CHAPTER 2

MANAGERIAL COST CONCEPTS AND COST BEHAVIOUR ANALYSIS

SUMMARY OF QUESTION TYPES BY STUDY OBJECTIVES AND LEVEL OF DIFFICULTY

Item	SO	LOD	Item	SO	LOD	Item	SO	LOD	Item	SO	LOD	Item	SO	LOD
True-False Statements														
1.	1	E	8.	1	E	15.	2	E	22.	2	E	29.	4	E
2.	1	E	9.	1	E	16.	2	E	23.	3	E	30.	4	E
3.	1	E	10.	2	E	17.	2	E	24.	3	E	31.	4	E
4.	1	E	11.	2	E	18.	2	E	25.	4	E	32.	4	E
5.	1	E	12.	2	E	19.	2	E	26.	4	E	33.	4	E
6.	1	E	13.	2	E	20.	2	E	27.	4	E			
7.	1	E	14.	2	E	21.	2	E	28.	4	E			
Multiple Choice Questions														
34.	1	E	54.	1	E	74.	1	E	94.	3	E	114.	4	E
35.	1	E	55.	1	E	75.	1	E	95.	3	E	115.	4	E
36.	1	E	56.	1	E	76.	1	E	96.	3	M	116.	4	M
37.	1	E	57.	1	E	77.	2	E	97.	3	E	117.	4	E
38.	1	E	58.	1	E	78.	2	E	98.	3	M	118.	4	M
39.	1	E	59.	1	E	79.	2	E	99.	3	E	119.	4	M
40.	1	E	60.	1	E	80.	2	E	100.	3	E	120.	4	E
41.	1	E	61.	1	E	81.	2	M	101.	3	M	121.	4	E
42.	1	E	62.	1	E	82.	2	E	102.	3	E	122.	4	E
43.	1	E	63.	1	E	83.	2	E	103.	3	E	123.	4	E
44.	1	E	64.	1	E	84.	2	E	104.	3	E	124.	4	M
45.	1	E	65.	1	E	85.	2	E	105.	4	E	125.	4	M
46.	1	E	66.	1	E	86.	2	E	106.	4	E	126.	4	E
47.	1	E	67.	1	E	87.	2	E	107.	4	E	127.	4	E
48.	1	E	68.	1	E	88.	2	E	108.	4	E	128.	4	E
49.	1	E	69.	1	E	89.	2	E	109.	4	E	129.	4	E
50.	1	E	70.	1	E	90.	2	E	110.	4	M	130.	4	E
51.	1	E	71.	1	E	91.	2	E	111.	4	E			
52.	1	E	72.	1	E	92.	2	E	112.	4	E			
53.	1	E	73.	1	M	93.	2	E	113.	4	E			

Note: E = Easy M = Medium H = Hard

SUMMARY OF QUESTION TYPES BY STUDY OBJECTIVES AND LEVEL OF DIFFICULTY (Continued)

Item	SO	LOD	Item	SO	LOD	Item	SO	LOD	Item	SO	LOD	Item	SO	LOD
Brief Exercises														
131.	1	E	135.	1	E	139.	3	E	143.	4	E			
132.	1	E	136.	2	E	140.	4	E	144.	4	E			
133.	1	E	137.	2	E	141.	4	E	145.	4	E			
134.	1	E	138.	3	E	142.	4	E	146.	4	E			
Exercises														
147.	1	E	151.	1	E	155.	3	E	159.	4	M	163.	4	E
148.	1	E	152.	1,4	E	156.	3	E	160.	4	E	164.	4	M
149.	1	M	153.	1,4	E	157.	4	M	161.	4	E	165.	4	E
150.	1	E	154.	2	M	158.	4	M	162.	4	E	166.	4	E
Completion Statements														
167.	1	E	170.	2	E	173.	3	E	176.	4	E			
168.	1	E	171.	2	E	174.	4	E	177.	4	E			
169.	1	E	172.	3	E	175.	4	E	178.	4	E			
Matching														
179.	1, 2	E												
Short-Answer Essay														
180.	4	M												
Multi-Part Question														
181.	1,2	H												

Note: E = Easy M = Medium H = Hard

SUMMARY OF QUESTION TYPES BY STUDY OBJECTIVES AND BLOOM'S TAXONOMY

Item	SO	BT	Item	SO	BT	Item	SO	BT	Item	SO	BT	Item	SO	BT
True-False Statements														
1.	1	K	8.	1	K	15.	2	C	22.	2	C	29.	4	K
2.	1	K	9.	1	K	16.	2	K	23.	3	K	30.	4	C
3.	1	K	10.	2	C	17.	2	C	24.	3	K	31.	4	C
4.	1	K	11.	2	C	18.	2	C	25.	4	K	32.	4	K
5.	1	C	12.	2	K	19.	2	C	26.	4	K	33.	4	K
6.	1	K	13.	2	C	20.	2	K	27.	4	K			
7.	1	K	14.	2	K	21.	2	C	28.	4	K			
Multiple Choice Questions														
34.	1	K	54.	1	AP	74.	1	C	94.	3	K	114.	4	AP
35.	1	K	55.	1	AP	75.	1	C	95.	3	K	115.	4	AP
36.	1	C	56.	1	C	76.	1	C	96.	3	C	116.	4	AP
37.	1	C	57.	1	C	77.	2	C	97.	3	AP	117.	4	C
38.	1	AP	58.	1	K	78.	2	K	98.	3	AP	118.	4	C
39.	1	K	59.	1	C	79.	2	C	99.	3	AP	119.	4	K
40.	1	K	60.	1	C	80.	2	C	100.	3	AP	120.	4	AP
41.	1	C	61.	1	K	81.	2	C	101.	3	K	121.	4	AP
42.	1	K	62.	1	C	82.	2	C	102.	3	AP	122.	4	AN
43.	1	C	63.	1	C	83.	2	C	103.	3	AP	123.	4	C
44.	1	C	64.	1	C	84.	2	C	104.	3	AP	124.	4	C
45.	1	C	65.	1	K	85.	2	C	105.	4	K	125.	4	K
46.	1	K	66.	1	C	86.	2	C	106.	4	K	126.	4	K
47.	1	C	67.	1	AP	87.	2	C	107.	4	C	127.	4	C
48.	1	C	68.	1	C	88.	2	C	108.	4	C	128.	4	K
49.	1	C	69.	1	C	89.	2	C	109.	4	C	129.	4	C
50.	1	K	70.	1	C	90.	2	C	110.	4	K	130.	4	C
51.	1	C	71.	1	C	91.	2	C	111.	4	C			
52.	1	C	72.	1	AP	92.	2	K	112.	4	AP			
53.	1	K	73.	1	C	93.	2	K	113.	4	AP			

Note: AN = Analysis AP = Application C = Comprehension K = Knowledge

SUMMARY OF QUESTION TYPES BY STUDY OBJECTIVES AND BLOOM'S TAXONOMY (Continued)

Item	SO	BT	Item	SO	BT	Item	SO	BT	Item	SO	BT	Item	SO	BT
Brief Exercises														
131.	1	C	135.	1	C	139.	3	AP	143.	4	AN			
132.	1	C	136.	2	AP	140.	4	AN	144.	4	AP			
133.	1	C	137.	2	AP	141.	4	AP	145.	4	C			
134.	1	C	138.	3	AP	142.	4	AN	146.	4	AP			
Exercises														
147.	1	C	151.	1	C	155.	3	AP	159.	4	AP	163.	4	AP
148.	1	C	152.	1,4	AP	156.	3	AP	160.	4	AP	164.	4	AP
149.	1	K	153.	1,4	AP	157.	4	AP	161.	4	AP	165.	4	AP
150.	1	C	154.	2	AP	158.	4	AP	162.	4	AP	166.	4	AP
Completion Statements														
167.	1	K	170.	2	K	173.	3	K	176.	4	K			
168.	1	K	171.	2	K	174.	4	K	177.	4	K			
169.	1	K	172.	3	K	175.	4	K	178.	4	K			
Matching														
179.	1, 2	K												
Short-Answer Essay														
180.	4	AN												
Multi-Part Question														
181.	1,2	AN												

Note: AN = Analysis AP = Application C = Comprehension K = Knowledge

SUMMARY OF STUDY OBJECTIVES BY QUESTION TYPE

Item	Type	Item	Type	Item	Type	Item	Type	Item	Type	Item	Type	Item	Type
Study Objective 1													
1.	TF	36.	MC	47.	MC	58.	MC	69.	MC	134.	BE	169.	C
2.	TF	37.	MC	48.	MC	59.	MC	70.	MC	135.	BE	179.	Ma
3.	TF	38.	MC	49.	MC	60.	MC	71.	MC	147.	Ex	181.	MP
4.	TF	39.	MC	50.	MC	61.	MC	72.	MC	148.	Ex		
5.	TF	40.	MC	51.	MC	62.	MC	73.	MC	149.	Ex		
6.	TF	41.	MC	52.	MC	63.	MC	74.	MC	150.	Ex		
7.	TF	42.	MC	53.	MC	64.	MC	75.	MC	151.	Ex		
8.	TF	43.	MC	54.	MC	65.	MC	76.	MC	152.	Ex		
9.	TF	44.	MC	55.	MC	66.	MC	131.	BE	153.	Ex		
34.	MC	45.	MC	56.	MC	67.	MC	132.	BE	167.	CS		
35.	MC	46.	MC	57.	MC	68.	MC	133.	BE	168.	CS		
Study Objective 2													
10.	TF	16.	TF	22.	TF	82.	MC	88.	MC	136.	BE	181.	MP
11.	TF	17.	TF	77.	MC	83.	MC	89.	MC	137.	BE		
12.	TF	18.	TF	78.	MC	84.	MC	90.	MC	154.	Ex		
13.	TF	19.	TF	79.	MC	85.	MC	91.	MC	170.	CS		
14.	TF	20.	TF	80.	MC	86.	MC	92.	MC	171.	CS		
15.	TF	21.	TF	81.	MC	87.	MC	93.	MC	179.	Ma		
Study Objective 3													
23.	TF	95.	MC	98.	MC	101.	MC	104.	MC	155.	Ex	173.	C
24.	TF	96.	MC	99.	MC	102.	MC	138.	BE	156.	Ex		
94.	MC	97.	MC	100.	MC	103.	MC	139.	BE	172.	CS		
Study Objective 4													
25.	TF	105.	MC	114.	MC	123.	MC	141.	BE	160.	Ex	176.	C
26.	TF	106.	MC	115.	MC	124.	MC	142.	BE	161.	Ex	177.	C
27.	TF	107.	MC	116.	MC	125.	MC	143.	BE	162.	Ex	178.	C
28.	TF	108.	MC	117.	MC	126.	MC	144.	BE	163.	Ex	180.	SAE
29.	TF	109.	MC	118.	MC	127.	MC	145.	BE	164.	Ex		
30.	TF	110.	MC	119.	MC	128.	MC	146.	BE	165.	Ex		
31.	TF	111.	MC	120.	MC	129.	MC	157.	Ex	166.	Ex		
32.	TF	112.	MC	121.	MC	130.	MC	158.	Ex	174.	C		
33.	TF	113.	MC	122.	MC	140.	BE	159.	Ex	175.	C		

Note: TF = True-False
MC = Multiple Choice
Ma = Matching
C = Completion
Ex = Exercise
MP = Multi-Part
BE = Brief Exercise
SAE = Short Answer Essay

CHAPTER STUDY OBJECTIVES

1. ***Define the three classes of manufacturing costs and differentiate between product costs and period costs.*** Manufacturing costs are typically classified as either (1) direct materials, (2) direct labour, or (3) manufacturing overhead. Raw materials that can be physically and directly associated with the finished product during the manufacturing process are called direct materials. The work of factory employees that can be physically and directly associated with converting raw materials into finished goods is considered direct labour. Manufacturing overhead consists of costs that are indirectly associated with the manufacture of the finished product.
Product costs are costs that are a necessary and integral part of producing the finished product. Product costs are also called inventoriable costs. Under the matching principle, these costs do not become expenses until the inventory to which they attach is sold. Period costs are costs that are identified with a specific time period rather than with a saleable product. These costs relate to non-manufacturing costs and therefore are not inventoriable costs. Prime costs and conversion costs are the other two cost terms that manufacturing accounting systems use. Prime cost are the sum of all direct materials and direct labour costs. These are all direct manufacturing costs. Conversion costs are the sum of all direct manufacturing labour costs and manufacturing overhead costs, which are the costs of converting raw materials into a final product in a manufacturing firm.

2. **Explain variance, fixed, and mixed costs and the relevant range.** Variable costs are costs that vary in total directly and proportionately with changes in the activity index. Fixed costs are costs that remain the same in total regardless of changes in the activity index. The relevant range is the range of activity in which a company expects to operate during a year. Mixed costs increase in total but not proportionately with changes in the activity level. One method that management may use is the high-low method.

3. ***Apply the high low method to determine the components of mixed costs.*** Determine the variable cost per unit by dividing the change in total costs at the highest and lowest levels of activity by the difference in activity at those levels. Then, determine fixed costs by subtracting total variable costs from the amount of total costs at either the highest or lowest level of activity.

4. ***Demonstrate how to calculate cost of good manufactured and prepare financial statements for a manufacturer.*** The cost of the beginning work in process is added to the total manufacturing costs for the current year to arrive at the total cost of work in process for the year. The ending work in process is then subtracted from the total cost of work in process to arrive at the cost of goods manufactured. The difference between merchandising and manufacturing income statements is in the cost of goods sold section. A manufacturing costs of goods sold section shows the beginning and ending finished goods inventories and the cost of goods manufactured. The difference between merchandising and manufacturing balance sheets is the in the current assets section. In the current assets section of a merchandising company's balance sheet, one merchandise inventory account is presented. However, in the current assets section of a manufacturing company's balance sheet, three inventory accounts are presented: finished goods inventory, work in process inventory, and raw materials inventory.

TRUE-FALSE STATEMENTS

1. Both direct material cost and indirect material cost are product costs.

2. Manufacturing costs that cannot be classified as direct material or direct labour are classified as operating expenses.

3. Raw materials are equal to direct materials.

4. Raw materials that CANNOT be conveniently and directly associated with a finished product, but are used in production, are called indirect materials.

5. The total cost of a finished product generally contains equal amounts of material, labour, and manufacturing overhead costs.

6. Direct material costs and direct labour costs are prime costs.

7. Indirect materials and indirect labour are both period costs.

8. Direct labour costs plus prime costs equals manufacturing overhead costs.

9. Product costs are inventoriable costs.

10. Variable costs are fixed on a per-unit basis and variable in total.

11. Fixed costs appear to vary on a per-unit basis but are fixed in total.

12. Cost behaviour analysis is the study of how total costs concurrently are affected by changes in the level of business activity.

13. An activity level can be expressed in sales dollars, kilometres driven, units produced, number of dance classes taught, or percentage of rooms occupied.

14. Variable costs vary exponentially with the changes in the company’s activity level.

15. Within the relevant range a valid argument can be made for the assumption of linearity of variable costs.

16. At the upper and lower limits of the relevant range of company activity, linearity of variable costs is a given.

17. The relevant range is reflective of the relevant range of products a company offers to its customers.

18. Fixed costs may jump (rather than remaining fixed) at incremental levels of activity.

19. Mixed costs are comprised of both fixed costs and variable costs, and as a result, mixed costs increase proportionately with an increase in activity level.

20. Mixed costs change in total, but not proportionately with the change in activity level.

21. An electricity bill is an example of mixed costs. The fixed portion represents the cost of having the service available and the variable cost is reflective of actual customer usage.

22. For future planning and predicting purposes, it is important for managerial accountants to separate fixed and variable costs within total mixed costs.

23. The high-low method is a quick means of separating fixed and variable costs.

24. What the high-low method may lack in precision, it makes up for in efficiency and ease of use.

25. Total product costs are deducted from total cost of work in process to calculate cost of goods manufactured.

26. Ending finished goods, work in process, and raw materials inventory appear on the balance sheet of a manufacturing company.

27. The work in process inventory appears on the balance sheet and the income statement of a manufacturing company.

28. In calculating gross profit for a manufacturing company, the cost of goods sold is deducted from net sales.

29. Finished goods inventory appears on a cost of goods manufactured schedule.

30. If the ending work in process inventory is less than the beginning work in process inventory, then the cost of goods manufactured will be less than total manufacturing costs for the period.

31. Finished goods inventory for a manufacturing company is equivalent to merchandise inventory for a merchandising company.

32. Raw materials inventory is NOT an asset until it is used to make a product.

33. Finished goods inventory represents the cost of completed goods available for sale to customers.

ANSWERS TO TRUE-FALSE STATEMENTS

Item	Ans.	Item	Ans.	Item	Ans.	Item	Ans.	Item	Ans.	Item	Ans.
1.	T	7.	F	13.	T	19.	F	25.	F	31.	T
2.	F	8.	F	14.	F	20.	T	26.	T	32.	F
3.	F	9.	T	15.	T	21.	T	27.	F	33.	F
4.	T	10.	T	16.	F	22.	T	28.	T		
5.	F	11.	T	17.	F	23.	T	29.	F		
6.	T	12.	F	18.	F	24.	T	30.	F		

MULTIPLE CHOICE QUESTIONS

34. In which of the following categories do indirect materials belong?

	Product Cost	Manufacturing Overhead	Period Cost
a)	No	No	Yes
b)	Yes	No	No
c)	Yes	Yes	No
d)	Yes	Yes	Yes

35. Which one of the following is indirect labour considered?
a) product cost
b) nonmanufacturing cost
c) period cost
d) raw material cost

36. Which one of the following costs would be included in manufacturing overhead of a lawn mower manufacturer?
a) the cost of the wheels
b) the cost of the fuel lines that run from the motor to the gas tank
c) depreciation on the testing equipment
d) the wages earned by motor assemblers

37. Which of the following would most likely be included in manufacturing overhead?
a) rent on the company's store
b) insurance on a delivery truck
c) rent on the company's factory
d) an oil change on a delivery truck

38. For 2016, Sparkman Company has cost of goods manufactured of $500,000, beginning finished goods inventory of $25,000, and ending finished goods inventory of $20,000. How much is cost of goods sold?
a) $505,000
b) $495,000
c) $545,000
d) $455,000

39. Which beginning and ending inventories appear on a cost of goods manufactured schedule?
a) raw materials only
b) raw materials and work in process only
c) raw materials, work in process, and finished goods
d) work in process only

40. Which of the following represents the correct order in which inventories are reported on a manufacturer's balance sheet?
a) raw materials, work in process, finished goods
b) work in process, finished goods raw materials
c) finished goods, work in process, raw materials
d) work in process, raw materials, finished goods

41. Into which one of the following accounts would the work of factory employees, that can be physically and directly associated with converting raw materials into finished goods, be categorized?
a) direct labour
b) indirect labour
c) manufacturing overhead
d) indirect materials

42. Which one of the following would NOT be classified as manufacturing overhead?
a) indirect materials
b) insurance on factory building
c) indirect labour
d) direct materials

43. Which one of the following is a product cost?
a) indirect labour
b) office salaries
c) sales person's salaries
d) advertising costs

44. A company uses sandpaper in its production process. How is the cost of the sandpaper classified?
a) an insignificant expense that can be ignored
b) a direct material
c) a period cost
d) a product cost

45. In which classification would the wages of a factory payroll clerk be classified?
a) raw materials
b) indirect labour
c) period cost
d) direct labour

46. Which one of the following is NOT a manufacturing cost?
a) advertising costs
b) cost of goods sold
c) manufacturing overhead
d) direct materials

47. What criteria must be met in order to consider the work of factory employees to be direct labour?
a) It must be promptly associated with converting materials into products.
b) It must be physically associated with converting materials into products.
c) It must be materially associated with converting materials into products.
d) It must be periodically associated with converting materials into products.

48. Which one of the following is classified as direct labour?
a) flour in a bakery
b) wages of factory janitors
c) bottlers of cola in a bottling company
d) copy machine costs at a copy shop

49. In what category are lubricants that are used for wheel bearings on skateboards produced by a manufacturer categorized?
a) selling expense
b) indirect materials
c) miscellaneous expense
d) direct materials

50. Which one of the following is NOT another name for the term *manufacturing overhead*?
a) period costs
b) factory overhead
c) indirect manufacturing costs
d) burden

51. Which product cost is most difficult to associate with a product?
a) direct labour
b) advertising
c) direct materials
d) manufacturing overhead

52. A company incurred manufacturing costs that were product costs, but they are NOT classified as either direct materials or direct labour. What are these called?
a) manufacturing overhead
b) selling and administrative expenses
c) period costs
d) marketing costs

53. Inventoriable costs are also referred to as
a) product costs.
b) administrative costs.
c) period costs.

d) recorded costs.

54. Zirk, Inc. incurred cost of goods manufactured totalling $700,000, manufacturing overhead of $320,000, and direct materials totalling $40,000. How much is the amount of direct labour?
a) Cannot be determined from the information provided.
b) $340,000
c) $660,000
d) $700,000

55. Ranger Company reported total manufacturing costs of $65,000, manufacturing overhead totalling $13,000, and direct materials totalling $16,000. How much is direct labour cost?
a) Cannot be determined from the information provided.
b) $94,000
c) $29,000
d) $36,000

56. Which of the following are period costs?
a) income taxes and indirect materials
b) selling and administrative expenses
c) indirect labour
d) advertising and factory depreciation

57. How does a manufacturing company classify sales commissions?
a) as indirect labour
b) as product costs
c) as manufacturing overhead
d) as period costs

58. Which of the following are considered product costs?
a) period costs and administrative expenses
b) selling and administrative expenses
c) inventoriable costs and plant assets
d) direct labour costs and manufacturing overhead

59. When are period costs recorded on the income statement?
a) when they occur
b) when the product that they are associated with is sold
c) at the discretion of management
d) none of the above

60. What must occur for inventoriable costs to become expenses under the matching principle?
a) The product must be completed and ready to sell.
b) The product must be sold.
c) All of the costs associated with manufacturing a product must be incurred.

d) The product must have incurred labour.

61. Which of the following could be considered either a product or a period cost depending on the purpose?
a) manufacturing overhead
b) direct labour
c) indirect materials
d) depreciation

62. Where would you expect to find depreciation on factory equipment?
a) included with Depreciation Expense on the Income Statement
b) in the manufacturing overhead section of the costs of goods manufactured schedule
c) only on the Income Statement as part of cost of goods sold
d) as a period cost in the operating expense section of the Income Statement

63. Which one of the following represents a period cost?
a) company advertisement
b) depreciation of plant equipment
c) production manager's salary
d) direct materials

64. Which one of the following is most likely a direct material?
a) sawdust used to soak up spills in a paint factory
b) lubricants for factory machinery
c) paper used in the photocopy machine in the sales office
d) circuit boards in a computer

65. Manufacturing overhead can be categorized as
a) a prime cost and a period cost.
b) a conversion cost and a period cost.
c) a prime cost and a product cost.
d) a conversion cost and a product cost.

66. Which one of the following is NOT considered a 'material' cost?
a) partially completed motor engines for a motorcycle plant
b) bolts used in manufacturing the compressor of an engine
c) rivets for the wings of a new commercial jet aircraft
d) lumber used to build tables

67. As production manager, Mr. B is asked to track the manufacturing cost per unit on the factory floor. Total manufacturing costs were $100,000 before considering factory maintenance salaries of $12,000 and $50,000 of factory depreciation. How much is the calculation of manufacturing cost per unit if 500 units had been produced in the current quarter?
a) $224

b) $300
c) $200
d) $324

68. Which one of the following is an example of a period cost?
a) a change in benefits for the union workers who work in the Toronto plant of a Fortune 1000 manufacturer
b) workers' compensation insurance on factory workers wages allocated to the factory
c) a processor used to produce computers
d) a manager's salary for work performed in the corporate head office

69. Which of the following would most likely be viewed as indirect materials?
a) ball bearings associated with an industrial tractor wheel
b) axle grease associated with the suspension of a new car
c) new tires for a commercial truck
d) cost of boring a cylinder in assembly

70. As plant controller, you are trying to determine the costs over which you have the most control on a day-to-day basis. Your goal is to achieve better profitability. The plant operations manager suggests that overhead is the easiest area to directly reduce costs. Which of the following items would be classified as manufacturing overhead?
a) factory janitor
b) general corporate liability insurance
c) cost of landscaping the corporate office
d) the western division's vice president's salary

71. Which of the following is considered manufacturing overhead?
a) depreciation on the press that moulds the plastic into work in process
b) the line worker's Christmas bonus designated by management
c) tools that were originally utilized for production but are currently being used by management to fix a copier in the upstairs corporate office
d) the courier charge for delivering a new ball bearing joint for a robotic paint arm

72. A company loses its opening financial records in a fire. During the following year, it incurred costs of production of $250,000 and sold $300,000 in merchandise. It took an inventory count and found that it had $100,000 in product on hand. What should the company's opening inventory show before the fire?
a) $50,000
b) $100,000
c) $150,000
d) Cannot be determined from the above information.

73. Salaries of sales people who only sell one product should best be shown as
a) fixed overhead.
b) variable overhead.

c) direct selling costs.
d) indirect selling costs.

74. Which of the following is a direct cost of a hotel?
a) meals in the restaurant
b) room cleaning
c) room service
d) cleaning the lobby

75. Which of the following are period costs?
a) workers wages in the shipping department
b) workers wages paid for statutory holidays
c) workers wages in the plant maintenance department
d) workers wages on an assembly line

76. Which of the following statements is true?
a) Advertising is a product cost and a plant manager's salary is a period cost.
b) Advertising is a period cost and a plant manager's salary is a manufacturing overhead cost.
c) Advertising is a period cost and a plant manager's salary is a period cost.
d) Advertising is a product cost and a plant manager's salary is a manufacturing overhead cost.

77. Examples of fixed costs include all but one of the following:
a) cost of factory rent for the 12 month contract term.
b) cost of Janet's apartment rent during her 3rd year of university.
c) cost of a car rental which includes a fee per km driven.
d) a one-week rental of a carpet cleaning machine.

78. Variable costs
a) vary in total as activity varies.
b) vary on a per unit basis as activity varies.
c) are unpredictable.
d) none of the above.

79. Which of the following would most likely be considered direct labour?
a) a worker installing components in a computer
b) a maintenance worker
c) a security guard
d) a sales person

80. The cost of the management accountant working in the front office of a company is a
a) direct, variable, product cost.
b) fixed period cost.
c) fixed product cost.
d) indirect period cost.

81. Indirect labour is a
a) direct, variable, product cost.
b) direct, variable, period cost.
c) indirect, variable, product cost.
d) indirect, fixed or variable, product cost.

82. Which of the following would most likely be considered direct material?
a) wood used to make a chair
b) lubrication for factory machines
c) glue used to make a chair
d) cleaning products used in a factory

83. Manufacturing overhead is a
a) direct, variable, product cost.
b) direct, variable period costs.
c) indirect, variable, product cost.
d) indirect, fixed or variable product cost.

84. Fees for office cleaning and maintenance are
a) neither direct nor indirect.
b) fixed product costs.
c) variable product costs.
d) fixed or variable product costs.

85. Fees for office telephones are
a) fixed period costs.
b) mixed period costs.
c) variable period costs.
d) direct, fixed, or variable period costs.

86. Property taxes for the entire manufacturing facility, including the front office and factory area are
a) both fixed and variable product costs.
b) both direct and indirect costs.
c) both a product and a period cost.
d) none of the above.

87. The relevant range can be commonly understood to mean
a) the normal range of output (activity) within which the company operates.
b) the range wherein fixed costs are always fixed.
c) the range wherein variable costs are strictly curvilinear.
d) the range wherein fixed costs are strictly proportional to the level of activity.

88. Where there is a linear relationship between two variables,
a) the change in the dependent variable yields a predictable, constant change in the independent variable.
b) the change in the independent variable yields a predictable, constant change in the dependent variable.
c) there is seldom a linear relationship between two variables.
d) a change in the “Y” variable yields a predictable, constant change in the “X” variable.

89. Which of the following statements is true?
a) In real life, the curvilinear nature of variable costs is questionable.
b) In real life, fixed costs are fixed in total and do not change at various activity levels.
c) Within the relevant range, there is rarely a straight-line relationship for both variable and fixed costs.
d) Within the relevant range the linear assumption is valid and useful for cost behaviour analysis.

90. Outside of the relevant range, which of the following outcomes is unlikely?
a) It may be difficult for management to change all fixed costs.
b) Achieving cost efficiency may be difficult.
c) Total fixed costs will not change.
d) At a 0% activity level all fixed costs will cease.

91. A curvilinear relationship between variable costs and changes in activity levels suggests what?
a) A strictly linear relationship between fixed costs and activity levels is implausible.
b) A strictly curvilinear relationship between changes in activity levels and variable costs is possible only within the relevant range.
c) Since the relationship between activity levels and variable costs is linear within the relevant range and less linear at lower and higher levels outside the relevant range, the straight-line (linear) relationship takes on a curvature in the real world.
d) none of the above

92. Mixed costs are
a) costs with both indirect and direct elements.
b) costs with both product and period elements.
c) costs with both fixed and variable elements.
d) none of these.

93. Mixed costs
a) change in proportion to changes in activity level.
b) change in total in response to changes in activity level.
c) change proportionately and in total as a result of changes in activity level.
d) none of these.

94. To be useful to management accountants for planning and predictive purposes, mixed costs
a) must be classified into their fixed and variable elements.
b) must be classified into their direct and indirect elements.
c) must be classified into their product and period elements.
d) none of these.

95. The high-low method
a) is a useful means of predicting the highest cost a company will incur in the operating period.
b) is a useful means of separating fixed and variable elements from a mixed cost.
c) is more time-consuming than the scatter diagram method.
d) is more complex than the use of linear regression analysis.

96. Critical inputs in using the high-low method include all of the following EXCEPT
a) actual activity levels (production levels) for an operating period.
b) actual mixed costs (total costs) corresponding to the various activity levels.
c) a calculator.
d) a hypothesis for the slope.

Use the following information for questions 97–100.

Month	# Machine Hours (X)	Maintenance Costs (Y)
Jan	3,000	$440
Feb	4,500	$690
Mar	8,000	$510
Apr	7,000	$600
May	6,000	$550
Jun	9,000	$980
Jul	3,500	$840
Aug	5,500	$600

97. Which of the following choices represents the highest and lowest respective coordinates of activity level and corresponding total costs?
a) (3,000 units, $440), (9,000 units, $980)
b) (9,000 units, $980), (3,000 units, $440)
c) ($3,000, 440 units), ($9,000, 980 units)
d) ($9,000, 980 units), ($3,000, 440 units)

98. Using the high-low method, what is the slope for this set of data?
a) $9
b) $0.09
c) $11.11
d) $540

99. What does the slope represent?
a) the rate at which the X variable changes as a result of the Y variable

b) the rate at which the Y variable changes as a result of the X variable
c) the rate at which the dependent variable changes as a result of the fixed cost component
d) the rate at which the independent variable changes as a result of changes in the dependent variable

100. What is the equation of the line using the high-low method and this data?
a) $980 = 170 + (0.09X)
b) Y = $170 + (0.09 x 9,000)
c) Y = 170+ ($0.09 X)
d) X = 170+ ($0. 09 Y)

101. A high-low approach to establishing fixed and variable components of costs is most effective when information available is
a) curvilinear.
b) erratic and highly fluctuating.
c) outside of the relevant range.
d) linear.

Use the following information for questions 102–104.

Month	Labour Hours (X)	Overhead Costs (Y)
Jan	200	$415
Feb	175	$385
Mar	290	$520
Apr	300	$534
May	185	$403
Jun	265	$490
Jul	160	$372
Aug	320	$564

102. What is the slope of this data, using the high-low method?
a) $1.2X
b) $180
c) $1.20
d) $0.83

103. Which of the following choices represents the highest and lowest respective coordinates of activity level and corresponding total overhead costs?
a) ($372, 160 labour hours), ($564, 320 labour hours)
b) ($564, 320 labour hours), ($372, 160 labour hours)
c) (160 labour hours, $372), (320 labour hours, $564)
d) (320 labour hours, $564), (160 labour hours, $372)

104. What is the equation of the line using the high-low method and this data?
a) $564 = 180 + (1.2X)

b) X = 180+ ($1.20Y)
c) Y = $180 + ($1.2 X)
d) Y = $180 + (1.20 x 320)

105. Which one of the following is the correct calculation of cost of goods sold for a manufacturing company?
a) beginning FG inventory – cost of goods manufactured – ending FG inventory
b) ending FG inventory – cost of goods manufactured + beginning FG inventory
c) beginning FG inventory + cost of goods purchased – ending FG inventory
d) beginning FG inventory + cost of goods manufactured – ending FG inventory

106. How does a manufacturing company report cost of goods manufactured?
a) as a current asset on the balance sheet
b) as a component of the raw materials inventory on the balance sheet
c) as a component in the calculation of cost of goods sold on the income statement
d) as an administrative expense on the income statement

107. If you want to know the amounts a company used to calculate, ‘Cost of goods manufactured,’ where would you look?
a) on the Income Statement
b) on the Balance Sheet
c) on both the Balance Sheet and Income Statement
d) only in the managerial accounting records

108. A merchandising company includes cost of goods purchased in its calculation of cost of goods sold. What is the counterpart used by a manufacturing company?
a) ending inventory
b) beginning inventory
c) cost of goods available for sale
d) cost of goods manufactured

109. Cost of goods sold applies to
a) only merchandisers' Income Statements.
b) only manufacturers' Income Statements.
c) both manufacturers’ and merchandisers' Income Statements.
d) manufacturers, merchandisers, and service companies.

110. How is the cost of goods manufactured calculated?
a) beginning WIP + direct materials used + direct labour + manufacturing overhead + ending WIP
b) direct materials used + direct labour + manufacturing overhead – beginning WIP + ending WIP
c) beginning WIP + direct materials used + direct labour + manufacturing overhead – ending WIP
d) direct materials used + direct labour + manufacturing overhead – ending WIP – beginning

WIP

111. During 2016, "cost of goods manufactured" was less than the amount of "Total manufacturing costs" for the period. Which statement is true?
a) Ending work in process inventory is greater than beginning work in process inventory.
b) Ending work in process is less than beginning work in process inventory.
c) Ending work in process is equal to the cost of goods manufactured.
d) Ending work in process is less than beginning finished goods inventory.

112. Hardigan Manufacturing Company reported the following year-end information: beginning work in process inventory, $80,000; cost of goods manufactured, $980,000; beginning finished goods inventory, $50,000; ending work in process inventory, $70,000; and ending finished goods inventory, $40,000. How much is Haridgan's cost of goods sold for the year?
a) $980,000
b) $990,000
c) $970,000
d) $1,000,000

Use the following information for questions 113–115.

Caltreck Manufacturing Inc.'s accounting records reflect the following inventories:

	Dec. 31, 2015	Dec. 31, 2016
Raw materials inventory	$100,000	$ 80,000
Work in process inventory	130,000	145,000
Finished goods inventory	125,000	115,000

During 2016, Caltreck purchased $950,000 of raw materials, incurred direct labour costs of $125,000, and incurred manufacturing overhead totalling $160,000.

113. How much raw materials is transferred to production during 2016 for Caltreck Manufacturing?
a) $1,240,000
b) $970,000
c) $950,000
d) $930,000

114. How much is total manufacturing costs incurred during 2016 for Caltreck?
a) $1,240,000
b) $1,255,000
c) $1,235,000
d) $1,250,000

115. Assume Caltreck Manufacturing's cost of goods manufactured for 2016 amounted to $1,200,000. How much would it report as cost of goods sold for the year?
a) $1,210,000
b) $1,250,000

c) $1,325,000
d) $1,190,000

116. Hooter Manufacturing Company reported the following year-end information:

Beginning work in process inventory.....	$75,000
Beginning raw materials inventory.....	20,000
Ending work in process inventory.....	73,000
Ending raw materials inventory.....	23,000
Raw materials purchased.....	220,000
Direct labour.....	170,000
Manufacturing overhead.....	80,000

How much is Hooter Manufacturing's cost of goods manufactured for the year?
a) $470,000
b) $465,000
c) $469,000
d) $472,000

117. What amount is given by the sum of direct materials, direct labour, and manufacturing overhead incurred?
a) total cost of work in process
b) cost of goods available for sale
c) total manufacturing costs
d) cost of goods manufactured

118. What amount is given by the sum of the cost of the beginning work in process and the total manufacturing costs for the current year?
a) cost of goods manufactured
b) cost of goods available for sale
c) total cost of work in process
d) cost of goods sold

119. What are the components of total manufacturing costs?
a) direct materials and direct labour only
b) direct labour and manufacturing overhead only
c) manufacturing overhead only
d) direct materials, direct labour, and manufacturing overhead

120. Rezell Combines, Inc. has $4,000 of finished goods inventory as of December 31, 2016. If beginning finished goods inventory was $2,000 and cost of goods sold was $8,000, how much would Rezell report for cost of goods manufactured?
a) $9,000
b) $2,000
c) $10,000
d) $6,000

121. At May 31, 2016, Smythe Inc. has $4,500 in beginning raw materials, $6,000 of direct labour. If manufacturing overhead was $10,500, total manufacturing costs was $50,500, and total raw material purchases were $36,000, how much is ending amount of raw materials?
a) $36,000
b) $21,000
c) $40,500
d) $6,500

122. Costs of goods manufactured of SuperK Company are shown below:

SuperK Company
Cost of Goods manufactured
Year Ending December 31, 2016

Beginning work in process:.....		$15,000
Direct materials:		
Beginning raw materials.....	$14,000	
Raw material purchases.....	22,000	
Total raw materials available for use.....	36,000	
Ending raw materials.....	5,500	
Direct materials used.....		30,500
Direct Labour.....		6,000
Total manufacturing overhead.....		10,500
Ending work in process.....		18,000
Cost of Goods Manufactured.....		$44,000

How much is the total manufacturing cost?
a) $20,500
b) $23,000
c) $47,000
d) $44,000

123. In a manufacturing company, the cost of direct labour treated as an expense when
a) products are sold.
b) products are transferred into work in process inventory.
c) wages are paid to the employees.
d) at month end with accruals for wages.

124. What occurs when inventoriable costs are removed from the balance sheet?
a) They increase operating expenses.
b) They become cost of goods sold.
c) They are reported as selling expenses.
d) They are deducted from the sales account.

125. Where would you expect to find ending raw materials inventory?
a) on the costs of goods manufactured schedule as an addition to raw materials purchases, and on the Balance Sheet
b) on the costs of goods manufactured schedule as a subtraction from raw materials available for use, and on the Balance Sheet
c) only on the Balance Sheet

d) only the costs of goods manufactured schedule

126. Which one of the following does NOT appear on the balance sheet of a manufacturing company?
a) finished goods inventory
b) raw materials inventory
c) cost of goods manufactured
d) work in process inventory

127. What amount would you find on financial statements of merchandising companies that is referred to as finished goods inventory for a manufacturing company?
a) purchases
b) cost of goods purchased
c) merchandise inventory
d) raw materials inventory

128. How would you expect to see manufacturing inventories listed on a company's balance sheet?
a) in alphabetical order
b) in order of liquidity
c) in order from largest to smallest
d) any order the company desires

129. Which of the following is a manufacturing activity?
a) finished goods being sold directly to the public
b) developing new products through research and development
c) converting raw materials into finished goods
d) all of the above

130. What is work in process inventory generally described as?
a) costs applicable to units that have been started in production but are only partially completed
b) costs associated with the end stage of manufacturing that are almost always complete and ready for customers
c) costs strictly associated with direct labour
d) beginning stage production costs associated with labour costs dealing with bringing in raw materials from the shipping docks

ANSWERS TO MULTIPLE CHOICE QUESTIONS

Item	Ans.	Item	Ans.	Item	Ans.	Item	Ans.	Item	Ans.	Item	Ans.	Item	Ans.
34.	c	48.	c	62.	b	76.	b	90.	c	104.	c	118.	c
35.	a	49.	b	63.	a	77.	c	91.	c	105.	d	119.	d
36.	c	50.	a	64.	d	78.	a	92.	c	106.	c	120.	c
37.	c	51.	d	65.	d	79.	a	93.	b	107.	d	121.	d
38.	a	52.	a	66.	a	80.	b	94.	a	108.	d	122.	c
39.	b	53.	a	67.	d	81.	d	95.	b	109.	c	123.	a
40.	a	54.	a	68.	d	82.	a	96.	c	110.	c	124.	b
41.	a	55.	d	69.	b	83.	d	97.	b	111.	a	125.	b
42.	d	56.	b	70.	a	84.	a	98.	b	112.	b	126.	c
43.	a	57.	d	71.	a	85.	b	99.	b	113.	b	127.	c
44.	d	58.	d	72.	c	86.	c	100.	c	114.	b	128.	b
45.	b	59.	a	73.	c	87.	a	101.	d	115.	a	129.	c
46.	a	60.	b	74.	b	88.	b	102.	c	116.	c	130.	a
47.	b	61.	d	75.	a	89.	c	103.	d	117.	c		

BRIEF EXERCISES

Brief Exercise 131
Presented below are Truck Company's monthly manufacturing cost data related to its personal computer products:

a) Utilities for manufacturing equipment $570,000
b) Raw material (CPU, chips, etc.) 73,000
c) Depreciation on manufacturing building 320.000
d) Wages for production workers 770,000

Enter each cost item in the following table, placing an "X" under the appropriate headings.

	Product Costs		
	Direct Materials	Direct Labour	Factory Overhead
a)			
b)			
c)			
d)			

Solution 131

	Product Costs		
	Direct Materials	Direct Labour	Factory Overhead
a)			X
b)	X		
c)			X
d)		X	

Brief Exercise 132
Determine whether each of the following costs should be classified as direct materials (DM), direct labour (DL), or manufacturing overhead (MO).

a) ____ Depreciation on equipment
b) ____ Table legs used in manufacturing tables
c) ____ Wages paid to factory workers
d) ____ Factory rent

Solution 132
a. MO

b. DM

c. DL

d. MO

Brief Exercise 133
Indicate whether each of the following costs would be classified as prime or conversion costs:

a) ____ Raw materials used to make the product
b) ____ Direct labour used in the manufacturing of the product
c) ____ Factory utilities
d) ____ Direct labour used to unload raw materials from the supplier's truck
e) ____ Cleaning staff that work only in the factory
f) ____ Factory machinery maintenance
g) ____ Lubricants for the factory machinery
h) ____ Supervisor of the production process

Solution 133

a) prime

b) prime or conversion

c) conversion

d) prime

e) conversion

f) conversion

g) conversion

h) conversion

Brief Exercise 134
Presented below are EKP Inc.'s monthly manufacturing cost data related to its wooden furniture products:

a)	Security	$75,000
b)	Factory wages	$120,000
c)	Factory Utilities	$85,000
d)	Wood	$210,000

Enter each cost item in the following table, placing an 'X' under the appropriate headings.

	Product Costs		
	Direct Materials	Direct Labour	Factory Overhead
a)			
b)			
c)			
d)			

Solution 134

	Product Costs		
	Direct Materials	Direct Labour	Factory Overhead
a)			X
b)		X	
c)			X
d)	X		

Brief Exercise 135
Describe the main difference between direct materials and indirect materials that are used in any given production process.

Solution 135
The main difference is measurability. For most products, measuring materials used is important because it can be translated into a per unit measurement. This assists management in keeping track of the main amount of materials that are used in manufacturing the products themselves. Should any discrepancies occur in these measurements, management can take action to correct problems.
Indirect materials are generally those items that are used in the process but cannot be easily assigned to each unit manufactured. Such items are adhesives, screws, washers and some covering materials such as paint.
Management finds it more efficient to monitor such items on a volume rather than a per unit basis.

Brief Exercise 136
Great Motors Ltd. incurred the following costs in 2016 at two different levels of production:

	2500 Units	3500 units
Direct Materials	$50,000	$70,000
Labour.....	$25,000	$35,000
Office Costs.....	$15,000	$17,500
Depreciation.....	$5,000	$5,000
Rent.....	$14,000	$14,000
Utilities.....	$7,500	$8,500

Classify each cost as variable, fixed, or mixed.

Solution 136
Variable Costs – Direct Materials, Labour
Fixed Costs – Depreciation, Rent
Mixed Costs – Office Costs, Utilities

Brief Exercise 137
Anne's Cupcakes incurred the following costs in 2016 at two different levels of production:

	50,000 Units	75,000 units
Direct Materials	$50,000	$75,000
Selling Costs	$5,000	$7,500

Depreciation	$7,000	$7,000
Rent	$17,000	$17,000
Labour	$25,000	$37,500
Utilities	$7,500	$8,500

Classify each cost as variable, fixed, or mixed.

Solution 137
Variable Costs – Direct Materials, Labour
Fixed Costs – Depreciation, Rent
Mixed Costs – Selling costs, Utilities

Brief Exercise 138
The following data was gathered by RGB Industries for the first 6 months of 2016 (expressed in thousands):

Machine Month	Overhead Hours (X)	Costs (Y)
Jan	125	$380
Feb	80	$329
Mar	95	$340
Apr	115	$380
May	130	$394
Jun	100	$349

Using the high-low method, determine the cost equation for overhead costs.

Solution 138
Slope = ($394 – $329)/(130 – 80) = $1.30 per machine hour

Fixed costs = $394 – ($1.30 x 130) = $225 x $1000 = $225,000

Y = $225,000 + $1.3X

*Alternative calculation for fixed costs: Fixed costs = $329 – ($1.30 x 80) = $225

Brief Exercise 139
Presented below are data related to the shipping costs for the Almond Factory:

Month	Distribution Costs (Y)	Number of Shipments (X)
Jan	$4,918	3500
Feb	$4,245	2650
Mar	$5,205	3850
Apr	$4,532	2999
May	$4,544	3002
Jun	$5,025	3650

Using the high-low method, determine the cost equation for distributions costs.

Solution 139

Slope = ($5205 – $4245) / (3850 – 2650) = $0.80

Fixed costs = $5205 – ($0.80 x 3850) = $2125

Y = $225 + $1.3X

*Alternative calculation for fixed costs: Fixed costs = $4245 – ($0.80 x 2650) = $2125

Brief Exercise 140
Presented below are incomplete 2016 manufacturing cost data for Supreme Corporation. Determine the missing amounts.

	Direct Materials Used	Direct Labour Overhead	Factory Overhead	Total Manufacturing Costs
a)	$17,000	$89,000	$23,000	?
b)	?	$64,000	$72,000	$336,000
c)	$117,000	?	$32,000	$278,000

Solution 140

	Direct Materials Used	Direct Labour Overhead	Factory Overhead	Total Manufacturing Costs
a)	$17,000	$89,000	$23,000	$129,000
b)	$200,000	$64,000	$72,000	$336,000
c)	$117,000	$129,000	$32,000	$278,000

Brief Exercise 141
Criba Manufacturing Company has the following data: direct labour $320,000, direct materials used $749,000, total manufacturing overhead $475,000, and beginning work in process $36,000. Calculate a) total manufacturing costs and b) total cost of work in process.

Solution 141

a)

Direct labour.....	$ 320,000
Direct materials used.....	749,000
Total manufacturing overhead.....	475,000
Total manufacturing costs.....	$1,544,000

b)

Beginning work in process.....	$ 36,000
Total manufacturing costs.....	1,544,000
Total cost of work in process.....	$1,580,000

Brief Exercise 142
Presented below are incomplete 2016 manufacturing cost data for Swartnez Corporation. Determine the missing amounts.

	Direct Materials Used	Direct Labour	Factory Overhead	Total Manufacturing Costs
a)	$35,000	$72,000	$27,000	?
b)	?	$57,000	$231,000	$730,000
c)	$28,000	?	$186,000	$632,000

Solution 142

a)

Direct materials used	$35,000
Direct labour	72,000
Factory overhead	27,000
Total manufacturing costs	$134,000

b)

Total manufacturing costs	$730,000
Less Direct labour	(57,000)
Less Factory overhead	(231,000)
Equals Direct materials used	$442,000

c)

Total manufacturing costs	$632,000
Less Direct materials used	(28,000)
Less Factory overhead	(186,000)
Equals Direct labour	$418,000

Brief Exercise 143

Presented below are incomplete 2016 manufacturing cost data for Spondo Corporation. Determine the missing amounts.

	Direct Materials Used	Direct Labour Overhead	Factory Overhead	Total Manufacturing Costs	Work in Process (1/1)	Work in Process (12/31)	Cost of Goods Manufactured
a)	$38,000	$72,000	$43,000	?	$120,000	$86,000	?
b)	$149,000	$53,000	$90,000	$292,000	?	$98,000	$321,000
c)	$53,000	$116,000	$121,000	$290,000	$463,000	?	$715,000

Solution 143

	Total Manufacturing Costs	Work in Process (1/1)	Work in Process (12/31)	Cost of Goods Manufactured
a)	$153,000	$120,000	$86,000	$187,000
b)	$292,000	$127,000	$98,000	$321,000
c)	$290,000	$463,000	$38,000	$715,000

Brief Exercise 144

Raynor Manufacturing Company has the following data:

Direct labour	$46,000

Direct materials used	84,000
Total manufacturing overhead	60,000
Ending work in process	30,000
Beginning work in process	40,000

Calculate a) total manufacturing costs and b) cost of goods manufactured.

Solution 144

a)

Direct labour	$46,000
Direct materials used	84,000
Total manufacturing overhead	60,000
Total manufacturing costs	$190,000

b)

Beginning work in process	$ 40,000
Total manufacturing costs	190,000
Less ending work in process	(30,000)
Cost of goods manufactured	$200,000

Brief Exercise 145

Distinguish between the main components of the Income Statement for a manufacturing company which makes clothing and a retail company that only buys and sells clothing.

Solution 145

The main difference lies in the manner in which products sold are highlighted in the Income Statement on the cost of goods section. The manufacturer shows the costs of goods that it sells as Cost of Goods Manufactured while the retail company shows its costs as Purchases. Where inventories are shown, the manufacturer shows its ending inventory as Finished Goods Inventory while the retailer shows it as Ending Merchandise Inventory.

Brief Exercise 146

In alphabetical order below are current asset items for Sudler Company as of December 31, 2016. Prepare the current assets section of the company's balance sheet as of the same date.

Accounts receivable	$73,000
Cash	102,000
Finished goods	64,000
Prepaid expenses	15,000
Raw materials	46,000
Work in process	37,000

Solution 146

Current Assets		
Cash		$ 102,000
Accounts receivable		73,000
Inventories		
Raw materials	$46,000	
Work in process	37,000	
Finished goods	64,000	147,000
Prepaid expenses		15,000
Total current assets		$337,000

EXERCISES

Exercise 147
The following categories are used by manufacturing companies for costs:

DM Direct Materials
DL Direct Labour
MO Manufacturing Overhead

Presented below is a list of costs and expenses incurred in the factory by Bates Corporation, a manufacturer of recreational vehicles.

____ a) Property taxes on the factory land
____ b) Rubber used in manufacturing
____ c) Welder's wages
____ d) Sandpaper used in production
____ e) Factory supervisors' salaries
____ f) Depreciation on factory machines
____ g) Factory electric
____ h) Carpeting for the recreational vehicles
____ i) Tissue paper for the factory workers' washrooms
____ j) Insurance on factory equipment

Instructions
Select the category to which each cost or expense belongs and write the abbreviation of the cost in the space provided.

Solution 147 (4 min.)
a) MO

b) DM

c) DL

d) MO

e) MO

f) MO

g) MO

h) DM

i) MO

j) MO

Exercise 148
Presented below are labels associated with costs:

1. Product Cost
2. Period Cost
3. Inventoriable Cost

Instructions
For each cost listed below, identify all applicable cost labels by writing the number in the space provided.

a) Advertising _____
b) Direct materials used _____
c) Sales salaries _____
d) Indirect factory labour _____
e) Repairs to office equipment _____
f) Factory manager's salary _____
g) Direct labour used _____
h) Indirect materials _____

Solution 148 (3–4 min.)

a) Advertising 2
b) Direct materials used 1, 3
c) Sales salaries 2
d) Indirect factory labour 1, 3
e) Repairs to office equipment 2
f) Factory manager's salary 1, 3
g) Direct labour used 1, 3
h) Indirect materials 1, 3

Exercise 149
Assume you have just taken a position as controller for a new company that manufactures and sells wrought iron wall hangings. Although the founder of the company, who is the president and CEO, is a great artisan, she has very limited knowledge of accounting.

Instructions
To help your new boss better understand accounting for a manufacturing organization, write a memo to her in which you: (1) identify, (2) describe, and (3) provide examples of the three manufacturing costs and the three inventory accounts used in accounting for a manufacturing company.

Solution 149 (8–10 min.)
The three manufacturing costs are: Direct Materials, Direct Labour, and Manufacturing

Overhead.
Raw materials that can be physically and directly associated with the finished product during the manufacturing process are called direct materials. The iron used in making the wall hangings is an example of direct materials.
The work of factory employees that can be physically and directly associated with converting raw materials to finished goods is considered direct labour.
Manufacturing overhead consists of costs that are indirectly associated with the manufacture of the finished product. These costs may also be manufacturing costs that cannot be classified as direct materials or direct labour. Manufacturing overhead includes indirect materials, indirect labour, and depreciation on factory buildings, and machinery, utilities, insurance, taxes and maintenance on factory facilities.
The three inventory accounts are: Raw Materials, Work in Process, and Finished Goods.
Raw materials inventory represents the cost of the materials and parts that are to be used in the manufacturing process. The iron purchased to make the wall hangings would be considered raw materials until the time it was put into production.
Work in process is the cost applicable to units that have been started into production but are only partially complete. Wall hangings on the assembly line that are in various stages of completion would be work in process.
The finished goods inventory represents the cost of completed goods that have not been sold. The cost of wall hangings that are completed but have not been sold would be finished goods.

Exercise 150
Costs are often identified as either an inventoriable product cost or a period cost.

Instructions
For each item listed below, indicate in the space to the left whether the item would be considered an inventoriable cost or a period cost for a manufacturing company. Use the following codes:

I Inventoriable cost
P Period cost

____ a) Factory supervisory salaries
____ b) Sales commissions
____ c) Income tax expense
____ d) Indirect materials used
____ e) Indirect labour
____ f) Office salaries expense
____ g) Property taxes on factory building
____ h) Sales manager's salary
____ i) Factory wages
____ j) Direct materials used

Solution 150 (2–3 min.)
a) I

b) P

c) P

d) I

e) I

f) P

g) I

h) P

i) I

j) I

Exercise 151
Payne Manufacturing Company incurs the following manufacturing costs and expenses during the month of June:

a) Assembly line wages
b) Raw materials used directly in product
c) Depreciation on office equipment
d) Property taxes on factory building
e) Rent on factory building
f) Sales commissions
g) Depreciation on factory equipment
h) Factory utilities
i) Wages for factory maintenance workers
j) Advertising
k) Indirect materials used in production
l) Factory manager's salary

Instructions
Complete the following matrix by placing an X under the appropriate headings.

Cost Item	Direct Materials	Direct Labour	Manufacturing Overhead	Period Costs
a)				
b)				
c)				
d)				
e)				
f)				
g)				
h)				

i)				
j)				
k)				
l)				

Solution 151 (3–4 min.)

Cost Item	Direct Materials	Direct Labour	Manufacturing Overhead	Period Costs
a)		X		
b)	X			
c)				X
d)			X	
e)			X	
f)				X
g)			X	
h)			X	
i)			X	
j)				X
k)			X	
l)			X	

Exercise 152

Arc Industries has the following components of its accounting information:

Variable costs: Direct Production $500,000; Other Operating $300,000

Fixed costs: Direct Production $200,000; Other Operating $800,000

Sales for the year: $3,000,000

Instructions

Assist the controller in preparing a statement that shows operating income while offering the most effective way of attaining information about the company's activities and its ultimate Operating Income.

Solution 152 (8–10 min.)

Sales		$3,000,000
Cost of sales:		
Variable	$500,000	
Fixed	200,000	700,000
Gross profit		$2,300,000
Other operating expenses		
Variable	$300,000	
Fixed	800,000	1,100,000
Operating Income		$1,200,000

Exercise 153
Safety Supply Services Ltd. has the following components of its accounting information:
Merchandise inventory: Beginning of Month $100,000, End of Month $180,000
Purchases of merchandise: $2,050,000
Sales in month: $3,000,000
Selling and administrative expenses: Selling $250,000, Administrative $300,000

Instructions
Assist the controller in preparing a statement that shows operating income while offering the most effective way of attaining information about the company's activities and its ultimate Operating Income.

Solution 153 (8–10 min.)

Sales		$3,000,000
Cost of goods sold:		
Beginning merchandise inventory	$100,000	
Add: Purchases	2,050,000	
Goods available for sale	2,150,000	
Less: Ending merchandise inv	180,000	1,970,000
Gross Margin		$1,030,000
Selling and administrative expenses		
Selling	$250,000	
Administrative	300,000	550,000
Operating Income		$480,000

Exercise 154
M&H Ltd. has recorded the following costs:

Month	Units produced	Cost A	Cost B	Cost C
January	10,000	$50,000	$100,000	$32,000
February	9,000	45,000	100,000	31,000
March	12,000	60,000	100,000	34,000

Instructions
If M&H Ltd. produces 15,000 units in April, what would be the expected total cost for each of Cost A, Cost B and Cost C? If the cost is a mixed cost, use the high-low method to determine April's cost.

Solution 154 (6–8 min.)
Cost A
Total cost is changing as activity changes, but the cost per unit is constant. Therefore Cost A is a variable cost.
Cost per unit = $50,000/10,000 units or $5/unit.
Therefore if 15,000 units are produced, Cost A = 15,000 X $5 = $75,000

Cost B
Total cost is constant as activity changes. Therefore Cost B is a fixed cost. Cost in April should

equal $100,000.

Cost C
Total cost is changing as activity changes, and cost per unit is changing as activity changes. Therefore Cost C is a mixed cost.

Using the high-low method:
($34,000 – $31,000) / (12,000 – 9,000 units) = $1/unit
$1(10,000 units) + FC = $32,000
FC = $32,000 – $10,000 = $22,000

For April:
Total Cost = $22,000 + $1 X 15,000 units = $37,000

Exercise 155
The Nick's Hotel has the following monthly costs:

Rooms Rented	Costs
75	$6,825
80	7,200
65	6,075
72	6,600
85	7,575

Instructions
Identify the fixed and variable cost elements using the high-low method.

Solution 155 (5–6 min.)
Variable:
$\frac{\$7,575 - \$6,075}{85 - 65} = \$75$ per room

$75 x (65) + FC = $6,075
Fixed costs = $1,200

Exercise 156
Alpha Romeo fraternity has an annual alumni golf outing. A local caterer provides lunch and a tent. The fraternity pays a flat fee for the tent and an additional amount for each fraternity brother served. However, in the past the brothers have never been able to determine how much the caterer is going to charge. In an effort to determine how much the caterer will charge this year, the brothers have tracked the cost and attendance data over the past four years:

Attendance	Caterer Cost
210	$6,000
175	4,800
240	6,800
250	6,600

Instructions

a) Use the high-low method to calculate the food cost per person.
b) How much is the charge for the tent?

Solution 156 (6–8 min.)
a) Variable:
$\frac{\$6,600 - \$4,800}{250 - 175} = \$24$ per person

b) \$24 (250) + FC = \$6,600
FC = \$600

Exercise 157
Spawn Manufacturing Company has the following data at June 30, 2016:

Inventories:	June 30	June 1
Raw materials inventory	\$25,000	\$30,000
Work in process inventory	84,000	75,000
Finished goods inventory	23,000	20,000

Other information for June:	
Total manufacturing costs	\$754,000
Manufacturing overhead	72,000
Direct labour incurred	342,000
Sales	990,000

Instructions
a) Prepare a schedule of cost of goods manufactured for the month of June.
b) Indicate the Balance Sheet presentation of the June 30 inventories.

Solution 157 (10–12 min.)
a)

Spawn Manufacturing Company
Cost of Goods Manufactured
For the Month Ended June 30, 2016

Beginning work in process (given)			\$75,000
Direct materials:			
Beginning raw materials (given)	\$30,000		
Raw material purchases	335,000		
(365,000 – 30,000)			
Total raw materials available for use	365,000		
(340,000 + 25,000)			
Ending raw materials (given)	25,000		
Direct materials used		340,000	
(754,000 – 342,000 – 72,000)			
Direct labour (given)		342,000	
Manufacturing overhead (given)		72,000	
Total manufacturing costs (given)			754,000
Less ending work in process (given)			84,000

Cost of goods manufactured.....	$745,000
(75,000 + 754,000 – 84,000)	

b)

Current assets		
Raw materials inventory.....	$25,000	
Work in process inventory.....	84,000	
Finished goods inventory.....	23,000	
Total inventories.....	$132,000	

Exercise 158

Account balances from Jolly B Manufacturing Company's accounting records for the month ended December 31, 2016 appear below:

Finished Goods Inventory, December 31.....	$ 75,350
Factory Supervisory Salaries.....	80,000
Income Tax Expense.....	40,000
Raw Materials Inventory, December 1.....	16,500
Work In Process Inventory, December 31.....	57,000
Sales Salaries Expense.....	25,000
Factory Depreciation Expense.....	5,400
Finished Goods Inventory, December 1.....	32,400
Raw Materials Purchases.....	475,000
Work In Process Inventory, December 1.....	72,000
Factory Utilities Expense.....	5,700
Direct Labour.....	130,000
Raw Materials Inventory, December 31.....	23,000
Sales Returns and Allowances.....	2,700
Indirect Labour.....	15,700

Instructions

Prepare a schedule of cost of goods manufactured for Jolly B Manufacturing Company for the month ended December 31, 2016.

Solution 158 (10–12 min.)

Jolly B Manufacturing Company
Cost of Goods Manufactured
For the Month Ended December 31, 2016

Beginning work in process.....			$ 72,000
Direct materials:			
Beginning raw materials.....	$ 16,500		
Raw material purchases.....	475,000		
Total raw materials available for use.....	491,500		
Ending raw materials.....	23,000		
Direct materials used.....		$ 468,500	
Direct labour.....		130,000	
Manufacturing overhead:			
Factory supervisor's salary.....	$80,000		

Indirect labour	15,700		
Factory utilities expense	5,700		
Factory Depreciation expense	5,400		
Total manufacturing overhead		106,800	
Total manufacturing costs			705,300
Less ending work in process			57,000
Cost of goods manufactured			$ 720,300

Exercise 159

Manufacturing costs for Fantasia Company for two consecutive months are as follows:

	June 30, 2016	July 31, 2016
Beginning work in process	$ 36,000	e)
Direct materials used	157,000	$ 143,000
Direct labour	89,000	72,000
Manufacturing overhead	115,000	66,000
Total manufacturing costs	a)	f)
Ending work in process	43,000	g)
Cost of goods manufactured	b)	289,000
Beginning finished goods	c)	h)
Cost of goods available for sale	658,000	i)
Ending finished goods	d)	49,000
Cost of goods sold	515,000	j)

Instructions

Indicate the missing amounts. (Show computations.)

Solution 159 (8–10 min.)

a) $115,000 + 157,000 + $89,000 = $361,000

b) $36,000 + $361,000 – $43,000 = $354,000

c) $658,000 – $354,000 = $304,000

d) $658,000 – $515,000 = $143,000

e) Equal to ending from June = $43,000

f) $143,000 + $72,000 + $66,000 = $281,000

g) $281,000 + $43,000 – $289,000 = $35,000

h) Equal to ending from June = $143,000

i) $143,000 + $289,000 = $432,000

j) $432,000 – $49,000 = $383,000

Exercise 160
A partial cost of goods manufactured schedule appears below for R Kelly Manufacturing:

R Kelly Manufacturing Company
Cost of Goods Manufactured Schedule
For the Year Ended December 31, 2016

Work in process			$76,000
Direct materials			
Raw materials inventory	$?		
Raw materials purchases	186,000		
Raw materials available for use	?		
Raw materials inventory	23,000		
Direct materials used		$203,000	
Direct labour		?	
Manufacturing overhead			
Indirect labour	$15,000		
Factory depreciation	27,000		
Factory utilities	7,000		
Total overhead		?	
Total manufacturing costs			?
Total cost of work in process			?
Less: Work in Process			57,000
Cost of goods manufactured			$475,000

Instructions
Fill in the missing information on the cost of goods manufactured schedule of R Kelly Manufacturing Company.

Solution 160 (6–9 min.)

R Kelly Manufacturing Company
Cost of Goods Manufactured Schedule
For the Year Ended December 31, 2016

Work in process			$76,000
Direct materials			
Raw materials inventory	$ 40,000		
Raw materials purchases	186,000		
Raw materials available for use	226,000		
Raw materials inventory	23,000		
Direct materials used		203,000	
Direct labour		204,000	
Manufacturing overhead			
Indirect labour	15,000		
Factory depreciation	27,000		
Factory utilities	7,000		
Total overhead		49,000	
Total manufacturing costs			456,000
Total cost of work in process			532,000
Less: Work in Process			57,000
Cost of goods manufactured			$475,000

Exercise 161
Data for the cost of direct materials for Landley, Inc. for the month ended March 31, 2016, are as follows:

Materials inventory, March 1, 2016.....	$43,000
Materials inventory, March 31, 2016.....	41,000

During March, the company purchased $140,000 of raw materials on account from Earle Company and $52,000 of raw materials for cash from Shrink Company. In addition, $100,000 was paid on the Earle account balance.

Instructions
Calculate the cost of direct materials used during March.

Solution 161 (5–7 min.)

Raw materials inventory, March 1.....	$ 43,000
Raw materials purchases..... ($140,000 + $52,000)	192,000
Total raw materials available for use.....	235,000
Less: Raw materials inventory, March 31..	41,000
Direct materials used during March.....	$194,000

Note: Payment on account is irrelevant to the direct materials used calculation.

Exercise 162
The following costs and inventory data were taken from the accounts of Winsto Company for 2016:

Inventories:	January 1, 2016	December 31, 2016
Raw materials.....	$8,000	$ 7,000
Work in process.....	15,000	13,000
Finished goods.....	16,000	12,000

Costs incurred:

Raw materials purchases.....	$88,000
Direct labour.....	42,000
Factory rent.....	8,000
Factory utilities.....	2,000
Indirect materials..... (inventoried separately from other materials)	4,000
Indirect labour.....	6,000
Selling expenses.....	5,000
Administrative expenses.....	12,000

Instructions
a) Prepare a schedule showing the amount of direct materials used in production during the year.
b) Calculate the amount of manufacturing overhead incurred during the year.

c) Prepare a schedule of Cost of Goods Manufactured for Winsto Company for the year ended December 31, 2016 in good form.

d) Prepare the Cost of Goods Sold section of the Income Statement for Winsto Company for the year ended December 31, 2016 in good form.

Solution 162 (12–15 min.)

a)

Raw materials inventory, beginning.....	$ 8,000
Raw materials purchases.....	88,000
Raw materials available for use.....	96,000
Raw materials inventory, ending.....	7,000
Direct materials used.....	$ 89,000

b)

Manufacturing overhead:	
Factory rent.....	$ 8,000
Factory utilities.....	2,000
Indirect materials.....	4,000
Indirect labour.....	6,000
Total manufacturing overhead.....	$20,000

c)

Winsto Company
Schedule of Cost of Goods Manufactured
Year Ending December 31, 2016

Work in process beginning.....			$15,000
Direct materials			
Raw materials inventory beginning.....	$ 8,000		
Raw materials purchases.....	88,000		
Raw materials available for use.....	96,000		
Raw materials inventory ending.....	7,000		
Direct materials used.....		$89,000	
Direct labour.....		42,000	
Manufacturing overhead.....		20,000	
Total manufacturing costs.....			151,000
Total cost of work in process.....			166,000
Less: Work in Process ending.....			13,000
Cost of goods manufactured.....			$153,000

d)

Winsto Company
Partial Income Statement
Year Ending December 31, 2016

Finished goods inventory, January 1.....	$ 16,000
Cost of goods manufactured.....	153,000
Cost of goods available for sale.....	169,000
Finished goods inventory, December 31…	12,000
Cost of goods sold.....	$157,000

Exercise 163

Starwood Company reported the following amounts for 2016:

Raw materials purchased	$120,000
Beginning raw materials inventory	16,000
Ending raw materials inventory	5,000
Beginning finished goods inventory	11,000
Ending finished goods inventory	8,000
Administrative expenses	12,000
Direct labour used	44,000
Selling and administrative expenses	21,000
Beginning work-in-process inventory	17,000
Ending work-in-process inventory	16,000
Manufacturing overhead costs	36,000

Instructions

a) Calculate the cost of materials used in production.

b) Calculate the cost of goods manufactured.

Solution 163

a)

Beginning raw materials inventory	$ 16,000
Raw materials purchased	120,000
= Materials available for use	136,000
Less ending raw materials inventory	5,000
= Materials used in production	$131,000

b)

Materials used in production (part A)	$131,000
Direct labour used	44,000
Manufacturing overhead costs	36,000
Total manufacturing costs	211,000
Add beginning work in process	17,000
Less ending work in process	(16,000)
Cost of goods manufactured	$212,000

Exercise 164

Halsey, the manufacturer of inexpensive printers, was organized in May, 2016. Halsey purchases toner cartridges used in the printers from a local distributor. Early in May, Halsey bought 41,000 cartridges at a cost of $20 each. During May, 36,000 cartridges were transferred from Raw Materials Inventory. Of the 36,000 cartridges withdrawn from Raw Materials Inventory, 4,000 were given to sales personnel to be given to customers as an incentive to buy a large quantity of printers. Another 1,000 cartridges were transferred to the corporate office to be used by members of the clerical staff. The remaining cartridges were transferred to production. Of the units started into production during May, 85 percent of them were completed. Eighty percent of the units completed during May were sold and shipped to customers.

Instructions

Determine the cost of cartridges to be found in each of the following accounts:

a) Raw Materials Inventory
b) Work in Process Inventory
c) Finished Goods Inventory
d) Cost of Goods Sold
e) Selling Expenses
f) Administrative Expenses

Solution 164 (8–10 min.)

a)	Raw Materials Inventory (41,000 – 36,000) × $20	$100,000
b)	Work in Process Inventory (31,000 × .15) × $20	93,000
c)	Finished Goods Inventory [(31,000 × .85) – (26,350 x .80)] x $20	105,400
d)	Cost of Goods Sold (26,350 × .80 x $20)	421,600
e)	Selling Expenses (4,000 × $20)	80,000
f)	Administrative Expenses (1,000 × $20)	20,000
		$820,000

Exercise 165

Gooly, Inc. manufactures calculators. During June, Gooly's transactions and accounts included the following:

Work in process inventory, beginning.....	$8,800
Work in process inventory, ending.....	7,500
Indirect materials issued to production from raw materials	3,600
Raw materials inventory, beginning.....	4,600
Raw materials inventory, ending.....	5,800
Sales.....	42,000
Direct labour cost.....	55,000
Manufacturing overhead.....	49,600
Raw materials purchased.....	143,500
Finished goods inventory, beginning.....	12,300
Finished goods inventory, ending.....	11,600

Instructions

a) How much is the cost of direct materials issued to production during June?
b) Calculate the cost of goods manufactured.
c) How much is the cost of inventory on the May 31 Balance Sheet?

Solution 165

a)

Materials:	
Beginning inventory.....	$ 4,600
Add Raw material purchases.....	143,500
Less Indirect materials issued.....	(3,600)

Available to use	144,500
Less ending raw materials	(5,800)
Cost of materials used	$138,700

b)

Direct materials (part a))	$138,700
Direct labour	55,000
Manufacturing overhead	49,600
Total manufacturing costs	243,300
Add beginning work in process	8,800
Less ending work in process	(7,500)
Cost of goods manufactured	$244,600

c)

Raw materials	$ 4,600
Work in process	8,800
Finished goods	12,300
Total inventory at May 31	$25,700

Exercise 166

Listed below are current asset items for Dre Company at December 31, 2016. Prepare the current assets section of the balance sheet. (Include a complete heading.)

Finished goods inventory	$14,000	Short-term investments	$22,000
Cash	15,000	Raw materials inventory	11,000
Prepaid expenses	3,000	Work in process inventory	16,000
Accounts receivable	2,100	Supplies on hand	1,400

Solution 166 (5–8 min.)

Dre Company
(Partial) Balance Sheet
December 31, 2016

Current assets		
Cash		$15,000
Short-term investments		22,000
Accounts receivable		2,100
Inventories:		
Raw materials	$11,000	
Work in process	16,000	
Finished goods	14,000	41,000
Prepaid expenses		3,000
Supplies on hand		1,400
Total current assets		$84,500

COMPLETION STATEMENTS

167. The work of factory employees that can be physically and directly associated with converting raw materials into products is classified as ___.

168. Indirect materials and indirect labour are classified as ___.

169. Direct materials and direct labour are referred to as ___ costs while direct labour and manufacturing overhead are often referred to as ___ costs.

170. ___ is added to direct labour and manufacturing overhead to get total manufacturing costs for the current period.

171. ___ costs vary in total but remain the same on a per unit basis.

172. Costs that have both a variable and fixed element are referred to as ___ costs.

173. A cost estimation technique using the highest and lowest level of activity and the highest and lowest cost is referred to as the ___ method.

174. When using the high-low method of cost estimation the change in ___ is divided by the change in ___ to determine the variable cost per activity.

175. A major difference between the income statements of a merchandising company and a manufacturing company is that the cost of goods section of a merchandising company shows cost of goods ___, whereas a manufacturing company shows cost of goods ___.

176. The ending work in process inventory is subtracted from the total cost of work in process to calculate ___.

177. A manufacturing company calculates cost of goods sold by adding cost of goods manufactured to the ___ and subtracting the ___.

178. A manufacturing company usually has three inventory accounts which are (1) ___, (2) ___, and (3) ___.

ANSWERS TO COMPLETION STATEMENTS

167. direct labour

168. manufacturing overhead

169. prime, conversion

170. Direct materials used

171. Variable costs

172. mixed

173. high-low

174. costs, activity

175. purchased, manufactured

176. cost of goods manufactured

177. beginning finished goods inventory, ending finished goods inventory

178. Finished Goods Inventory, Work in Process Inventory, Raw Materials Inventory

MATCHING

179. A list of managerial accounting terms appears below:
a) Prime Costs
b) Inventoriable costs
c) Cost behaviour analysis
d) Activity index
e) Conversion costs
f) Period costs

Instructions
Match each of the terms with the statement that best describes the term.

1. _____ Costs that are matched with the revenue of a specific time period and charged to expenses as incurred.

2. _____ The sum of direct manufacturing labour costs and manufacturing overhead costs.

3. _____ The study of how specific costs respond to changes in the level of business activity.

4._____ Costs that are a necessary and integral part of producing the finished product.

5. _____ The sum of direct materials cost and direct labour costs.

6. _____ An activity that causes changes in the behaviour of costs.

Solution 179
1. f

2. e

3. c

4. b

5. a

6. d

SHORT-ANSWER ESSAY QUESTIONS

Short Answer Essay 180
A manufacturing company makes the products that it sells. Briefly identify and define the cost elements that are incurred in making a product. After product cost elements are identified, how is the cost of goods manufactured for a period determined?

Solution 180
Costs incurred to manufacture a product include direct materials which can be physically and directly associated with the finished product; direct labour, which is the work of factory employees which can be physically and directly associated with the finished product; and manufacturing overhead, those manufacturing costs which are indirectly associated with production of the finished product.
Cost of goods manufactured is calculated by adding the cost of direct materials used, direct labour, and manufacturing overhead to the beginning Work in Process, and subtracting the ending Work in Process.

MULTI PART QUESTION

181. Culpepper Computer Ltd. manufactures a laptop and has the following results for its recent year end:

Laptop per Unit Sales Data		
Selling price		$1,500
Manufacturing Costs:		
Variable materials	$500	
Variable labour	128	
Manufacturing overhead	480	1,108
Gross Margin		$392
Selling, general, and administrative expenses		
Variable	$50	
Fixed	150	200
Profit per unit		$192

Each laptop requires approximately 240 minutes of highly skilled labour time for assembly and testing. The bottleneck resource in the operation is labour hours. Workers are paid $32 per hour and no additional labour hours are available.
Factory overhead, of which 25% is variable, is allocated to laptops using labour hours since all the work in the factory is labour paced. The company sells 10,000 computers a year, which is the capacity dictated by labour hours availability.
Recently Zucchini Computers offered to purchase 2,000 computers from Culpepper but with a custom feature. This feature will require 45 minutes of additional labour time and incur an additional $50 in materials for each computer. Selling, general, and administrative costs would not change with this order.

Instructions

a) Compute the minimum price that Culpepper should charge Zucchini for each computer in this order.
b) What other factors should Culpepper consider before it agrees to the order?

Solution 181 (20–25 min.)

a)

Variable cost of special order ($500 + 128 + 50 + 50 +120)		$848.00
Additional time required (.75 hours x (128 + 120) / 4)		46.50
Contribution margin foregone:		
Hours required for special order 2,000 x 4.75 =	9,500	
Regular units lost 9,500 / 4 =	2,375	
CM / regular unit $1,500 – 500 – 128 – 120 – 50 =	$702	
CM foregone (2,375 x $702) / 2,000		833.63
Minimum price of each unit of custom order		$1,728.13

b) On the surface this looks like a good arrangement for Culpepper. But the company needs to look at the strategic aspects of the order. Can it take out 2,000 computers from its regular customer orders and expect to regain them once the special order is complete? Will its cost estimates be accurate, considering that there will be a learning curve from its workers who will have to adapt to making the new products? It appears that labour hours are already maxed out

and any difficulties with the new order could set back its own production schedules for its regular products.
Alternatively, could this be a breakthrough into a whole new market for Culpepper and if so, would there be other companies that would wish to have custom orders made for them? Culpepper currently appears to be a manufacturer of one or two products and is set up to operate in this fashion; changing to a specialty manufacturer requires it to view its production capabilities in more of a job-order manner. This may mean more pressure on its sales force as well as on its production operations.

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