

# Formulae

The following formulae will be used in business management external assessment. A copy of the formulae will be provided to students for the examination.

## Formulae for ratio analysis (SL/HL)

### Profitability ratios (SL/HL)

$$\text{Gross profit margin} = \frac{\text{gross profit}}{\text{sales revenue}} \times 100$$

$$\text{Net profit margin} = \frac{\text{net profit before interest and tax}}{\text{sales revenue}} \times 100$$

### Liquidity ratios (SL/HL)

$$\text{Current ratio} = \frac{\text{current assets}}{\text{current liabilities}}$$

$$\text{Acid test (quick) ratio} = \frac{\text{current assets} - \text{stock}}{\text{current liabilities}}$$

### Efficiency ratios (SL/HL)

$$\text{Return on capital employed (ROCE)} = \frac{\text{net profit before interest and tax}}{\text{capital employed}} \times 100$$

where *capital employed* = loan capital (or long-term liabilities) + share capital + retained profit

### Efficiency ratios (HL only)

$$\text{Stock turnover (number of times)} = \frac{\text{cost of goods sold}}{\text{average stock}}$$

or

$$\text{Stock turnover (number of days)} = \frac{\text{average stock}}{\text{cost of goods sold}} \times 365$$

where *cost of goods sold* is an approximation of total credit purchases

$$\text{and average stock} = \frac{\text{opening stock} + \text{closing stock}}{2}$$

$$\text{Debtor days ratio (number of days)} = \frac{\text{debtors}}{\text{total sales revenue}} \times 365$$

where *total sales revenue* is an approximation of total credit sales

$$\text{Creditor days ratio (number of days)} = \frac{\text{creditors}}{\text{cost of goods sold}} \times 365$$

where *cost of goods sold* is an approximation of total credit purchases

$$\text{Gearing ratio} = \frac{\text{loan capital}}{\text{capital employed}} \times 100$$

where *capital employed* = loan capital (or long-term liabilities) + share capital + retained profit

## Other formulae (SL/HL)

### Investment appraisal

#### SL/HL

$$\text{Average rate of return (ARR)} = \frac{(\text{total returns} - \text{capital cost}) \div \text{years of use}}{\text{capital cost}} \times 100$$

#### HL only

$$\text{Net present value (NPV)} = \sum \text{present values of return} - \text{original cost}$$

### Capacity utilization and productivity (HL only)

$$\text{Capacity utilization rate} = \frac{\text{actual output}}{\text{productive capacity}} \times 100$$

$$\text{Productivity rate} = \frac{\text{total output}}{\text{total input}} \times 100$$

### Cost to buy and cost to make (HL only)

$$\text{Cost to buy} = \text{price} \times \text{quantity}$$

$$\text{Cost to make} = \text{fixed costs} + (\text{variable costs} \times \text{quantity})$$

## Discount tables (HL only)

A discount table will be provided for students in the examination.

Years	Discount rate				
	4%	6%	8%	10%	20%
1	0.9615	0.9434	0.9259	0.9091	0.8333
2	0.9246	0.8900	0.8573	0.8264	0.6944
3	0.8890	0.8396	0.7938	0.7513	0.5787
4	0.8548	0.7921	0.7350	0.6830	0.4823
5	0.8219	0.7473	0.6806	0.6209	0.4019
6	0.7903	0.7050	0.6302	0.5645	0.3349
7	0.7599	0.6651	0.5835	0.5132	0.2791
8	0.7307	0.6271	0.5403	0.4665	0.2326
9	0.7026	0.5919	0.5002	0.4241	0.1938
10	0.6756	0.5584	0.4632	0.3855	0.1615

## Presentation of balance sheet and profit and loss account (SL/HL)

Where balance sheets and profit and loss accounts are given in case studies or examination questions, they will be presented in the format shown below. Students should be familiar with these layouts. Please note that while profit and loss account is also known as income statement, the term profit and loss account will be used in assessment.

### ABC Ltd

#### Balance sheet as of 31 May 20\*\*

	\$m	\$m
<b>Fixed assets</b>		
Fixed assets	500	
Accumulated depreciation	20	
Net fixed assets		480
<b>Current assets</b>		
Cash	10	
Debtors	12	
Stock	35	
Total current assets	57	
<b>Current liabilities</b>		
Overdraft	5	
Creditors	15	
Short term loans	22	
Total current liabilities	42	
Net current assets (Working capital)		15
Total assets less current liabilities		495
<b>Long-term liabilities (debt)</b>	300	
Net assets		195
Financed by:		
• share capital	110	
• retained profit	85	
<b>Equity</b>		195

**ABC Ltd****Profit and loss account for ABC Ltd for the year ended 31 May 20\*\***

	\$m
Sales revenue	700
Cost of goods sold	350
Gross profit	<u>350</u>
Expenses	200
Net profit before interest and tax	<u>150</u>
Interest	10
Net profit before tax	140
Tax	25
Net profit after interest and tax	<u>115</u>
Dividends	35
Retained profit	<u>80</u>