

Foreword

To facilitate teachers in teaching the topics “Cost Classification, Concepts and Terminology” covered under the Accounting Module of the Business Accounting and Financial Studies (BAFS) curriculum, the Technology Education Section of Curriculum Development Institute, Education Bureau developed this learning and teaching resource materials to provide teachers with a variety of learning and teaching examples for reference.

This resource materials include lesson plans, PowerPoint presentation slides, home assignment as well as quiz with suggested answer.

This resource materials are by no means exhaustive. Teachers are advised to update any business data/information adopted in this resource materials if deemed necessary.

Topic Overview

Topic	BAFS (Elective Part) Cost Accounting – Cost Classification, Concepts and Terminology
Level	S6
Duration	3 lessons (40 minutes per lesson)

Learning Objectives:

1. Explain the general nature of cost accounting and its importance for financial decision-making.
2. Distinguish between direct and indirect costs, fixed and variable costs, and factory and administrative overheads.

Overview of Contents:

Lesson 1	Introduce cost accounting and explain the cost concepts and terminology.
Lesson 2	Understand different cost classifications used for preparing financial statements.
Lesson 3	Understand the cost classification used for cost decision-making.

Resources:

- Topic Overview and Teaching Plan
- PowerPoint Presentation

Suggested Activities:

- In-class discussion / exercise
- Classwork
- Homework
- Quiz

Lesson 1

Theme	Introduce cost accounting and explain the cost concepts and terminology
Duration	40 minutes

Expected Learning Outcomes:

Upon completion of this lesson, students will be able to:

1. explain the general nature of cost accounting and its importance in financial decision-making;
2. explain the differences between cost accounting and financial accounting; and
3. explain the meaning of cost concepts and terminology.

Teaching Sequence and Time Allocation:

Activities	Reference	Time Allocation
Part I: Introduction		
✧ Teacher recaps with students the major objective of accounting.	PPT #3 – 4	3 minutes
Part II: Content		
✧ Teacher introduces and explains two main scopes of accounting.	PPT #5 – 6	3 minutes
✧ Teacher compares the differences between financial accounting and cost accounting.	PPT #7 – 11	10 minutes
✧ Teacher brings out the importance of cost accounting.	PPT #12	3 minutes
✧ Activity 1: Classwork		
■ Teacher asks students to classify different scopes of accounting.	PPT #13 – 14	5 minutes
■ Teacher goes through the answers.	PPT #15	2 minutes
✧ Teacher explains the meaning of different cost concepts and terminology.	PPT #16 – 22	12 minutes
Part III: Conclusion		
✧ Teacher concludes the lesson by reviewing the key points covered.	PPT #23	2 minutes

Lesson 2

Theme	Understand different cost classifications used for preparing financial statements
Duration	40 minutes

Expected Learning Outcomes:

Upon completion of this lesson, students will be able to:

1. distinguish between direct and indirect costs, factory and selling and administrative overheads; and
2. calculate the cost of goods manufactured and the cost of goods sold for manufacturing companies.

Teaching Sequence and Time Allocation:

Activities	Reference	Time Allocation
Part I: Introduction		
✧ Teacher introduces two purposes of cost classifications.	PPT #2	1 minute
Part II: Content		
✧ Teacher explains costs can be classified as direct costs and indirect costs for preparing financial statements.	PPT # 3 – 9	8 minutes
✧ Activity 1: Classwork ■ Teacher asks students to classify direct costs and indirect costs for preparing financial statements. ■ Teacher goes through the answers.	PPT #10	3 minutes
	PPT #11	2 minutes
✧ Teacher explains cost can also be classified as prime cost and overheads for preparing financial statements.	PPT #12 – 15	6 minutes
✧ Activity 2: Classwork ■ Teacher asks students to calculate prime cost, unit production cost and the selling and administrative overheads for the classwork. ■ Teacher goes through the answers.	PPT #16	8 minutes
	PPT #17	2 minutes
✧ Teacher explains the ways to calculate cost of goods manufactured and cost of goods sold for manufacturing companies.	PPT #18 – 23	8 minutes
Part III: Conclusion		
✧ Teacher concludes the lesson by reviewing the key points covered.	PPT #24	2 minutes

Lesson 3

Theme Understand cost classification used for cost decision-making

Duration 40 minutes

Expected Learning Outcomes:

Upon completion of this lesson, students will be able to:

1. explain the meaning of cost behaviour;
2. identify fixed, step, variable and mixed costs; and
3. separate mixed costs into the fixed and variable components using high-low method.

Teaching Sequence and Time Allocation:

Activities	Reference	Time Allocation
Part I: Introduction		
✧ Teacher starts the lesson using a question and defines cost behaviour.	PPT #3 – 4	3 minutes
Part II: Content		
✧ Teacher explains costs can be classified as fixed, step, variable and mixed costs for cost decision-making.	PPT #5 – 11	15 minutes
✧ Activity 1: Classwork		
■ Teacher asks students to identify different types of costs.	PPT #12 – 13	3 minutes
■ Teacher goes through the answers.	PPT #14	2 minutes
✧ Teacher introduces high-low method to separate mixed costs with an illustration.	PPT #15 – 19	9 minutes
✧ Teacher explains and illustrates how the knowledge of cost classifications taught in the lesson facilitates cost decision-making.	PPT #20 – 23	6 minutes
Part III: Conclusion		
✧ Teacher concludes the lesson by reviewing the key points covered.	PPT #24 – 25	2 minutes

Cost Accounting

Cost Classification, Concepts and Terminology

Lesson 1

1

There are three lessons in this topic.

Lesson 1: Introduce cost accounting and explain the cost concepts and terminology.

Lesson 2: Understand different cost classifications used for preparing financial statements.

Lesson 3: Understand the cost classification used for cost decision making.

Explain the general nature of cost accounting and its importance in financial decision-making



2

There are three objectives in this lesson:

- (a) The first objective is to explain the general nature of cost accounting and its importance in financial decision-making.
- (b) The second objective is to explain the differences between cost accounting and financial accounting.
- (c) The third objective is to explain the meaning of cost concepts and terminology.

Question

What is the major objective of accounting?



3

Teacher starts the lesson with the above question and asks students for answers.

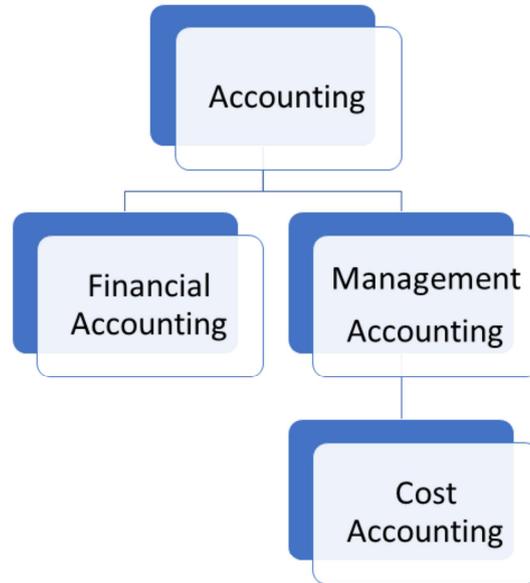
Major Objective of Accounting

- It is to provide sufficient **information** to meet the needs of **various (both external and internal) users**, such as creditors, government, employees and managers.
- The information provided will assist them in making decisions.

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Teacher recaps the major objective of accounting.

Two Main Scopes of Accounting



5

Teacher introduces two scopes of accounting.

Two Main Scopes of Accounting

There are two main scopes of accounting

1. Financial accounting is concerned with the provision of information to external parties.
2. Management (Cost) accounting is concerned with the provision of information to people within the company for making better decisions.

6

Teacher introduces the two scopes of accounting.

Remarks: The term 'cost accounting' is sometimes used interchangeably with 'management accounting' and in this curriculum, we just focus on cost accounting.

Financial Accounting

Financial accounting keeps track of a company's financial transactions. Using standardised concepts, principles and standards, the transactions are recorded, summarised, and presented in a financial statement such as an income statement or a statement of financial position.

7

Teacher recaps the definition of financial accounting.

Cost Accounting

Cost accounting is defined as the process of recording, classifying, summarising, allocating and analysing the different alternative measures to control costs. Its purpose is to guide management on how to control costs effectively and maximise productivity / profitability. It provides detailed information of the costs that needs to be focused on and find out the alternative course of actions to control the costs in the future.

8

Teacher explains the definition of cost accounting.

Comparison of Financial Accounting and Cost Accounting

	Financial Accounting	Cost Accounting
Users	Provide information to external users (Shareholders, lenders, etc.) for decision-making.	Provide information to internal users (Managers) for planning and controlling the organisation
Time Focus	Historical perspective	Future emphasis
Types of Information	Past information	Both past recorded and future forecasted information

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Teacher explains the differences between financial accounting and cost accounting.

Comparison of Financial Accounting and Cost Accounting

	Financial Accounting	Cost Accounting
Features of Information	Objectivity and verifiability of data are emphasised	Relevance and flexibility of data are emphasised
Time Span	Financial statements are prepared on a regular basis	Timeliness of information is required. Reports are required whenever needed
Subject	Focus on the whole organisation	Focus on particular segments of an organisation

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Teacher explains the differences between financial accounting and cost accounting.

Comparison of Financial Accounting and Cost Accounting

	Financial Accounting	Cost Accounting
Standards	Follow the GAAP and prescribed format	Need not follow the GAAP or any prescribed format
Legal requirement	Mandatory external reports	Not mandatory

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Teacher explains the differences between financial accounting and cost accounting.

Importance of Cost Accounting

1. Determine the cost of a product in order to accept or reject an order at a special price.
2. Determine whether a component will be bought externally or made by the company itself in order to maximise the profit.
3. Determine whether to eliminate or retain an unprofitable segment.
4. Determine whether to retain or replace equipment.
5. Determine whether to sell or process further.

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Teacher explains the importance of cost accounting.

Classwork

Peter Chan, the financial controller of ABC Company, has come across the following situations in the past few months:

1. Susan Tam, head of the production department, wondered whether it would be more profitable to buy components from an outside supplier or continue to produce by the company itself.
2. The president of the company reminded Peter that the Board meeting was coming up, and he needed Peter to present the information extracted from the financial statements of last year.

Teacher explains the question.

3. Alan Chan, head of the marketing department, had been approved to expand the sales office in next year. He then estimated and sent related information to Peter for budgeting purpose.
4. Peter received the information from Alan on depreciation and added it to depreciation expenses and accumulated depreciation on office equipment.
5. Peter compared the estimated spending on wages and salaries used in production with the actual spending. He found out that the spending was significantly higher than expected. He called for a meeting with Susan so that he could explain it.

Required:

Determine whether each of the above situations belongs to cost accounting scope or financial accounting scope.

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Teacher explains the question.

Classwork – Solution

1. Cost accounting
2. Financial accounting
3. Cost accounting
4. Financial accounting
5. Cost accounting

Teacher provides answers for the classwork.

Cost Concepts

Cost

- It is defined as the amount of expenditure incurred on, or attributable to, a specified product or activity.
- It is normally made up of three elements: materials, labour and overheads.
- For example: Suppose that ABC Company manufactures hockey sticks. Raw materials of wood, paint, and resin costing \$40,000 were put into production. Wages of factory workers amounted to \$56,000 and the depreciation expenses of machine totalled \$90,000 were incurred. In this case, the costs of the company in the production of hockey sticks would be \$186,000 (which included raw materials \$40,000, labour \$56,000 and overheads \$90,000).

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Teacher explains the meaning of cost.

Terminology

Cost Object

- It is any item for which costs are measured and assigned. It can be a product, a customer, a department, a project, and so on.
- For example: If a bank wants to determine the cost of maintaining credit cards to customers, then the cost object is the credit card. All costs associated to the card are added in, such as the cost of mailing the card to customers, the cost of telephone lines dedicated to the card, etc.

18

Teacher explains the meaning of cost object.

Terminology

Cost Unit

- It is a quantitative unit of product or service in which costs are ascertained.
- It is a measurement unit to express the cost of a quantity.
- For example: If a bank provides hotline services to its customers, the cost unit will be the number of call received or the number of customer served.

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Teacher explains the meaning of cost unit.

Terminology

Accumulating Costs

- It is the way that costs are measured and recorded.
- By cost accumulation, it tells the company the total amount spent on a particular cost object at the end of each accounting period.
- For example: When the company receives a phone bill, the bookkeeper records an addition to the telephone expense account and an addition to the accounts payable account. In this way, the cost on telephone charges is accumulated.

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Teacher explains the meaning of cost accumulation.

Terminology

Assigning Costs

- It is the way to link a cost to its cost object.
- By cost assignment, it tells the company how the money is spent on different cost objects.
- For example: Of the total phone expenses, how much was for the sales department, and how much was for the manufacturing department? By doing cost assignment, the company can tell whether the money spent on phone calls was to support the selling or the manufacturing of the product.

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Teacher explains the meaning of cost assignment.

Terminology

Cost Driver

- It is the basis that is used to allocate costs to cost object.
- It is commonly used to assign overheads to the number of units produced.
- For example: A factory has a machine that requires maintenance. The management can use machine hours as the cost driver to allocate the maintenance expenses to the costs of products produced by that machine.

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Teacher explains the meaning of cost driver.

Key Points Covered

1. The general nature of cost accounting and its importance in financial decision-making.
2. The differences between cost accounting and financial accounting.
3. The meanings of cost, cost object, cost unit, costs accumulation, costs assignment and cost driver.

23

Teacher makes a summary for this lesson.

Homework: Q1

24

Teacher asks students to do Question 1 at home.

END

Cost Accounting

Cost Classification, Concepts and Terminology

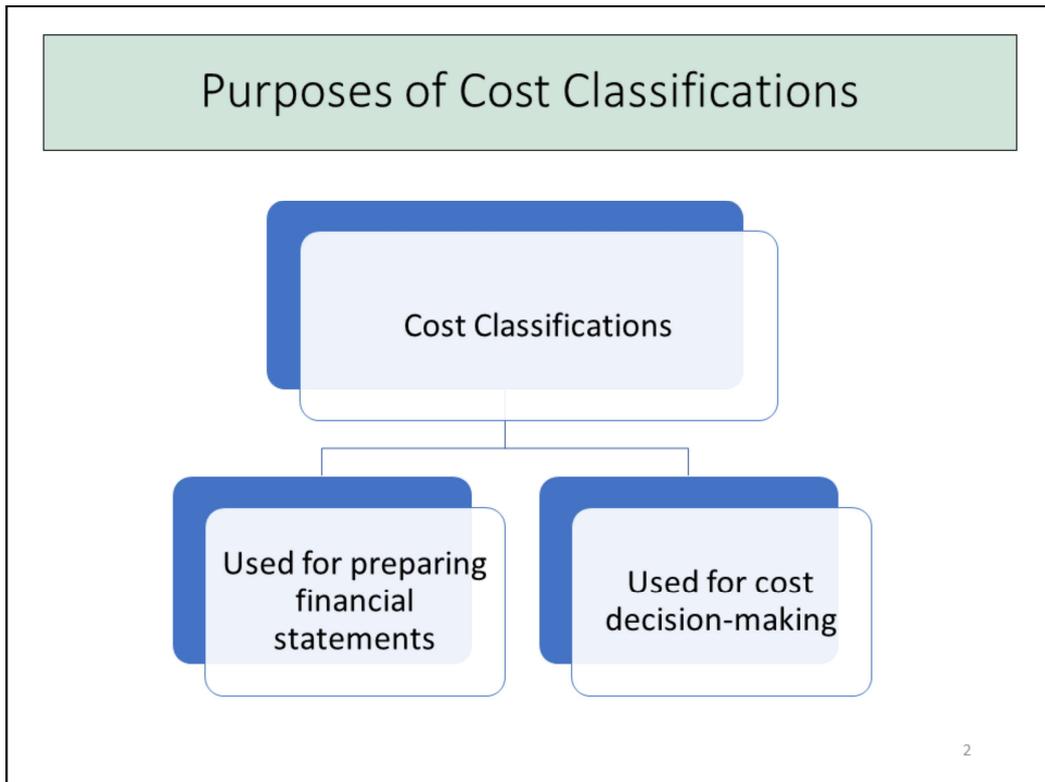
Lesson 2

1

There are two objectives in this lesson:

The first objective is to distinguish between direct and indirect costs, factory and selling and administrative overheads.

The second objective is to calculate the cost of goods manufactured and the cost of goods sold for manufacturing companies.

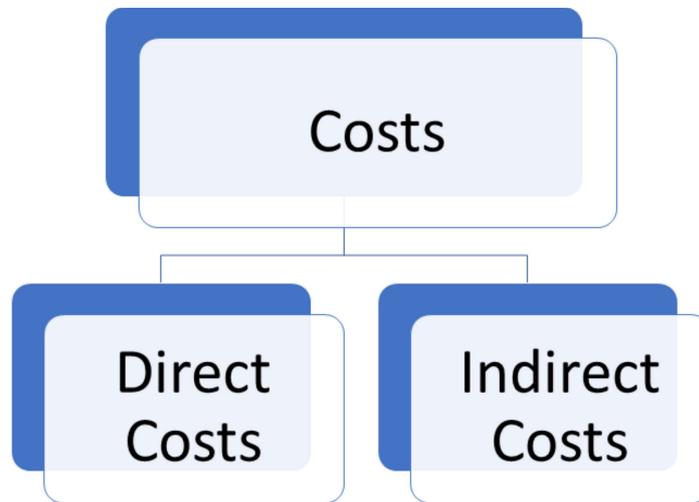


Teacher introduces two purposes of cost classifications.

Understand different cost classifications used for preparing financial statements



Cost Classifications Used for Preparing Financial Statements



4

Teacher introduces direct cost and indirect cost.

Direct Costs and Indirect Costs

Direct costs

They are costs that **can** be easily and accurately traced to a cost object.

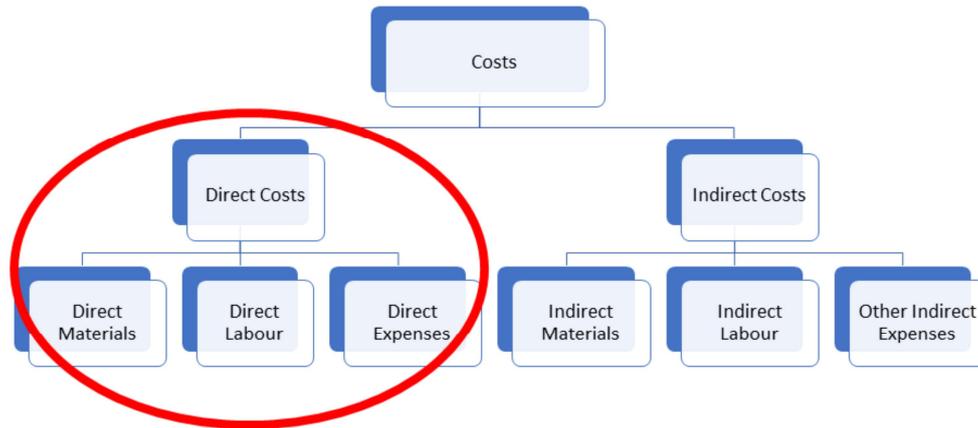
Indirect costs

They are costs that **cannot** be easily and accurately traced to a cost object.

5

Teacher explains the difference between direct costs and indirect costs.

Cost Classifications Used for Preparing Financial Statements



6

Teacher introduces three types of direct costs.

Types of Direct Costs

Direct materials (DM)

They are the spending on materials that constitute parts of the final product and can be easily traced to the goods being produced, for example, cost of tires attached on a new car.

Direct labour (DL)

They are the wages of workers incurred in the production process that can be easily traced to the goods being produced, for example, wages of workers on an assembly line.

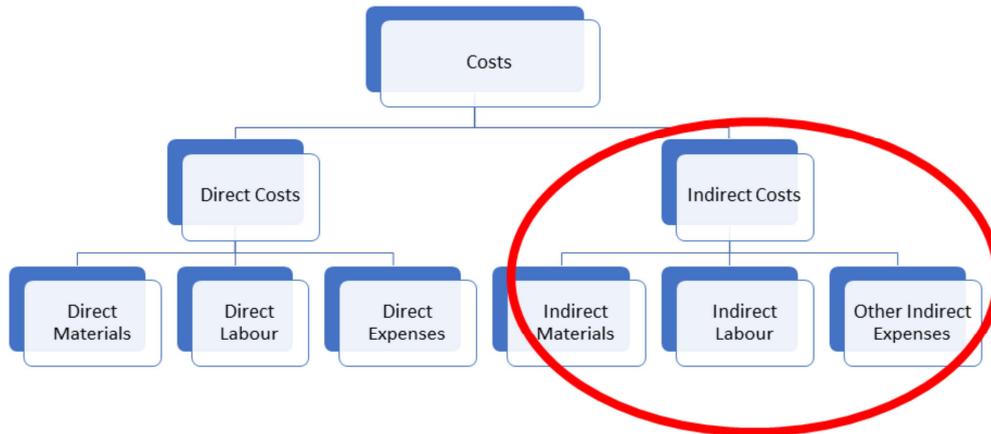
Direct expenses (DE)

They are those expenses incurred and can be easily traced to the goods being produced, for example, licences fees paid on each unit of goods produced.

7

Teacher explains different types of direct costs with examples.

Cost Classifications Used for Preparing Financial Statements



8

Teacher introduces three types of indirect costs.

Types of Indirect Costs

Indirect materials

They are the spending on materials that are used in the production process, but they are not easily traceable to the cost object, for example, lubricating oil of a machine.

Indirect labour

It is the wages incurred by workers not directly engaged in production, for example, wages of factory cleaners.

Other indirect expenses

They are those indirect costs excluding indirect materials and indirect labour, for example, depreciation of factory machinery.

9

Teacher explains different types of indirect costs with examples.

Classwork (1)

Company Y assembles personal computers from components supplied by various manufacturers. Listed below are some of the costs incurred by the company.

1. The cost of a hard drive installed in a computer.
2. The cost of advertising on the South China Morning Post.
3. The wages of the company's accountant.
4. The wages of employees who assemble computers from components.
5. The wages of the assembly line's supervisor.

Required:

Classify the above costs as either a direct cost or an indirect cost.

10

Teacher asks students to identify direct costs or indirect costs from the above question.

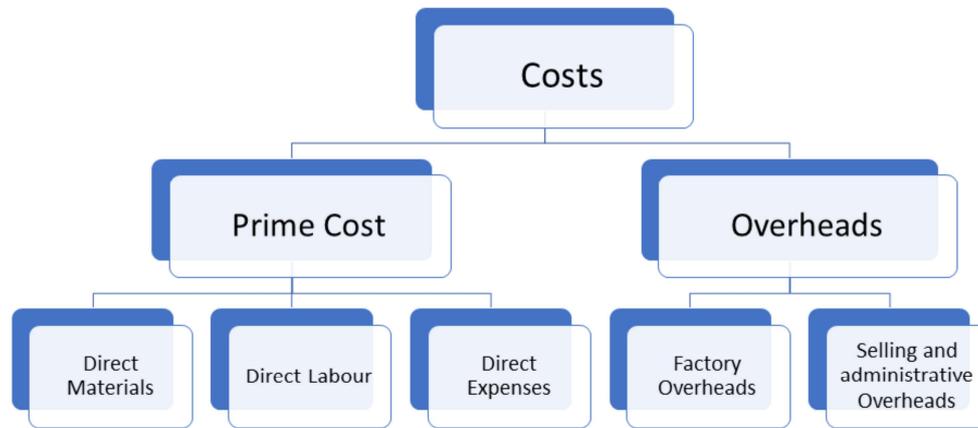
Classwork (1) - Solution

1. The cost of a hard drive installed in a computer. **Direct cost**
2. The cost of advertising on the South China Morning Post. **Indirect cost**
3. The wages of the company's accountant. **Indirect cost**
4. The wages of employees who assemble computers from components. **Direct cost**
5. The wages of the assembly line's supervisor. **Indirect cost**

11

Teacher discusses the answers of the classwork with the students.

Cost Classifications Used for Preparing Financial Statements



12

Teacher introduces prime cost and overheads.

Prime Cost and Overheads

Prime Cost

It consists of all direct costs in production.

(Direct materials + Direct labour + Direct expenses)

Overheads

They are indirect costs that can be categorised as factory overheads, and selling and administrative overheads.

13

Teacher explains the meanings of prime cost and overheads.

Factory Overheads (Production Overheads)

- They include all costs incurred in the production process except prime cost.
- They are included in inventory valuation and would be transferred to cost of goods sold when the related products are sold.

14

Teacher explains the meaning of factory overheads (production overheads).

Selling and Administrative Overheads

- They include all costs incurred after the production process of the products.
- Selling overheads include all costs that are incurred to serve the customers and deliver the products to them, for example, sales commissions and advertising expenses.
- Administrative overheads include all costs associated with the general management of a company, for example, general accounting expenses and directors' remuneration.

15

Teacher explains the meanings of selling and administrative overheads with examples.

Classwork (2)

Company X has produced 500 units of Product A and the cost data is presented as follows:

•Direct labour	\$110,000
•Advertising expenses	\$30,000
•Factory supervisors' salaries	\$10,000
•Direct materials	\$40,000
•Depreciation on factory building	\$65,000
•Sales commissions	\$8,000
•Rent expenses of the factory	\$50,000
•Administrative costs	\$70,000

Required:

(a) Calculate for Product A on its: (i) Prime cost (ii) Unit production cost.

(b) Calculate the selling and administrative overheads for Company X.

16

Teacher asks students to calculate prime cost, unit production cost and the selling and administrative overheads in the classwork.

Classwork (2) – Solution

(ai) Prime cost = DM + DL
= \$40,000 + \$110,000 = \$150,000

(aii) Unit production cost
= (Prime cost + Factory overheads) ÷ Number of units produced
= \$[150,000 + (10,000 + 65,000 + 50,000)] ÷ 500
= \$550

(b) Selling and administrative overheads
= Advertising expenses + Sales commissions + Administrative costs
= \$30,000 + \$8,000 + \$70,000 = \$108,000

17

Teacher provides answers for the classwork.

Cost Classifications Used for Preparing Financial Statements

Before preparing the income statement, we have to determine the following:

A. Cost of goods manufactured

It represents the total manufacturing cost of goods **completed** during the period and **transferred** to the inventory of the unsold finished goods.

B. Cost of goods sold

It represents the cost of goods that were **sold** during the period.

18

Teacher explains the meanings of cost of goods manufactured and the cost of goods sold.

A. Cost of Goods Manufactured

Cost of direct materials consumed

They are the materials used to make the products in the period.

(Beginning inventory of raw materials + Purchases of raw materials – Ending inventory of raw materials)

Work in progress

They consist of units of goods that are only partially completed and further work is required before they are ready for sale to customers.

19

Teacher explains the meanings of cost of direct materials consumed and work in progress.

A. Calculation of Cost of Goods Manufactured

Cost of direct materials consumed	\$\$
Add: Direct labour	\$\$
Add: Production overheads	<u>\$\$</u>
Total manufacturing cost for the period	\$\$
Add: Work in progress, beginning of the period	\$\$
Less: Work in progress, ending of the period	<u>(\$\$)</u>
Cost of goods manufactured	<u>\$\$</u>

20

Teacher explains how to calculate the cost of goods manufactured.

B. Calculation of Cost of Goods Sold

Cost of goods manufactured	\$\$
Add: Beginning inventory of finished goods	\$\$
Less: Ending inventory of finished goods	<u>(\$\$)</u>
Cost of goods sold	<u>\$\$</u>

21

Teacher explains how to calculate the cost of goods sold.

Illustration

Green Company produces a variety of products and the data related to the recent year's operations is as follows:

	\$
Beginning inventory of raw materials	50,000
Purchases of raw materials	680,000
Ending inventory of raw materials	45,000
Direct labour	136,000
Production overheads	130,000
Beginning inventory of work in progress	145,000
Ending inventory of work in progress	110,000

Required:

Prepare a statement to calculate the cost of goods manufactured for the year.

22

Teacher explains the question.

Illustration – Solution

Statement of calculating the cost of goods manufactured for the year

	\$'000
Cost of direct materials consumed*	685
Add: Direct labour	136
Add: Production overheads	<u>130</u>
Total manufacturing cost for the year	951
Add: Work in progress, beginning of the year	145
Less: Work in progress, ending of the year	<u>(110)</u>
Cost of goods manufactured	<u>986</u>

23

Teacher explains how to use a statement to calculate the cost of goods manufactured.

*Workings:

Cost of direct materials consumed = $$(50,000 + 680,000 - \$45,000) =$
\$685,000

Key Points Covered

1. Different cost classifications used for preparing financial statements.
 - * Direct costs and indirect costs
 - * Prime cost and overheads
2. Calculation of the cost of goods manufactured and the cost of goods sold.

24

Teacher makes a summary for this lesson.

Homework: Q2 and Q3

25

Teacher asks students to do Question 2 and 3 at home.

END

Cost Accounting

Cost Classification, Concepts and Terminology

Lesson 3

1

There are three objectives in this lesson:

The first objective is to explain the meaning of cost behaviour.

The second objective is to identify fixed, step, variable and mixed costs.

The third objective is to separate mixed costs into the fixed and variable components using high-low method.

Question

ABC Company manufactures a single product. A partially completed schedule of the company's production costs over the range of 30,000 to 50,000 units produced is given below:

Units Produced	30,000	40,000	50,000
Direct materials	\$30,000	\$40,000	\$50,000
Electricity	\$5,000	\$5,000	\$6,200
Factory rent	\$60,000	\$60,000	\$60,000

Can you identify the difference among the above cost items?

3

Teacher starts the lesson with above question and asks students to identify the difference among the cost items listed in the question.

Teacher explains the following:

- (i) The total cost of direct materials increases at a proportional rate when the units produced increase.
- (ii) The total cost of electricity increases suddenly when the units produced increase to 50,000 units.
- (iii) The total cost of factory rent remains the same when the units produced increase.

What is Cost Behaviour?

Cost behaviour describes how a cost changes as the level of activity (e.g. number of outputs) changes.

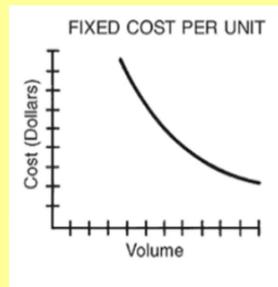
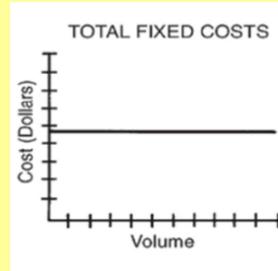
For example: The total cost of direct materials increases when the number of units produced increases.

4

Teacher explains the meaning of cost behaviour.

Fixed Cost

- ◆ Fixed cost is a cost that its total remains constant within a relevant range no matter whether the level of output increases or decreases, for example, factory rent.
- ◆ Given the total of fixed costs remains constant, the fixed cost per unit decreases as the activity level increases.

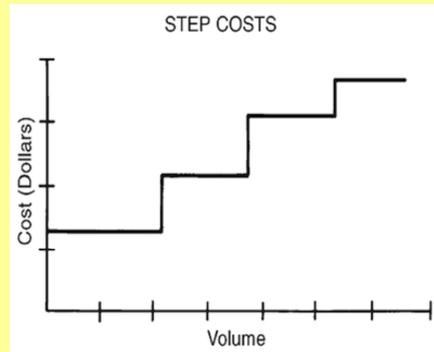


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Teacher explains the meaning of fixed cost with an example.

Step Cost

- ◆ Step cost describes the situation that the total fixed cost of a product would remain constant for a certain range of output level, but would then jump to a higher level of total fixed cost beyond that range of output level.
- ◆ For example: The salary of supervisors which will increase after certain batches of products are checked.



6

Teacher explains the meaning of step cost with an example.

Illustration : Fixed Cost / Step Cost

Number of units produced	Supervisors' salaries
1 to 30,000	\$50,000
30,001 to 60,000	\$100,000
60,001 to 90,000	\$150,000
90,001 to 120,000	\$200,000

Note:

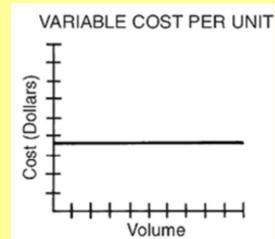
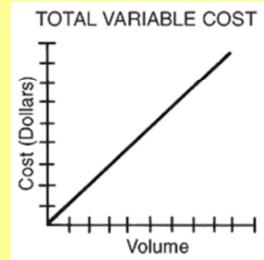
The total supervisor's salaries remain unchanged within the range of 1 to 30,000 units. Within this range, the amount of supervisors' salaries paid is the same regardless of the number of units produced. So it is a fixed cost. The total amount jumps to \$100,000 at 30,001 units and remains the same for a similar range of output level. Within the range of 1 to 120,000 units, the cost of supervisors' salaries is a step cost.

7

Teacher explains the behaviour of fixed cost and step cost with an illustration.

Variable Cost

- ◆ Variable cost is a cost that its total varies in direct proportion to changes in output within the relevant range, for example, direct materials.
- ◆ Variable cost per unit remains the same regardless of changes in the activity level.



Teacher explains the meaning of variable cost with an example.

Illustration : Variable Cost

Number of units produced	Total cost of raw materials	Unit cost
20,000	\$100,000	\$5*
30,000	\$150,000	\$5
40,000	\$200,000	\$5
50,000	\$250,000	\$5

Note:

The total cost of raw materials increases in direct proportion to the number of units produced. As production doubles from 20,000 to 40,000 units, the total cost of raw materials doubles from \$100,000 to \$200,000. On the other hand, the unit cost remains constant.

9

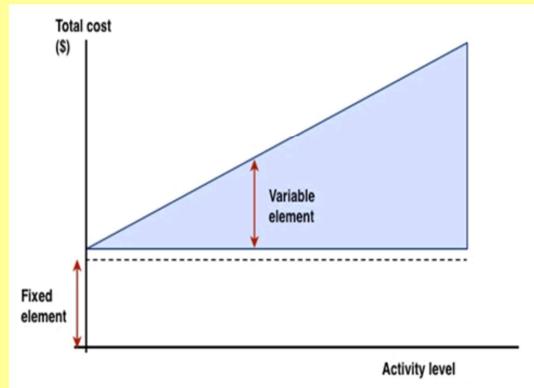
Teacher explains the behaviour of variable cost with an illustration.

* The formula of calculating the unit cost:

Unit cost = Total cost ÷ Number of units produced = \$100,000 ÷ 20,000 = \$5

Mixed Cost / Semi-variable Cost

- ◆ Mixed cost / Semi-variable cost is a cost that possesses characteristics of both fixed and variable costs.
- ◆ For example, telephone bill charges (basic monthly charges plus long distance charges).



10

Teacher explains the meaning of mixed cost with an example.

Illustration : Mixed Cost / Semi-variable Cost

Suppose a company has 5 sales assistants, each earning a salary of \$10,000 each month plus a commission of \$5 per unit sold. The following table shows the selling expenses at different levels of sales activity.

Number of units sold	Fixed selling expenses	Variable selling expenses	Total selling expenses	Selling expenses per unit
20,000	\$50,000	\$100,000	\$150,000	\$7.5
30,000	\$50,000	\$150,000	\$200,000	\$6.67
40,000	\$50,000	\$200,000	\$250,000	\$6.25
50,000	\$50,000	\$250,000	\$300,000	\$6

11

Teacher explains the behaviour of mixed cost with an illustration.

Classwork

Classify each of the following as fixed, variable, mixed or step cost:

1. A warranty agreement in which the company pays \$800 per month and \$100 per hour of service time.
2. Fuel cost of the company's motor van.
3. The cost of beer for a restaurant.
4. The cost of computer printers in the company's office.
5. The salary of a receptionist in an audit firm.

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Teacher asks students to identify different types of costs according to their cost behaviour.

Classwork

6. Electricity cost which includes a monthly bill charge amounted to \$250 and an additional amount depending on the number of kilowatt-hours used.
7. The cost of hiring 10 new employees because the factory requires to add a new shift to increase its capacity.

13

Teacher asks students to identify different types of costs according to their cost behaviour.

Classwork - Solution

Classify each of the following as fixed, variable, mixed or step cost:

1. Mixed cost
2. Variable cost
3. Variable cost
4. Fixed cost
5. Fixed cost
6. Mixed cost
7. Step cost

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Teacher discusses the answers.

How to Separate a Mixed Cost

The high-low method is a common tool employed to determine what portion of a cost is fixed and what portion of a cost is variable. Small-business owners can use this information to create budgets and to help understand how changes in volume affect the company's costs in total and on a per-unit basis.

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Teacher explains the importance of using high-low method to separate mixed cost into its fixed and variable components.

Four Steps in Using High-low Method

We can use high-low method to calculate the total fixed cost and the variable cost rate, and construct a cost formula for a mixed cost.

1. Find the highest point and the lowest point from a given data set.
2. Use the highest point and the lowest point to calculate the variable cost rate.
3. Calculate the total fixed cost using the variable cost rate at either the highest point or the lowest point.
4. Construct the cost formula.

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Teacher explains four steps in using high-low method.

Illustration : High-low Method

An accountant wants to calculate the fixed and variable costs associate with the electricity used in the factory. Data for the past five months was collected as follows:

Month	Electricity cost	Machine hours (MH)
Jan	\$3,250	450
Feb	\$3,500	500
Mar	\$4,100	600
Apr	\$3,350	470
May	\$2,600	350
Jun	\$4,250	595

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Teacher explains the high-low method with an illustration.

Illustration: High-low Method

We can use high-low method to calculate the total fixed cost and the variable cost per machine hour, and construct the total electricity cost formula.

1. Find the highest and the lowest points

The highest point is in March: 600 machine hours

The lowest point is in May: 350 machine hours

2. Calculate the variable cost per machine hour

Variable cost per MH =

$$(\$4,100 - \$2,600) / (600 - 350) = \underline{\$6 \text{ per MH}}$$

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Teacher explains the steps to apply high-low method.

Illustration: High-low Method

3. Calculate the total fixed cost

We can either use the highest or the lowest point. Let's use the highest point with the cost of \$4,100 and the machine hours of 600.

$$\text{Total fixed cost} = \$4,100 - (\$6 \times 600) = \underline{\$500}$$

4. Construct the cost formula

$$\text{Total electricity cost} = \$500 + (\$6 \times \text{MH})$$

19

Teacher explains the steps to apply high-low method.

Cost Classifications Used for Cost Decision-making

The knowledge of how costs and revenues vary with different levels of activity is useful for cost decision-making. Managers are required to understand different cost behaviours in order to decide what products to sell, whether to make or buy component parts, what prices to charge, whether to accept special orders at special prices, etc.

20

Teacher explains how the knowledge of different cost behaviours facilitates various decision-making in cost accounting.

Illustration: Facilitating Cost Decision-making

ABC Café had the following figures related to sales and expenses for the year 2018:

	\$'000	\$'000
Sales		500
Less: Food and packaging	120	
Wages and salaries	80	
Rent	50	
General selling and administrative expenses	70	320
Net Income		180

The Café served 5,000 meals in 2018. The variable costs consisted of food and packaging, wages and salaries, and 40% of the general selling and administrative expenses.

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Teacher illustrates how the understanding of fixed costs and variable costs facilitates cost decision-making.

Illustration: Facilitating Cost Decision-making

Required:

- (a) Determine the variable cost per meal.
- (b) Determine the total fixed cost.
- (c) Please advise whether the owner should spend \$10,000 on advertisement in order to boost the sales to 5,500 meals in 2019.

22

Teacher illustrates how the understanding of fixed and variable cost facilitates cost decision-making.

Illustration: Solution

(a) Variable cost per meal

$$= \$(120,000 + 80,000 + 70,000 \times 40\%) \div 5,000$$
$$= \underline{\$45.6}$$

(b) Total fixed cost

$$= \$(50,000 + 70,000 \times 60\%) = \underline{\$92,000}$$

(c) Additional income if the Café served 5,500 meals

$$= \$(100^* - 45.6^{**}) \times (5,500 - 5,000) - \$10,000^{***}$$
$$= \underline{\$17,200}$$

Therefore, the owner should spend \$10,000 on advertisement in order to obtain additional income of \$17,200.

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Teacher explains the answers.

* Selling price per meal = $\$500,000 \div 5,000 = \underline{\$100}$

** Variable cost per meal (\$45.6) remains the same regardless of changes in the activity level.

*** Advertising expense (\$10,000) is an additional fixed cost.

Remarks:

- (1) The total variable cost increases when the number of meals served increases.
- (2) For making cost-decisions, the owner should not consider the total fixed cost in (b) since it remains the same regardless of changes in the activity level.

Summary of Cost Classifications

Purpose	Cost Classifications
Preparing financial statements	<ol style="list-style-type: none">1. Direct costs and Indirect costs2. Prime cost and Overheads
Facilitating cost decision-making	<ol style="list-style-type: none">1. Fixed cost2. Step cost3. Variable cost4. Mixed cost

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Teacher summarises the cost classifications that have been taught in this set of materials.

Key Points Covered

1. The meaning of cost behaviour.
2. The meanings of fixed cost, step cost, variable cost and mixed cost.
3. The high-low method used to analyse a mixed cost.

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Teacher makes a summary for this lesson.

Homework: Q4

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Teacher asks students to do Questions 4 at home.

END

Cost Classification, Concepts and Terminology

Classwork

(Questions and Solutions)

Lesson 1 - Classwork

Peter Chan, the financial controller of ABC Company, has come across the following situations in the past few months:

- (1) Susan Tam, head of the production department, wondered whether it would be more profitable to buy components from an outside supplier or continue to produce by the company itself.
- (2) The president of the company reminded Peter that the Board meeting was coming up, and he needed Peter to present the information extracted from the financial statements of last year.
- (3) Alan Chan, head of the marketing department, had been approved to expand the sales office in next year. He then estimated and sent related information to Peter for budgeting purpose.
- (4) Peter received the information from Alan on depreciation and added it to depreciation expenses and accumulated depreciation on office equipment.
- (5) Peter compared the estimated spending on wages and salaries used in production with the actual spending. He found out that the spending was significantly higher than expected. He called for a meeting with Susan so that he could explain it.

Required:

Determine whether each of the above situations belongs to cost accounting scope or financial accounting scope.

Solution:

- (1) Cost accounting
- (2) Financial accounting
- (3) Cost accounting
- (4) Financial accounting
- (5) Cost accounting

Lesson 2 – Classwork (1)

Company Y assembles personal computers from components supplied by various manufacturers. Listed below are some of the costs incurred by the company.

- (1) The cost of a hard drive installed in a computer.
- (2) The cost of advertising on the South China Morning Post.
- (3) The wages of the company's accountant.
- (4) The wages of employees who assemble computers from components.
- (5) The wages of the assembly line's supervisor.

Required:

Classify the above costs as either a direct cost or an indirect cost.

Solution:

- (1) Direct cost
- (2) Indirect cost
- (3) Indirect cost
- (4) Direct cost
- (5) Indirect cost

Lesson 2 – Classwork (2)

Company X has produced 500 units of Product A and the cost data is presented as follows:

	\$
Direct labour	110,000
Advertising expenses	30,000
Factory supervisors' salaries	10,000
Direct materials	40,000
Depreciation on factory building	65,000
Sales commissions	8,000
Rent expenses of the factory	50,000
Administrative costs	70,000

Required:

- (a) Calculate for Product A on its:
 - (i) Prime cost.
 - (ii) Unit production cost.
- (b) Calculate the selling and administrative overheads for Company X.

Solution:

- (ai) Prime cost = Direct materials + Direct labour
= \$40,000 + \$110,000 = \$150,000

- (aii) Unit production cost = (Prime cost + Factory overheads) ÷ Number of units produced
= \$[150,000 + (10,000 + 65,000 + 50,000)] ÷ 500
= \$550

- (b) Selling and administrative overheads
= Advertising expenses + Sales commissions + Administrative costs
= \$30,000 + \$8,000 + \$70,000 = \$108,000

Lesson 3 – Classwork

Classify each of the following as fixed, variable, mixed or step cost:

- (1) A warranty agreement in which the company pays \$800 per month and \$100 per hour of service time.
- (2) Fuel cost of the company's motor van.
- (3) The cost of beer for a restaurant.
- (4) The cost of computer printers in the company's office.
- (5) The salary of a receptionist in an audit firm.
- (6) Electricity cost which includes a monthly bill charge amounted to \$250 and an additional amount depending on the number of kilowatt-hours used.
- (7) The cost of hiring 10 new employees because the factory requires to add a new shift to increase its capacity.

Solution:

- (1) Mixed cost
- (2) Variable cost
- (3) Variable cost
- (4) Fixed cost
- (5) Fixed cost
- (6) Mixed cost
- (7) Step cost

Cost Classification, Concepts and Terminology

Homework

(Questions)

Question 1

- (a) How do cost accounting and financial accounting differ? (3 marks)
- (b) ABC Company uses manufacturing cells to produce its products. (a cell is a manufacturing unit dedicated to the production of products). One of the manufacturing cells, Cell A, produces small motors for lawn mowers. The costs incurred for the company are as follows:
- (1) Salary of Cell A's supervisor
 - (2) Materials used to produce the small motors
 - (3) Salary of the company's receptionist
 - (4) Sales commissions
 - (5) Advertising expenses
 - (6) Depreciation on equipment used to produce the motors

Required:

- (i) Define and identify the cost object. (2 marks)
- (ii) Which of the above costs should be assigned to the cost object? State the number. (3 marks)
- (Total: 8 marks)

Level of difficulty: **

Question 2

Adam Company which is a computer manufacturer incurred the following costs last year:

	\$'000
Factory rent	360
Materials used in producing computers	550
Utilities for factory	35
Advertising	100
Wages of workers assembling computers	450
Factory supervisors' salaries	200
Depreciation on factory equipment	50
Sales commissions	86
Wages of receptionist for executive offices	95
Depreciation on office building	75
Other indirect labour in the factory	120
Other administrative costs	97
Oil to lubricate factory equipment	10

Required:

Classify each of the costs above using the following table format and calculate the total amount for each type of cost.

	Direct materials	Direct labour	Factory overheads	Selling expenses	Administrative expenses
	\$'000	\$'000	\$'000	\$'000	\$'000
<i>e.g Factory rent</i>			360		

(Total: 9 marks)

Level of difficulty: **

Question 3

ABC Company produced 5,000 wooden tables during the year. These tables were sold at \$300 each. The company had 600 tables in the inventory of finished goods at the beginning of the year. At the end of the year, there were 800 tables in the inventory of finished goods. The following information is provided for the year just ended:

	\$		\$
Purchases of raw materials	330,000	Salary of sales supervisor	200,000
Beginning inventory of raw materials	46,000	Sales commission	90,000
Ending inventory of raw materials	66,000	General administration cost	280,000
Direct labour	50,000	Beginning work in progress inventory	13,000
Rent of factory building	100,000	Ending work in progress inventory	15,000
Depreciation of factory equipment	80,000	Beginning inventory of finished goods	60,000
Utilities of factory	12,000	Ending inventory of finished goods	89,000

Required:

- (a) Prepare a statement to calculate the cost of goods manufactured. (5 marks)
 - (b) Calculate the average cost of producing one table. (2 marks)
 - (c) Prepare an income statement for the year. (5 marks)
- (Total: 12 marks)

Level of difficulty: **

Question 4

Chan & Lee is a local law firm located in Central. Tommy Lee, one of the firm's owner, wants to determine the total cost per professional hour so that they can appropriately charge their clients. In April, May and June, the firm had provided 1,200 hours, 1,600 hours and 1,800 hours of professional services respectively. The cost data for these three months is as follows:

	<u>April</u> <u>1,200 hours</u> \$	<u>May</u> <u>1,600 hours</u> \$	<u>June</u> <u>1,800 hours</u> \$
Consultancy fees of senior partners	480,000	640,000	720,000
Salaries of associate attorneys	40,000	40,000	80,000
Salaries of legal associates	30,000	30,000	30,000
Internet and software subscriptions	7,000	8,500	9,400
Depreciation of office equipment	5,000	5,000	5,000
Supplies	10,000	12,100	13,000
Administration	4,800	4,800	4,800
Office rent	94,000	94,000	94,000
Utilities	7,200	9,600	10,800

Required:

- (a) Classify each cost item above as fixed, step, mixed or variable cost, using hours of professional service as the cost driver. (9 marks)
- (b) Using the high-low method to separate the mixed costs classified in (a) into their fixed and variable components. (6 marks)
- (c) Tommy estimated that the firm would operate at 1,500 hours in July, how much would the firm charge their clients per professional hour in July if the pricing policy is to mark-up at 40% of the total cost? (5 marks)

(Total: 20 marks)

Level of difficulty: ***

Cost Classification, Concepts and Terminology

Homework

(Suggested Solutions)

Question 1

- (a) Cost accounting has a broad range of disciplines and is internally focused as well as future oriented. It does not follow mandatory rules. It keeps track of both financial and non-financial information. Financial accounting, on the other hand, provides information about the company as a whole and is externally focused. It follows externally imposed rules (such as GAAP) and has a historical orientation. (3 marks)
- (bi) Cost object is any item for which costs are measured and assigned. The manufacturing Cell A is the cost object of ABC Company. (2 marks)
- (bii) (1), (2) and (6) are costs that should be assigned to the manufacturing Cell A. (3 marks)
(Total: 8 marks)

Question 2

	Direct materials \$'000	Direct labour \$'000	Factory overheads \$'000	Selling expenses \$'000	Administrative expenses \$'000
Factory rent			360		
Materials used in producing computers	550				
Utilities for factory			35		
Advertising				100	
Wages of workers assembling computers		450			
Factory supervisors' salaries			200		
Depreciation on factory equipment			50		
Sales commissions				86	
Wages of receptionist for executive offices					95
Depreciation on office building					75
Other indirect labour in the factory			120		
Other administrative costs					97
Oil to lubricate factory equipment			10		
	550	450	775	186	267

(0.5 marks for each correct classification) (0.5 marks for each correct total figure)
(Total: 9 marks)

Question 3

(a)

ABC Company		
Statement of calculating the cost of goods manufactured		
	S'000	
Cost of direct materials consumed (W1)	310	1.5
Add: Direct labour	50	0.5
Add: Production overheads (W2)	192	1.5
Total manufacturing cost for the year	552	0.5
Add: Beginning WIP inventory	13	0.5

Less: Ending WIP inventory	(15)	0.5
Cost of goods manufactured	<u>550</u>	(5 marks)

Workings:

(W1): Cost of direct materials consumed = \$(46,000 + 330,000 - 66,000) = \$310,000

(W2): Production overheads = \$(100,000 + 80,000 + 12,000) = \$192,000

(b) The average cost per table = \$550,000 / 5,000 = \$110 (2 marks)

(c)

ABC Company Income Statement for the year			
	\$'000	S'000	
Sales [\$300 x (600 + 5,000 - 800)]		1,440	1.5
Less: <u>Cost of goods sold</u>			
Beginning inventory of finished goods	60		0.5
Add: Cost of goods manufactured	<u>550</u>		1
	610		
Less: Ending inventory of finished goods	<u>89</u>	521	0.5
Gross profit		<u>919</u>	
Less: Selling expenses (\$200,000 + \$90,000)	290		1
General administration cost	<u>280</u>	570	0.5
Net profit		<u>349</u>	(5 marks)
		<u>349</u>	(Total: 12 marks)

Question 4

(a)

	<u>Cost Classification</u>
Consultancy fees of senior partners	Variable cost
Salaries of associate attorneys	Step cost
Salaries of legal associates	Fixed cost
Internet and software subscriptions	Mixed cost
Depreciation of office equipment	Fixed cost
Supplies	Mixed cost
Administration	Fixed cost
Office rent	Fixed cost
Utilities	Variable cost

(1 mark for each correct classification) (9 marks)

(b) Internet and software subscriptions
 Variable cost per hour = (\$9,400 - \$7,000) / (1,800 - 1,200) = \$4 per hour (2 marks)
 Total fixed cost = \$9,400 - \$4 x 1,800 = \$2,200 (1 mark)

Supplies
 Variable cost per hour = (\$13,000 - \$10,000) / (1,800 - 1,200) = \$5 per hour (2 marks)
 Total fixed cost = \$13,000 - \$5 x 1,800 = \$4,000 (1 mark)

(c) For 1,500 hours
 Total fixed costs = \$(40,000 + 30,000 + 2,200 + 5,000 + 4,000 + 4,800 + 94,000)
 = \$180,000 (2 marks)

Total variable costs per hour = \$(400* + 4 + 5 + 6**) = \$415
 Therefore, the total costs per hour = (\$180,000 + \$415 x 1,500) / 1,500 = \$535 (2 marks)

The firm should charge: \$535 x 1.4 = \$749 per hour (1 mark)

* \$480,000 ÷ 1,200 = \$400

** \$7,200 ÷ 1,200 = \$6