: Chapter -2:

Cost terms, Concepts and Classifications

01. Concepts and Classification;
A product cost is any cost involved in the purchase or the manufacture of goods. In the in the case of manufactured goods, this costs consists of direct materials, direct labor and manufactured overhead. A period cost is a cost that is taken directly to the income statement as an expense in the period in which it is incurred.

02. Since product cost follow units of product into inventory, they are sometimes called inventoriable cost, the flow is from direct materials, direct labor and manufacturing overhead into work in process. As goods are completed, their cost is removed from work in process and transferred into finished goods. As goods are sold, their cost is removed from finished goods and transferred into cost of goods sold in an expense on the income statement.

03. A variable cost is a cost that varies, in, total. In direct production to change in the level of activity. A variable cost is a constant per unit of product. A fixed cost is a fixed in total, but will vary inversely on a per unit basis with changes in the level of activity.

04. When fixed costs are involved, the cost of a unit of product will depend on the number of units being manufactured. As production increases, the cost per unit will fall as the fixed cost is spread over more units. Conversely, as production declines, the cost per unit will rise, since a constant fixed cost figure will be spread over fewer units.

05. A differential cost is a cost that differs between alternatives in a decision. An opportunity cost is the potential benefit that is given up when one alternative is selected over another. A sunk cost is a cost that has already been incurred and cannot be altered by any decision taken now or in the future.

06. Differential costs can be either variable or fixed. For example, the alternatives might consist of purchasing one machine rather than another in order to make a product. The difference in the fixed costs of purchasing the two machines would be a differential cost.

07. Exercise-2.9

A few of these costs may generate lively debate .for example, some may argue that the cost of advertising a Madonna rock concert is a variable cost since the number of people who come to the rock concert depends upon how much advertising there is .However, one can argue that if the price is within reason, any Madonna rock concert in New York City will be sold out and the function of advertising is simply to let people know the event will be happening. Moreover, while advertising may affect the number of persons who ultimately buy tickets, the advertising costs don't go up.

	Cost behavior	
	Variable	Fixed
1. X-ray film used in the radiology lab at Virginia Mason Hospital in Seattle		x
2. The cost of advertising a Madonna rock		

concert in New York city .....

3. Depreciation on the Planet Hollywood restaurant building in Hong Kong .....

electrical cost s of running a roller coaster at Magic Mountain .....

5. Property taxes on your local cinema .....

6. Commission paid to salespersons at Nordstroms .....

7.property insurance on a Coca- Cola bottling plant .....

8. The cost of synthetic materials used to make Nike running shoes .....

9. The cost of shipping Panasonic televisions to retail stores .....

10. The cost of leasing an ultra-scan diagnostic machine at the American hospital in Paris .....

x

x

4.The

x

x

x

x

X

x

X

	Cost Behavior		Selling and	Product
	Variable	Fixed	Administrative Cost	Cost
1. Hamburger burns at a McDonald's outlet	x			x
2. Advertising by a dental Office		x	x	
3. Apples processed and canned by a Del Monte Corporation.	x			x
4. Shipping canned apples from a Del Monte plant to customers.	x		x	
5. Insurance on a Bausch and lomb factory producing contract lenses		X		x
6. Insurance on IBM's corporate Headquarter		x	x	
7. Salary of a supervisor overseeing production of computer board at Hewlett-Packard		x		x
8. Commissions paid to Encyclopedia Britannica salespersons	x		x	
9. Depreciation of factory lunchroom facilities at a General Electric plant		x		x
10. Steering wheels installed in BMWs	x			x

09. **Problem-2-14**

Name of the Cost	Variable Cost	Fixed Cost	Product cost: Direct mat.	Product cost: Direct labor	Product cost: Mfg, O/H	Period (selling& adm.cost)	Opp. cost	Sunk cost
Rental revenue Foregone,$30,000 Per year							X	
Direct materials cost, $ 80 per unit	X		X					
Rental cost o Warehouse , $500 Per month		X				X		
Rental cost of Equipment, $ 4000 per month		X			X			
Direct labor cost , $60 per unit	X			X				
Depreciation of annex space , $8000 per year		X			X			
X								
Advertising cost , $50000 per year		X				X		
Supervisors salary, $1500 per month		X			X			
Electricity for machines,$120 per unit	X				X			
Shipping cost , $9 per unit	X					X		
Return earned on investment , $3000 per year								X

10. Problem:2-20

Cost Item	Cost Behavior		Units of Product	
	Variable	Fixed	Direct	Indirect
1. Electricity used in operating machines		X		X
2. Rent on a factory building ...		X	X	
3. Cloth used in drapery production	X			X
4. Production superintendents salary		X		X
5. Wages of labors assembling a product	X			
6. Depreciation air purification equipment used in furniture production		X		X
7. Janitorial salaries		X		X
8. Peaches used in canning fruit.....	X			
9.Lubricants needed for machines	X			X
10. Suger used in soft drink production ...	X			
11. Property taxes on the factory		X		X
12. Wages of workers painting a product ...	X			
13. Depreciation of cafeteria equipment		X		X
14. Insurance on a building used in producing TV sets		X		X
15.Picture tubes used in TV sets	X			

Format of Schedule of Cost of Goods Manufacturer

Particulars	$	$
Materials:		
Raw Materials Inventory (Opening)--------		
Add Purchase of Raw Materials----------		

Raw Materials available----------		
Less Raw Materials Inventory (Closing) --		
Raw Materials used or consumed----------		
Direct Labor----------		
Manufacturing Overhead:		
Rent on facilities ----------		
Insurance ----------		
Utilities cost ----------		
Indirect Labor ----------		
Depreciation (Factory Equipment) ---------		
Maintenance (Factory)----------		
Others if any ----------		
Total Maintenance Costs		
Add Work in Process (Opening) ----------		
Less Work in Process (Closing)----------		
Cost of Goods Manufactured		

Format of Income Statement

Particulars	$	$
Sales ----------		
Less Cost of Goods sold:		
Finished Goods Inventory (Opening)------		
Add Cost of Goods Manufactured----------		
Goods Available for Sale----------		
Less Finished Goods Inventory (Closing)		
Gross Margin		
Less Operating Expenses (Office & Admin & selling & Distribution Exp.):		
Selling & Administrative Expenses --------		
Rent on Facilities ------- ----------		
Insurance -------- ----------		
Depreciation (Sales Equipment) ----------		
Utilities Costs ------- ----------		
Advertising ----------		
Others if any ----------		
Net Operating Income (N.O.I)		

Problem 2.20 (P.-82)

Skyler Company

Schedule of Cost of Goods Manufacturer for the month ended June

Particulars	$	$
Materials:		
Raw Materials Inventory (June-01)--------	17,000/=	
Add Purchase of Raw Materials----------	1,90,000/=	

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Raw Materials available----------	2,07,000/=	
Less Raw Materials Inventory (June-30) -	42,000/=	
Raw Materials used or consumed----------		**1,65,000/=**
Direct Labor----------		90,000/=
Manufacturing Overhead:		
Rent on facilities (80%) ----------	32,000/=	
Insurance (75%) ----------	6,000/=	
Utilities cost (90%) ----------	45,000/=	
Indirect Labor ----------	1,08,000/=	
Depreciation (Factory Equipment) --------	12,000/=	
Maintenance (Factory)----------	7,000/=	2,10,000/=
Total Maintenance Costs		4,65,000/=
Add Work in Process (June-01) ----------		70,000/=
		5,35,000/=
Less Work in Process (June-30)----------		85,000/=
Cost of Goods Manufactured		**4,50,000/=**

Income Statement for the month ended June

Particulars	$	$
Sales ----------		6,00,000/=
Less Cost of Goods sold:		
Finished Goods Inventory (June – 01)------	20,000/=	
Add Cost of Goods Manufactured----------	4,50,000/=	
Goods Available for Sale----------	4,70,000/=	
Less Finished Goods Inventory (June –30)	60,000/=	4,10,000/=
Gross Margin		**1,90,000/=**
Less Operating Expenses:		
Selling & Administrative Expenses --------	35,000/=	
Rent on Facilities (20%) ----------	8,000/=	
Insurance (25%) ----------	2,000/=	
Depreciation (Sales Equipment) ----------	10,000/=	
Utilities Costs (10%) ----------	5,000/=	
Advertising ----------	80,000/=	1,40,000/=
Net Operating Income (N.O.I)		**50,000/=**

Cost Behavior; Analysis and Use

01. Concepts;

Cost behavior refers to how a cost will react or respond to changes in the level of business activity.

Cost Behavior Scenario		

Type of cost	Total costs	Per unit cost
Fixed costs	No change	Decrease or increase
Variable costs	Increase / Decrease	No change

a) **Variable cost** ; A variable cost is one that remains constant on a per unit basis, but which changes in total indirect relation to change in volume.

b) **Fixed cost**; A Fixed cost is one that remains constant in total amount, but which changes, if expressed on a per unit basis, inversely with changes in volume .

c) **Mixed cost**; A mixed cost is a cost that contains both variable and fixed costs elements.

Allocation of Mixed cost:

High-low Method: Under this method the variable cost element is found out from the mixed cost by applying the following. The variable rate formula goes as follows:

Variable rate=Change in cost ÷ Change in units

After finding out variable cost, fixed cost can be found out by deducting variable cost from total mixed cost

Exercise 5-5:

Requirement 01.

	Units Produced and sold		
	$60,000	**$80,000**	**$100,000**
Variable costs	150000	200000	250000
Fixed costs	360000	360000	360000
Total cost	**510000**	**560000**	**610000**
Cost per unit:			
Variable cost	2.50	2.50	2.50
Fixed cost	6.00	4.50	3.60
Total cost per unit	8.50	7.00	6.10

Requirement-02

Income statement for 9000 units	
Sales revenue (9000@7.5)	675000
Less: Variable cost (9000@2.50)	225000
Contribution Margin	450000
Less: Fixed Costs	360000
Net Income	**90000**

Exercise 5-11

1. Identification of Company's expenses

Costs of goods sold .....Variable

Advertising expenses ..... Fixed

Shipping expenses ..... Mixed

Salaries and commission ..... Mixed

Insurance expenses..... Fixed

Depreciation expenses..... Fixed

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2. Separation of Mixed Expenses under High-Low Method

	Units	Shipping Exp	Salary etc
High level of Activity	4500	56,000	143,000
Low level of Activity	3000	44,000	107,000
Change	1500	12000	36000

A. Valuable Cost Element:

Variable rate=Change in cost ÷ Change in units

1. Shipping Expense: 12000 ÷ 1500=$8
2. Salary expense: 36000 ÷ 1500= $24

B. Fixed Cost Element:

	Shipping Expense	Salary Expense
Cost of High level	56000	143000
less; VC		
4500 units @ $8	36000	
4500 units @ $24		108000
FC	**20000**	**35000**

C. Cost formula:

Shipping Expense: $ 20000 plus $8 per unit or
Y=$20000 + 8X

Salary Etc: $ 35000 plus $24 per unit or
Y=$35000 + 24X

Frankel Ltd
Income Statement for the month ended June

		4500
Sales in unit		
Sales revenue		**$ 630000**
Less: Variable costs:		
Cost of goods sold	252000	
Shipping	36000	
Salary etc	108000	396000 396000
Contribution Margin		**234000**
Less: Fixed costs:		
Advertising	70000	
Shipping	20000	
Salary etc	35000	
Insurance	9000	176000 176000
Depreciation	42000	
Net Income		**$58000**

2. Problem; 5-15

1. Costs of goods sold .....Variable
   Advertising expenses ..... Fixed
   Shipping expenses ..... Mixed

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Salaries and commission ..... Mixed
Insurance expenses..... Fixed
Depreciation expenses..... Fixed

2. Analysis of the mixed expenses;

	Unites	Shipping Expenses	Salary and Comm. Expenses
High level of activity	5000	A$38000	A$90000
Low level of activity	4000	34000	78000
Change	1000	A$ 4000	A$ 12000

A. Variable cost element;

Variable rate= Change in cost / Change in activity

1. Shipping expenses; A$4000 / 1000units
=A$4 per unit.
2. Salaries and comm. expense;= A$12000 / 1000units
=A$12 per unit.

B. Fixed cost element;

	Shipping Expenses	Salary and Com.Expenses
Cost of high level of activity...	A$38000	A$90000
Less variable cost element;		
5000 units x A$4	20000	
5000 units x A$12		60000
Fixed cost element	A$18000	A$30000

C. The cost formulas are;
Shipping expense; A$18000 per month plus $ 4 per unit or
Y= A$18000+A$4X
Salary and Com.Expenses; A$30000 per month plus A$12 per unit or
Y= A$30000+A$12X

Morrisey &Brown, Ltd.
Income statement
For the month ended September 30

Sales in units		5000
Sales revenue (@A$100)		A$500000
Less variable expenses;		
Cost of goods sold (@A$60)	A$300000	
Shipping expenses (@A$4)	20000	
Salary and Com.Expenses (@A$12)	60000	380000
Contribution margin		120000
Less fixed expenses;		
Advertising expenses	21000	
Shipping expense	18000	
Salary and Com.Expenses	30000	

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Insurance expenses	6000	
Depreciation expenses	15000	90000
Net income		A$30000

03. Problem;

1. Maintenance cost at the 90000 machine-hour level of activity can be isolated as follows:

	Level of activity	
	60000M	90000MH
Total factory overhead cost	$174000	$246000
Deduct;		
Utilities cost @$0.80/MH*	(48000)	(72000)
Supervisory salaries	(21000)	(21000)
Maintenance cost	$105000	$153000

*$48000/60000MH=$0.80/MH

2. High-low analysis of maintenance cost:

	Machine hours	Machine cost
High activity level	90000	$153000
Low activity level	60000	105000
Changes	30000	$48000

Variable rate; $\frac{\text{Change in cost}}{\text{Change in activity}}$

$= \frac{48000}{30000\text{MH}}$

$= \$1.60/\text{MH}$

Total fixed cost;	
Total maintenance cost at the high activity level	$153000
Less variable cost element (90000MHx$1.60)	144000
Fixed cost element	$9000

Therefore, the cost formula for maintenance is; $9000 per month plus $1.60 per machine-hour or

Y=$9000÷$1.60X

3.

	Variable Rate per Machine-Hour	Fixed Cost
Maintenance cost	$1.60	$9000
Utilities cost	0.80	
Supervisory salaries cost		21000
Total	$2.40	$30000

Thus, the cost formula would be; Y=$30000÷$2.40X.

4. Total overhead cost at an activity level of 75000 machine-hours;

Fixed costs	$30000
Variable costs ($2.40 x75000MH)	180000
Total overhead costs	$210000