R120 000

→ Sales = Cost + GP = **R420 000**

Question 3: FIFO Inventory Valuation

Data:

- Opening: 50 units @ R10
- Purchase: 100 units @ R12
- Sales: 80 units

Required: COGS and closing inventory.

Solution:

➔ COGS = 50×10 + 30×12 = **R860**
➔ Closing inventory = 70×12 = **R840**

15. FORMULA SHEET — INVENTORIES & PROFIT ANALYSIS

1. INVENTORY VALUATION FORMULAS

1.1 Cost of Inventory

$$\text{Cost} = \text{Cost of Purchase} + \text{Cost of Conversion} + \text{Direct Costs}$$

Cost of Purchase

$$\text{Purchase Price} + \text{Import Duties} + \text{Transport/Handling} - \text{Discounts/Rebates}$$

Cost of Conversion

$$\text{Direct Materials} + \text{Direct Labour} + \text{Allocated Overheads}$$

1.2 Net Realisable Value (NRV)

$$\text{NRV} = \text{Estimated Selling Price} - \text{Costs of Completion} - \text{Selling Costs}$$

1.3 Lower of Cost and NRV Rule

$$\text{Inventory Value} = \min(\text{Cost}, \text{NRV})$$

1.4 Cost of Sales (Periodic System)

$$\text{COGS} = \text{Opening Inventory} + \text{Purchases} - \text{Closing Inventory}$$

1.5 FIFO (First-In, First-Out)

- Oldest costs → Cost of Sales
- Newest costs → Closing Inventory

(No formula — apply layers chronologically.)

1.6 Weighted Average Cost (WAC)

$$\text{WAC per unit} = \frac{\text{Total Cost of Units Available}}{\text{Total Units Available}}$$

$$\text{COGS} = \text{Units Sold} \times \text{WAC}$$

$$\text{Closing Inventory} = \text{Units on Hand} \times \text{WAC}$$

2. GROSS PROFIT FORMULAS

2.1 Gross Profit

$$\text{Gross Profit} = \text{Sales} - \text{Cost of Sales}$$

2.2 Gross Profit %

$$\text{Gross Profit \%} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

3. MARK-UP & MARGIN FORMULAS

3.1 Mark-up %

Percentage added **on cost**.

$$\text{Mark-up \%} = \frac{\text{Gross Profit}}{\text{Cost of Sales}} \times 100$$

3.2 Profit Margin %

Percentage of **selling price** that is profit.

$$\text{Margin \%} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

4. RELATIONSHIP BETWEEN MARK-UP & MARGIN

4.1 Convert Mark-up → Margin

$$\text{Margin \%} = \frac{\text{Mark-up \%}}{100 + \text{Mark-up \%}} \times 100$$

Example

Mark-up = 25%

$$\text{Margin} = \frac{25}{125} \times 100 = 20\%$$

4.2 Convert Margin → Mark-up

$$\text{Mark-up \%} = \frac{\text{Margin \%}}{100 - \text{Margin \%}} \times 100$$

Example

Margin = 20%

$$\text{Mark-up} = \frac{20}{80} \times 100 = 25\%$$

5. SELLING PRICE & COST FORMULAS

5.1 Selling Price Using Mark-up

$$\text{Selling Price} = \text{Cost} \times (1 + \text{Mark-up \%})$$

Example

Cost = R400 Mark-up = 30%

$$400 \times 1.30 = R520$$

5.2 Cost Using Mark-up

$$\text{Cost} = \frac{\text{Selling Price}}{1 + \text{Mark-up \%}}$$

5.3 Selling Price Using Margin

$$\text{Selling Price} = \frac{\text{Cost}}{1 - \text{Margin \%}}$$

5.4 Cost Using Margin

$$\text{Cost} = \text{Selling Price} \times (1 - \text{Margin \%})$$

6. INVENTORY WRITE-DOWN & REVERSAL FORMULAS

6.1 Write-down Amount

$$\text{Write-down} = \text{Cost} - \text{NRV}$$

6.2 Reversal Amount

$$\text{Reversal} = \text{Increase in NRV}, \text{limited to Previous Write-down})$$

16. 20-QUESTION EXAM PACK WITH SOLUTIONS

SECTION A — THEORY (10 QUESTIONS)

1. Define inventories according to IAS 2.

Solution: Inventories are assets:

- Held for sale in the ordinary course of business
- In the process of production for such sale
- In the form of materials or supplies to be consumed in production or service delivery

2. State the measurement rule for inventories.

Solution: Inventories are measured at the **lower of cost and net realisable value (NRV)**.

3. List the three components of inventory cost.

Solution:

- Cost of purchase
- Cost of conversion
- Other costs necessary to bring inventory to its present location or condition

4. Name four costs excluded from inventory.

Solution:

- Abnormal waste
- Storage costs (unless required in production)
- Administrative overheads not related to production
- Selling costs

5. Which cost formulas are permitted by IAS 2?

Solution:

- FIFO
- Weighted Average Cost (LIFO is **not** permitted.)

6. Define Net Realisable Value (NRV).

Solution: NRV = Estimated selling price – Costs of completion – Selling costs.

7. When must an inventory write-down be reversed?

Solution: When NRV increases in a later period, and the reversal does not raise the inventory above original cost.

8. Provide the journal entry for an inventory write-down.

Solution:

Dr Inventory Write-down Expense
  Cr Inventory

9. Provide the journal entry for a reversal of a write-down.

Solution:

Dr Inventory
  Cr Reversal of Write-down (COGS)

10. State the formula for Cost of Sales under the periodic system.

Solution: COGS = Opening Inventory + Purchases – Closing Inventory.

SECTION B — CALCULATIONS (10 QUESTIONS)

11. FIFO Valuation

Data:

- Opening: 100 units @ R20
- Purchase: 200 units @ R25
- Sales: 150 units

Required: COGS and closing inventory.

Solution:

FIFO → oldest units sold first.

➔ COGS: 100 × 20 = 2 000 plus 50 × 25 = 1 250 → **Total COGS = R3 250**
➔ Closing inventory: Remaining 150 units @ R25 = **R3 750**

12. Weighted Average Cost

- **Data:**
- Opening: 50 units @ R10 = 500
- Purchase: 150 units @ R14 = 2 100
- Units sold: 120

Required: COGS and closing inventory.

Solution:

Total units = 200; Total cost = 2 600 → WAC = 2 600 ÷ 200 = **R13 per unit**

➔ COGS = 120 × 13 = **R1 560**
➔ Closing inventory = 80 × 13 = **R1 040**

13. NRV Adjustment

Data:

- Cost = R80 000
- NRV = R72 000

Solution:

Write-down = 80 000 – 72 000 = **R8 000**

14. NRV Reversal

Data:

- Previous write-down = R10 000
- Current NRV increase = R12 000

Solution:

Reversal limited to previous write-down. Reversal = **R10 000**

15. Mark-up Calculation

Data:

- Cost = R400
- Mark-up = 30%

Solution:

Selling price = 400 × 1.30 = **R520**

16. Profit Margin Calculation

Data:

- Selling price = R500
- Margin = 25%

Solution:

➔ Gross profit = 500 × 25% = 125
➔ Cost = 500 – 125 = **R375**

17. Missing Figure: Sales

Data:

- Cost of Sales = R300 000
- Mark-up = 40%

Solution:

GP = 40% × 300 000 = 120 000

→ Sales = 300 000 + 120 000 = **R420 000**

18. Missing Figure: Cost of Sales

Data:

- Sales = R600 000
- Profit Margin = 20%

Solution:

GP = 600 000 × 20% = 120 000

→ COGS = 600 000 – 120 000 = **R480 000**

19. Combined FIFO + NRV Question

Data:

- Closing inventory at cost = R50 000
- NRV = R46 000

Solution:

Inventory must be valued at **R46 000**.

→ Write-down = **R4 000**.

20. Full COGS Calculation

Data:

- Opening inventory = R25 000
- Purchases = R180 000
- Closing inventory (after NRV adjustment) = R30 000

Solution:

➔ COGS = 25 000 + 180 000 – 30 000 COGS = **R175 000**

20-Question Multiple-Choice Test

SECTION A — THEORY (10 QUESTIONS)

1. Inventories are measured at:

A. Cost only
B. NRV only
C. Lower of cost and NRV
D. Higher of cost and NRV

➔ **Correct answer:** C
➔ **Explanation:** IAS 2 requires the *lower* of cost and NRV.

2. Which of the following is *included* in the cost of inventory?

A. Selling costs
B. Abnormal waste
C. Import duties
D. Administrative overheads

➔ **Correct answer:** C
➔ **Explanation:** Import duties form part of cost of purchase (unless refundable).

3. Which cost formula is *not* permitted by IAS 2?

A. FIFO
B. Weighted Average
C. LIFO
D. Standard Cost

➔ **Correct answer:** C
➔ **Explanation:** LIFO is explicitly prohibited.

4. NRV is defined as:

A. Selling price minus cost of sales
B. Selling price minus costs of completion and selling costs
C. Cost minus selling costs
D. Selling price minus overheads

➔ **Correct answer:** B

5. Which of the following must be expensed immediately?

A. Direct labour
B. Storage costs unrelated to production
C. Import duties
D. Freight-in

➔ **Correct answer:** B

6. Fixed production overheads must be allocated based on:

A. Actual production
B. Maximum capacity
C. Normal capacity
D. Budgeted sales

➔ **Correct answer:** C

7. A write-down is reversed when:

A. NRV increases above original cost
B. NRV increases but not above original cost
C. Cost increases
D. Selling price decreases

➔ **Correct answer:** B

8. Which inventory system updates COGS continuously?

A. Periodic
B. Perpetual
C. Hybrid
D. Standard

➔ **Correct answer:** B

9. Which of the following is *not* part of cost of conversion?

A. Direct labour
B. Variable overheads
C. Fixed overheads
D. Selling and distribution costs

➔ **Correct answer:** D

10. Inventory write-downs are recognised as:

A. A liability
B. A reduction in equity
C. An expense
D. Revenue

➔ **Correct answer:** C

SECTION B — CALCULATIONS (10 QUESTIONS)

11. FIFO: What is COGS?

Data:

- Opening: 50 units @ R10
- Purchase: 100 units @ R12
- Sales: 80 units

A. R860
B. R960
C. R1 000
D. R1 200

➔ **Correct answer:** A
➔ **Explanation:** 50×10 = 500 plus 30×12 = 360, therefore total COGS = 860.

12. Weighted Average Cost per unit?

Data:

- Opening: 100 units @ R20
- Purchase: 100 units @ R30

A. R20
B. R25
C. R30
D. R35

➔ **Correct answer:** B
➔ **Explanation:** Total cost = 2 000 + 3 000 = 5 000; Total units = 200; **WAC = 25**.

13. NRV = ?

Data:

- Selling price = R100
- Completion costs = R10
- Selling costs = R5

A. R85
B. R90
C. R95
D. R100

➔ **Correct answer:** A
➔ **Explanation:** NRV = 100 – 10 – 5 = 85.

14. Write-down amount?

Data:

- Cost = R60
- NRV = R50

A. R10
B. R5
C. R15
D. R20

➔ **Correct answer:** A

15. Selling price using 25% mark-up on cost of R200?

A. R225
B. R240
C. R250
D. R260

➔ **Correct answer:** C
➔ **Explanation:** 200 × 1.25 = 250.

16. Margin = 20%. Selling price = R300. Cost = ?

A. R240
B. R250
C. R260
D. R280

➔ **Correct answer:** A
➔ **Explanation:** GP = 300 × 20% = 60; Cost = 300 – 60 = 240.

17. Sales = ?

Data:

- COGS = R400 000
- Mark-up = 50%

A. R500 000
B. R550 000
C. R600 000
D. R650 000

➔ **Correct answer:** C
➔ **Explanation:** GP = 50% × 400 000 = 200 000 → Sales = 600 000.

18. COGS = ?

Data:

- Sales = R800 000
- Profit Margin = 25%

A. R500 000
B. R550 000
C. R600 000
D. R650 000

➔ **Correct answer:** C
➔ **Explanation:** GP = 800 000 × 25% = 200 000; COGS = 800 000 – 200 000 = 600 000.

19. Inventory value after NRV test?

Data:

- Cost = R120 000
- NRV = R115 000

A. R120 000
B. R115 000
C. R5 000
D. R125 000

➔ **Correct answer:** B

20. COGS under periodic system?

Data:

- Opening inventory = R30 000
- Purchases during period = R200 000
- Closing inventory = R40 000

A. R160 000
B. R170 000
C. R180 000
D. R190 000

➔ **Correct answer:** D

➔ **Explanation:** COGS = 30 000 + 200 000 – 40 000 = 190 000.
