5 Accounting Equation

The following facts are discussed in this chapter.

5.1 Accounting equation

5.2 Construction of the accounting equation

5.3 How do business transactions affect to the accounting equation

5.4 Situations that change the equity

5.1 Accounting equation

The assets and the ownership of those assets of a business are shown in accounting records of that business. All assets should belong to some party of the business. Therefore, assets of a business should be equal to the total ownership of those assets. To show this relationship, an equation is used, which is called as the Accounting Equation.

5.2 Construction of accounting equation

If all assets are financed by the owner of the business, the accounting equation can be presented as follows.

Assets = Equity

Example :-

Amal started a business investing Rs.500 000 in cash. Here, assets (cash) of the business is equal to Rs. 500 000 and this total amount belongs to the owner, Amal. Accordingly,

Assets	=	Equity
Rs.		Rs.
Cash 500 000	=	Capital 500 000

When a business expands, the resources invested by owners would not be adequate. Therefore, the business will have to obtain resources from external parties. When the business borrows money, liabilities arise. When there are liabilities in the business, a part of its assets belong to debt holders. Remaining of the assets belongs to owners. In such a situation, accounting equation can be built as follows.

Assets = Equity + Liabilities

Example :-

With reference to the above example, if Amal had obtained a bank loan of Rs. 300 000, assets of Amal's business is increased by Rs. 300 000 (cash). On the other hand, it increases liabilities (bank loan) of the business by Rs. 300 000.

Accordingly, the accounting equation including the second transaction is now depicted as,

Assets	=	Equity	+	Liabilities
Rs.		Rs.		Rs.
Cash 800 000	=	Capital 500 000	+	Bank loan 300 000

5.3 Effects of business transactions to the Accounting Equation

The value of assets, liabilities and equity are changed due to business transactions. Accordingly, the accounting equation changes due to the business transactions. Let us understand these changes using the following examples.

Example 1 :-

Owner invested Rs. 800 000 as capital.

Asset	=	Equity	+	Liabilities
Rs.		Rs.		Rs.
Cash 800 000	=	Capital 800 000	+	———

Example 2 :-

Purchased furniture for Rs. 100 000.

The accounting equation changes as follows,

	Assets			=	Equity	+	Liabilities
	Rs.				Rs.		Rs.
	Furniture	+	Cash	=	Capital	+	Liabilities
Balance at the beginning	-	+	800 000	=	800 000	+	-
Purchase of furniture	100 000		(100 000)	=	-	+	-
Equation	100 000	+	700 000	=	800 000	+	-

Example 3 :-

Obtained a bank loan of Rs. 300 000.

	Assets			=	Equity	+	Liabilities
	Rs.				Rs.		Rs.
	Furniture	+	Cash	=	Capital	+	Bank loan
Balance at the beginning	100 000	+	700 000	=	800 000	+	-
Bank loan	-	+	300 000	=	-	+	300 000
Equation	100 000	+	1 000 000	=	800 000	+	300 000

Example :-

Nehara started a business to repair computers. The following transactions are given to you for the first month of the business.

01. Invested Rs. 500 000 as the capital
02. Obtained a bank loan of Rs. 200 000
03. Deposited Rs. 100 000 in a fixed deposit account
04. Earned a cash income Rs. 60 000 from computer repairs
05. Paid Rs. 10 000 as the monthly rent of the business
06. Nehara withdrew Rs. 20 000 from the business for her private use
07. Purchased equipment at Rs. 100 000
08. Paid Rs. 5 000 of the telephone bill of the month
09. Nehara invested an additional capital of Rs. 50 000
10. Settled Rs. 20 000 of the bank loan

The impacts of the above transactions to the accounting equation are shown below.

	Assets Rs.			= Equity + Liability Rs.	
	Equipment	+ Fixed deposit	+ Cash	Equity	+ Bank loan
1			+ 500 000	+ 500 000	
2			+ 200 000		+ 200 000
3		+ 100 000	- 100 000		
4			+ 60 000	+ 60 000	
5			- 10 000	- 10 000	
6			- 20 000	- 20 000	
7	+ 100 000		- 100 000		
8			- 5 000	- 5 000	
9			+ 50 000	+ 50 000	
10			- 20 000		- 20 000
Closing balance	100 000	+ 100 000	+ 555 000	= 575 000	+ 180 000

Example :-

The following balances were extracted as at 01.08.20xx from Sandamini's business.

		Rs.
Assets -		
	Furniture	300 000
	Stocks	200 000
	Debtors	100 000
	Cash	200 000
Liabilities -		
	Bank loan	300 000
	Creditors	100 000

The following transactions occurred in the first week of August 20xx

01. Purchased goods at Rs. 100 000 to sell
02. Sold goods which were purchased at Rs. 100 000 for Rs. 125 000
03. Settled Rs. 50 000 of the bank loan
04. Paid Rs. 10 000 as salaries
05. Sandamini withdrew goods at a cost of Rs. 20 000 for her private use.
06. Purchased furniture at Rs. 50 000 for the use of the business
07. Purchased goods at Rs. 200 000 on credit basis.
08. Sold goods at Rs. 100 000 on credit basis. These goods had been purchased at Rs. 60 000
09. Received Rs. 80 000 from debtors
10. Paid Rs. 50 000 to creditors

How to calculate the owner's equity as at 01.08.20xx and how the above transactions affect to the accounting equation are as follows.

01. The equity as at 01.08.20xx

Equity = Assets - Liabilities
= (200 000 + 100 000 + 200 000 + 300 000) – (300 000 +100000)
= 800 000 - 400 000
= Rs. 400 000

02. Impact of the transactions on the accounting equation

	Assets Rs.				= Equity + Liability Rs.		
	Furniture	+ Stock	+ Debtors	+ Cash	Equity	+ Bank loan	+ Creditors
Opening balance	300 000	+200 000	+100 000	+200 000	+400 000	+300 000	+100 000
1		+100 000		-100 000			
2		-100 000		+125 000	+25 000		
3				-50 000		-50 000	
4				-10 000	-10 000		
5		-20 000			-20 000		
6	+50 000			-50 000			
7		+200 000					+200 000
8		-60 000	+100 000		+40 000		
9			-80 000	+80 000			
10				-50 000			-50 000
Closing balance	350 000	+320 000	+120 000	+145 000 =	435 000	+250 000	+250 000

Example :-

The following balances were shown as at 01.07.20xx of Ruwanthi's business.

	Rs.
Motor vehicles	500 000
Stocks	200 000
Cash	100 000
Bank loan	200 000
Creditors	100 000
Capital	500 000

The following transactions occurred in July 20xx.

01. Owner invested Rs. 200 000 as additional capital
02. Paid Rs. 20 000 bank loan installment including Rs. 2 000 as the interest.
03. Purchased goods at Rs. 100 000 on credit basis
04. Paid Rs. 50 000 to creditors
05. The owner gave Rs. 200 000 worth of his private motor bicycle to the business
06. Sold goods which cost Rs. 100 000 at Rs. 150 000 on credit basis
07. Paid Rs. 10 000 for insurance
08. Received Rs. 70 000 from debtors
09. Paid Rs. 5 000 from business for the electricity bill of owner's house
10. Received sales commission income of Rs. 10 000

See below how the above transactions affect to the accounting equation.

Impacts of transactions to the accounting equation as follows.

Number	Assets Rs.				= Equity	+ Liability Rs.	
	Motor vehicles	+ Stock	+ Debtors	+ Cash	Equity	+ Bank loan	+ Creditors
Opening balance	500 000	+200 000		+100 000	+500 000	+200 000	+100 000
1				+200 000	+200 000		
2				-20 000	-2 000	-18 000	
3		+100 000					+100 000
4				-50 000			-50 000
5	+200 000				+200 000		
6		-100 000	+150 000		+50 000		
7				-10 000	-10 000		
8			-70 000	+70 000			
9				-5 000	-5 000		
10				+10 000	+10 000		
Closing balance	700 000	+200 000	+80 000	+295 000 =	943 000	+182 000	+150 000

It is also important to identify the transactions which have been presented in the accounting equation.

See the following example,

Example :-

The following accounting equation of Aloka's business shows the impacts of transactions occurred in January.

	Assets Rs.				= Equity	+ Liability Rs.	
	Land and buildings	+ Stock	+ Debtors	+ Cash	Equity	+ Bank loan	+ Creditors
Opening balance	1000 000	+300 000	+200 000	+300 000	+1200 000	+500 000	+100 000
01.03		+200 000		-100 000			+100 000
01.07				-20 000	-20 000		
01.10				-60 000	-10 000	-50 000	
01.14		-200 000	+300 000		+100 000		
01.18				+300 000	+300 000		
01.21				-100 000			-100 000
01.25			-400 000	+400 000			

The owner has not made drawings in the month.

Transactions assumed to be taken place in each day can be presented as follows.

Jan 03 - Purchased goods at Rs. 100 000 on cash basis and at Rs. 100 000 on credit basis

Jan 07 - Paid Rs. 20 000 of expense.

Jan 10 - Paid Rs. 60 000 of bank loan installment including Rs. 10 000 as the interest.

Jan 14 - Sold goods which cost Rs. 200 000 at Rs. 300 000 on credit basis.

Jan 18 - Invested Rs. 300 000 as additional capital.

Jan 21 - Paid Rs. 100 000 to creditors.

Jan 25 - Received Rs. 400 000 from debtors.

5.4 Situations that change the equity

By studying the above facts, you may have understood the transactions that affect to increase or decrease the owner's equity. The following transactions affect to change the equity of the business.

- Introduction of additional capital
- Drawings
- Income
- Expenses

The owner has to invest cash or other assets according to the needs of the business. It increases the owners equity.

The owner may withdraw money or other assets from the business for his personal use. This is called drawings. It decreases the owner's equity.

Equity is increased by income and decreased by expenses.

Example :-

Following are some details of Binuri Enterprises for the Year 20xx.

Capital (01.01.20xx)	358 500
Expenses for the year	128 300
Income for the year	254 620
Cash invested by the owner on 30th June	75 000

The owners equity can be calculated as follows as at 31st of December 20xx

Capital (01.01.20xx)	358 500
+ Income	254 620
Additional Capital	75 000
	688 120
- Expenses	(128 300)
Owners equity as at 31st of Dec.20xx	559 820

Activities 01

02. The following accounting equation of Jayantha's business shows the impacts of transactions occurred in April 20xx

	Assets Rs.			=	Equity + Liabilities Rs.	
	Motor vehicles	+ Stock	+Debtors	+ Cash	Equity	+ Creditors
Balance as at 1st April	500 000	+200 000		+200 000	+700 000	+200 000
04.03				+300 000	+300 000	
04.05		+100 000				+100 000
04.08				-50 000		-50 000
04.10				-10 000	-10 000	
04.11		-60 000	+100 000		+40 000	
04.17	+200 000				+200 000	
04.19		-20 000			-20 000	
04.23			-20 000	+20 000		
04.28		-5 000			-5 000	
04.30					+50 000	-50 000
Closing balance	700 000	215 000	80 000	460 000	1255 000	200 000

Note - Owner has not taken any cash drawings during the month.
Required - Describe the each transaction with the related amounts.

Activities 02

The following are the transactions relevant to the month of January 20xx of Thisuri's business.

Jan 01	Invested Rs. 300 000 as capital
Jan 04	Purchased goods at Rs. 50 000
Jan 09	Paid Rs 10 000 of monthly rent
Jan 13	Sold goods which costed for Rs 40 000 at Rs. 60 000
Jan 19	Obtained a bank loan of to Rs. 300 000
Jan 21	Paid Rs.10 000 from the business for telephone bill of Thushari's house
Jan 28	Received Rs. 30 000 from debtors
Jan 30	Paid interest of to Rs. 5000 for the bank loan
Jan 31	Paid electricity bill Rs. 5000

Required :-

Show the impact of each of transactions with amounts in the accounting equation.

Activity 03

Following details are extracted from Jeewantha's business for the year of 20xx.

Capital (as at 01.01.20xx)	415 000
Income of the year	210 300
Expenses of the year	122 000
Additional capital	50 000

Required :-

Calculate the owner's equity as at 31^{st} December 20xx.

Activity 04

The following table shows the impacts of transactions to accounting equation of a business.

Date	**Assets**	=	**Equity**	+	**Liability**
June 1	Increase Decrease				
June 2	Decrease	=	Decrease		
June 3	Increase	=			Increase
June 4	Increase	=	Increase		
June 5	Decrease	=			Decrease

According to this equation, write two possible transactions with amounts that may have taken place during each day.