MULTIPLE CHOICE

1. Which of the following types of organisations is most likely to have a raw materials inventory account?
   a. A retailer
   b. A manufacturer
   c. A service provider
   d. A government unit

   ANS: B PTS: 1 DIF: Easy OBJ: 2.1
   NAT: AACSB: Analytic

2. Which of the following statements about manufacturing in a traditional environment is true?
   a. Factories are organised so that machines that are dissimilar are grouped together.
   b. It is not desirable to accumulate raw materials inventory to serve as buffers in case of unexpected demand for products.
   c. The process begins with a customer order and products are 'pulled' through the manufacturing process.
   d. Partially completed inventory is accumulated in a work-in-process inventory account.

   ANS: D PTS: 1 DIF: Easy OBJ: 2.1
   NAT: AACSB: Analytic

3. A traditional manufacturing environment does not have which of the following?
   a. An automated production process
   b. Trained employees
   c. Extremely low levels of work-in-process inventory
   d. Product cost information available

   ANS: C PTS: 1 DIF: Easy OBJ: 2.1
   NAT: AACSB: Analytic

4. Which of the following statements is true about manufacturing companies over the past 20 years?
   a. The grouping of machines into 'manufacturing cells' has increased.
   b. Carrying large amounts of inventory is often less costly than carrying small amounts of inventory.
   c. They have moved from a 'pull' approach to more of a 'push' approach.
   d. The basic production process has changed very little over the past 20 years.

   ANS: A PTS: 1 DIF: Medium OBJ: 2.1
   NAT: AACSB: Analytic

5. Which of the following statements regarding the traditional manufacturing environment is not true?
   a. Machines are often put into 'manufacturing cells' whereby dissimilar machines are grouped together.
   b. Raw material is 'pushed' to the next production area in anticipation of customer demand.
   c. Manufacturers often have raw material, work-in-process, and finished goods inventory on hand.
   d. Buffers of inventory may result in workers being less efficient.

   ANS: A PTS: 1 DIF: Medium OBJ: 2.1
   NAT: AACSB: Analytic

6. Lean production is focused on eliminating waste associated with all of the following except:
   a. moving products farther than required.
   b. down time caused by people waiting for work to do.
   c. providing excessive customer service.
   d. over-processing a product.

   ANS: C PTS: 1 DIF: Easy OBJ: 2.2
   NAT: AACSB: Analytic

7. Under ideal conditions, companies operating in a _________ environment would reduce inventories of raw materials, work-in-process and finished goods to very low levels or even zero.
   a. volatile
   b. just-in-time
   c. traditional manufacturing
   d. favourable

   ANS: B PTS: 1 DIF: Easy OBJ: 2.2
   NAT: AACSB: Analytic

8. Companies that operate in a lean production and just-in-time manufacturing environment are more likely to experience which of the following?
   a. Reduced manufacturing flexibility
   b. Increased levels of raw materials inventory
   c. Increased production time
   d. Increased product quality

   ANS: D PTS: 1 DIF: Easy OBJ: 2.2
   NAT: AACSB: Analytic

9. A 'manufacturing cell' is defined as:
   a. grouping of all the machinery and equipment that are needed to make a product being available in one area of the factory.
   b. restructuring of the factory so that the companies are able to manufacture products quickly.
   c. an area in the warehouse where similar raw materials are grouped together.
   d. grouping of all the factories that are engaged in manufacturing similar products.

   ANS: A PTS: 1 DIF: Easy OBJ: 2.2
   NAT: AACSB: Analytic

10. In a just-in-time environment, the production process often begins when:
    a. products are moved from raw materials to work-in-process.
    b. a customer places an order.
    c. the product is delivered to a customer.
    d. products are moved from work-in-process to finished goods.

    ANS: B PTS: 1 DIF: Easy OBJ: 2.2
    NAT: AACSB: Analytic

11. Which of the following is an advantage of lean production and just-in-time (JIT) manufacturing systems?
    a. Deliver the product to the customer on time, even if the workers go on a strike.
    b. Improved product quality and reduced processing time.

c. Reduced reliance on highly skilled employees
d. Increased reliance on few suppliers.

ANS: B PTS: 1 DIF: Easy OBJ: 2.2
NAT: AACSB: Analytic

12. Which of the following is a disadvantage of lean production and just-in-time (JIT) manufacturing systems?
a. Increased customer delivery time
b. Increased product defects
c. Decreased flexibility of manufacturing facilities
d. Increased reliance on fewer suppliers

ANS: D PTS: 1 DIF: Medium OBJ: 2.2
NAT: AACSB: Analytic

13. Which of the following statements is true regarding the lean production and just-in-time (JIT) manufacturing systems?
a. Customers are often less satisfied with the purchased product.
b. The number of product defects often increases.
c. The number of suppliers the company can purchase raw materials from often increases.
d. The factory is often restructured where dissimilar machines are grouped together.

ANS: D PTS: 1 DIF: Medium OBJ: 2.2
NAT: AACSB: Analytic

14. Which of the following is a characteristic of a lean production and just-in-time (JIT) manufacturing environment but not of a traditional manufacturing environment?
a. Increased inventory levels
b. Increased product defects
c. Increased reliance on a select number of suppliers
d. Increased production time

ANS: C PTS: 1 DIF: Medium OBJ: 2.2
NAT: AACSB: Analytic

15. Which of the following is a characteristic of a traditional production environment but not of a lean production and just-in-time (JIT) manufacturing environment?
a. Increase in the need for highly skilled labour
b. Increase in the need for highly reliable suppliers
c. Reduction in the motivation of the work force
d. Reduction in the processing time

ANS: C PTS: 1 DIF: Medium OBJ: 2.2
NAT: AACSB: Analytic

16. Which of the following is a risk that would more likely be seen in a lean production and just-in-time manufacturing environment than in a traditional production environment?
a. Reduced customer satisfaction due to higher product defects
b. Reduced raw material supply bringing the production process to a halt
c. Increased inventory storage costs
d. Increased production time resulting in lost sales

ANS: B PTS: 1 DIF: Medium OBJ: 2.2
NAT: AACSB: Analytic

17. Which of the following is not a type of manufacturing cost?
    a. Direct material costs
    b. Administrative costs
    c. Factory overhead costs
    d. Direct labour costs

    ANS: B PTS: 1 DIF: Easy OBJ: 2.3
    NAT: AACSB: Analytic

18. In general, costs incurred in the factory that do not qualify as either direct material or direct labour are called:
    a. manufacturing costs.
    b. manufacturing overhead.
    c. non-manufacturing costs.
    d. selling and administrative costs.

    ANS: B PTS: 1 DIF: Easy OBJ: 2.3
    NAT: AACSB: Analytic

19. Manufacturing costs typically consist of:
    a. direct materials, direct labour, and administrative costs.
    b. production and shipping costs.
    c. direct materials, direct labour, and manufacturing overhead.
    d. manufacturing overhead and selling costs.

    ANS: C PTS: 1 DIF: Easy OBJ: 2.3
    NAT: AACSB: Analytic

20. Materials that can be directly traced to a particular product and become an integral part of the finished product are called:
    a. indirect materials.
    b. direct materials.
    c. supplies.
    d. product materials.

    ANS: B PTS: 1 DIF: Easy OBJ: 2.3
    NAT: AACSB: Analytic

21. Which of the following statements is true regarding manufacturing costs?
    a. They will be appear on the income statement as the product is made.
    b. They will not appear on the income statement or the balance sheet until the product is completed.
    c. They will appear on the balance sheet as an inventory cost until the product is sold.
    d. They will appear on the balance sheet as an inventory cost after the product is sold.

    ANS: C PTS: 1 DIF: Easy OBJ: 2.3
    NAT: AACSB: Analytic

22. Which of the following statements is false regarding non-manufacturing costs?
    a. They are incurred outside the factory.
    b. They include selling and administrative costs.
    c. They are not directly incurred to make a product.
    d. They include indirect materials and indirect labour costs.

    ANS: D PTS: 1 DIF: Easy OBJ: 2.3

NAT: AACSB: Analytic

23. Which of the following types of employees would most likely have their wage be classified as direct labour?
    a. Factory maintenance worker
    b. Factory supervisor
    c. Managerial accountant
    d. Assembly-line factory worker

ANS: D PTS: 1 DIF: Easy OBJ: 2.3
NAT: AACSB: Analytic

24. Which of the following types of employees would most likely have their wage be classified as indirect labour?
    a. Factory supervisor
    b. Managerial accountant
    c. Salesperson
    d. Machine operator

ANS: A PTS: 1 DIF: Easy OBJ: 2.3
NAT: AACSB: Analytic

25. Manufacturing overhead includes:
    a. advertising costs.
    b. indirect materials.
    c. sales commissions.
    d. shipping charges for finished goods.

ANS: B PTS: 1 DIF: Easy OBJ: 2.3
NAT: AACSB: Analytic

26. Which of the following is not an example of a manufacturing overhead cost?
    a. Shipping charges on finished products
    b. Indirect materials
    c. Indirect labour
    d. Depreciation on factory equipment

ANS: A PTS: 1 DIF: Easy OBJ: 2.3
NAT: AACSB: Analytic

27. Which of the following is an example of a manufacturing overhead cost?
    a. Supplies used by administrative staff
    b. Supplies used by a salesperson
    c. Materials easily traced to a specific product
    d. Lubricants used by factory maintenance workers

ANS: D PTS: 1 DIF: Easy OBJ: 2.3
NAT: AACSB: Analytic

28. Which of the following is not an example of manufacturing overhead costs?
    a. Fringe benefits paid to assembly-line workers
    b. Depreciation of factory machinery
    c. Overtime pay to factory supervisors
    d. Insurance on factory machinery

ANS: A PTS: 1 DIF: Easy OBJ: 2.3
NAT: AACSB: Analytic

29. Which of the following is a product cost?
    a. Insurance on factory machinery
    b. Insurance on delivery trucks
    c. Lease expense on office computer
    d. Advertising costs

ANS: A PTS: 1 DIF: Easy OBJ: 2.3
NAT: AACSB: Analytic

Refer to the Jasper Corporation information below.

Jasper Corporation

Jasper Corporation incurred the following costs in April:

Salesperson's salaries	$40 000	Factory maintenance worker	$20 000
Factory insurance	12 000	Administrative utilities	4000
Factory supervisor salary	30 000	Administrative supplies	1000
Advertising	15 000	Delivery truck insurance	2000
Factory machine operator	22 000	Factory machine depreciation	6000
Direct materials used	25 000	Receptionist salary	18 000

30. Total product costs are:
    a. $130 000
    b. $155 000
    c. $115 000
    d. $117 000

ANS: C PTS: 1 DIF: Medium OBJ: 2.3
NAT: AACSB: Analytic

31. Total period costs are:
    a. $86 000
    b. $38 000
    c. $40 000
    d. $80 000

ANS: D PTS: 1 DIF: Medium OBJ: 2.3
NAT: AACSB: Analytic

32. Products and their costs flow through a production facility in the following order:
    a. Work-in-process, finished goods, cost of goods sold
    b. Raw materials, work-in-process, finished goods, cost of goods sold
    c. Work-in-process, raw materials, cost of goods sold, finished goods
    d. Work-in-process, cost of goods manufactured, cost of goods sold

ANS: B PTS: 1 DIF: Easy OBJ: 2.4
NAT: AACSB: Analytic

33. Which of the following increases the work-in-process account?
    a. Cost of goods sold
    b. Raw material purchased
    c. Administrative costs
    d. Raw material used

ANS: D PTS: 1 DIF: Easy OBJ: 2.4
NAT: AACSB: Analytic

34. Which of the following decreases the work-in-process account?
    a. Raw materials used
    b. Cost of goods manufactured
    c. Direct labour
    d. Manufacturing overhead

ANS: B PTS: 1 DIF: Easy OBJ: 2.4
NAT: AACSB: Analytic

35. Product costs that transfer into finished goods inventory are called:
    a. cost of goods manufactured.
    b. cost of goods sold.
    c. period costs.
    d. raw materials used.

ANS: A PTS: 1 DIF: Easy OBJ: 2.4
NAT: AACSB: Analytic

36. Product costs that transfer out of finished goods are called:
    a. work-in-process.
    b. cost of goods manufactured.
    c. cost of goods sold.
    d. period costs.

ANS: C PTS: 1 DIF: Easy OBJ: 2.4
NAT: AACSB: Analytic

37. Which of the following statements accurately describes manufacturing cost flows in a just-in-time (JIT) environment?
    a. Direct labour and overhead are maintained in a work-in-process account for long periods of time.
    b. There is little need to maintain a cost of goods sold account.
    c. There is little need to maintain raw materials, work-in-process, or finished goods accounts.
    d. Manufacturing costs are maintained in the finished goods account for long periods of time.

ANS: C PTS: 1 DIF: Medium OBJ: 2.2|2.4
NAT: AACSB: Analytic

38. Which of the following types of companies would be the least likely to have the following cost pattern?
    Raw materials → Work-in-Process → Finished Goods → Cost of goods sold
    a. Tyre manufacturer
    b. Computer software manufacturer
    c. Retailer/merchandiser
    d. Construction company

ANS: C PTS: 1 DIF: Easy OBJ: 2.4
NAT: AACSB: Reflective thinking

39. Clyde Retailer's is a local merchandiser which buys vintage clothing and sells it to local college students. Clyde began the year with inventory costing $60 000. During the year inventory costing $300 000 was purchased. At the end of the year, inventory costing $45 000 still remained. What was Clyde's cost of goods sold for the year?
a. $255 000
b. $285 000
c. $300 000
d. $315 000

ANS: D PTS: 1 DIF: Easy OBJ: 2.4
NAT: AACSB: Analytic

40. The journal entry to record raw materials used would include a:
a. debit to finished goods.
b. debit to raw materials.
c. debit to work-in-process.
d. debit to cost of goods sold.

ANS: C PTS: 1 DIF: Easy OBJ: 2.4
NAT: AACSB: Reflective thinking

41. In 2009 Bradshaw Inc. incurred $40 000 of manufacturing overhead costs which will be paid for in 2010. Which of the following would be the correct journal entry to record this transaction?

a.	Cost of goods sold	40 000	
	Accounts payable		40 000
b.	Inventory	40 000	
	Accounts payable		40 000
c.	Overhead expenses	40 000	
	Accounts payable		40 000
d.	Work-in-process inventory	40 000	
	Accounts payable		40 000

ANS: D PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

42. The journal entry to record cost of goods manufactured would include a:
a. credit to work-in-process.
b. credit to finished goods.
c. debit to work-in-process.
d. debit to cost of goods sold.

ANS: A PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Reflective thinking

43. When the cost of a product is matched with its sales price, the result (difference) is called:
a. net income.
b. gross margin.
c. cost of goods sold.
d. cost of goods manufactured.

ANS: B PTS: 1 DIF: Easy OBJ: 2.4
NAT: AACSB: Analytic

44. When non-manufacturing costs are subtracted from gross margin, the result is called:
a. cost of goods sold.

b. net income.
c. sales.
d. non-manufacturing income.

ANS: B PTS: 1 DIF: Easy OBJ: 2.4
NAT: AACSB: Analytic

Refer to the Michael’s Manufacturing, Inc. information below.
Michael’s Manufacturing, Inc.
Michael’s Manufacturing, Inc. has the following information available for the month of July:

	Beginning	Ending
Raw materials inventory	$50 000	$ 62 000
Work-in-process inventory	80 000	55 000
Finished goods inventory	24 000	35 000
Raw materials purchased		$120 000
Direct labour costs		60 000
Overhead costs		45 000

45. Raw materials used for July is:
a. $112 000
b. $108 000
c. $120 000
d. $132 000

ANS: B PTS: 1 DIF: Easy OBJ: 2.4
NAT: AACSB: Analytic

46. Cost of goods manufactured for July is:
a. $188 000
b. $250 000
c. $238 000
d. $213 000

ANS: C PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

47. Cost of goods sold for July is:
a. $227 000
b. $202 000
c. $249 000
d. $239 000

ANS: A PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

Refer to the Nate’s Novelties, Inc. information below.
Nate’s Novelties, Inc.
Nate’s Novelties, Inc. has the following information available for July:

	Beginning	Ending
Raw materials inventory	$12 000	$ 9000
Work-in-process inventory	35 000	20 000
Finished goods inventory	20 000	44 000

Raw materials purchased	$25 000
Direct labour costs	55 000
Overhead costs	35 000

48. Raw materials used for July is:
    a. $21 000
    b. $22 000
    c. $25 000
    d. $28 000

ANS: D PTS: 1 DIF: Easy OBJ: 2.4
NAT: AACSB: Analytic

49. Cost of goods manufactured for July is:
    a. $153 000
    b. $103 000
    c. $130 000
    d. $133 000

ANS: D PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

50. Cost of goods sold for July is:
    a. $106 000
    b. $157 000
    c. $129 000
    d. $109 000

ANS: D PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

Refer to the Scott Products information below.
Scott Products
Scott Products manufactures high-quality running shoes. The following information is available for 2009:

	Beginning	Ending
Raw materials inventory	$ 65 000	$ 82 000
Work-in-process inventory	280 000	130 000
Finished goods inventory	90 000	120 000

Raw materials purchased	$250 000
Direct labour costs	340 000
Factory rent	60 000
Factory supplies	20 000
Factory utilities	15 000
Factory depreciation	30 000
Marketing costs	25 000
Administrative costs	100 000

In addition, 42 400 pairs were produced in 2009 out of which 40 900 pairs were sold for $70 each.

51. Cost of goods manufactured for 2009 is:
    a. $990 000

b. $973 000
c. $848 000
d. $865 000

ANS: C PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

52. What is net income for 2009? (ignore taxes)
a. $1 920 000
b. $2 025 000
c. $1 890 000
d. $2 045 000

ANS: A PTS: 1 DIF: Hard OBJ: 2.5
NAT: AACSB: Analytic

53. Thompson Inc. has the following selected information available for 2009:

Cost of goods manufactured	$180 000
Cost of goods sold	150 000
Direct labour costs incurred	45 000
Raw material purchased	90 000
Raw material used	80 000
Beginning work-in-process	15 000
Ending work-in-process	9000

Manufacturing overhead costs in 2009 amounted to:
a. $39 000
b. $55 000
c. $49 000
d. $31 000

ANS: C PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

Refer to the Hillsborough Street Manufacturing Inc. information below.
Hillsborough Street Manufacturing Inc.
Hillsborough Street Manufacturing Inc. incurred the following costs in 2009:

Direct materials used	$37 000
Direct labour costs	45 000
Factory rent and utilities	18 000
Factory equipment depreciation	10 000
Marketing expenses	3000
Administrative expenses	9000

50 000 units were produced during the year out of which 40 000 units were sold for $10 each. There was no beginning or ending raw materials or work-in-process inventory.

54. What is the product cost per unit?
a. $3.05
b. $2.75
c. $2.44
d. $2.20

ANS: D PTS: 1 DIF: Medium OBJ: 2.3
NAT: AACSB: Analytic

55. What is cost of goods sold for the year?
a. $ 88 000
b. $ 97 600
c. $122 000
d. $110 000

ANS: A PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

56. What is net income for the year?
a. $278 000
b. $312 000
c. $378 000
d. $300 000

ANS: D PTS: 1 DIF: Hard OBJ: 2.4
NAT: AACSB: Analytic

Refer to the Hudson Inc. information below.

Hudson Inc.

Hudson Inc. has the following information available for September:

	Beginning	Ending
Raw materials	$ 8000	$ 5000
Work-in-process	30 000	40 000
Finished goods	7000	3000
Raw materials purchased		25 000
Direct labour costs		70 000
Manufacturing overhead costs		30 000
Administrative costs		12 000
Marketing costs		6000

57. Total non-manufacturing costs for September are:
a. $113 000
b. $161 000
c. $ 18 000
d. $ 43 000

ANS: C PTS: 1 DIF: Easy OBJ: 2.3
NAT: AACSB: Analytic

58. Cost of goods manufactured for September is:
a. $118 000
b. $136 000
c. $115 000
d. $133 000

ANS: A PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

59. Cost of goods sold for September is:
a. $119 000
b. $143 000
c. $140 000
d. $122 000

ANS: D PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

60. Sales revenue for September totalled $400 000. Net income for September is:
a. $257 000
b. $260 000
c. $264 000
d. $278 000

ANS: B PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

61. In a traditional manufacturing environment, as the cost of goods sold account increases, which account is most likely decreasing?
a. Work-in-process inventory
b. Finished goods inventory
c. Raw materials inventory
d. Cash

ANS: B PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

Refer to the Jones Manufacturing Inc. information below.
Jones Manufacturing Inc.
Jones Manufacturing Inc. incurred the following costs in November:

Direct labour	$50 000	Advertising costs	$ 3000
Indirect labour	20 000	Factory rent	10 000
Administrative salaries	25 000	Factory depreciation	6000
Direct materials purchased	23 000	Administrative rent	5000
Indirect materials used	4000	Administrative depreciation	7000

In addition, the following information is also available:

	Beginning	Ending
Raw materials	$ 5000	$ 8000
Work-in-process	60 000	55 000
Finished goods	17 250	9200

Number of units produced	20 000 units
Number of units sold (sales price of $25 per unit)	21 400 units

62. Cost of goods manufactured in November is:
a. $ 91 000
b. $115 000
c. $155 000
d. $143 000

ANS: B PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

63. The product cost per unit in November is:
a. $4.55
b. $7.75
c. $5.75
d. $5.37

ANS: C PTS: 1 DIF: Hard OBJ: 2.5
NAT: AACSB: Analytic

64. Net income for November is: (ignore taxes)
a. $371 950
b. $411 950
c. $369 150
d. $382 000

ANS: A PTS: 1 DIF: Hard OBJ: 2.4
NAT: AACSB: Analytic

65. Johnson Manufacturing has the following selected information available for the year:

Direct material purchased	$ 40 000
Direct material used	45 000
Direct labour incurred	75 000
Manufacturing overhead incurred	50 000
Cost of goods manufactured	100 000

In addition, the cost of the finished goods inventory increased by $10 000 from the beginning to the end of the year. Cost of goods sold for the year is:
a. $ 80 000
b. $170 000
c. $ 90 000
d. $110 000

ANS: C PTS: 1 DIF: Hard OBJ: 2.4
NAT: AACSB: Analytic

66. Chancellor Industries, a manufacturing company, prepays its insurance coverage for a two-year period. The premium for two-year's worth of coverage is $14 400 and is paid at the beginning of the first year. Two-thirds of the premium relates to factory operations and one-third relates to selling and administrative activities.

The amount of premium that should be recorded as a product cost for the first year is:
a. $ 4800
b. $ 2400
c. $ 9600
d. $14 400

ANS: A PTS: 1 DIF: Hard OBJ: 2.5
NAT: AACSB: Analytic

67. Clapton Inc. would like to prepare an income statement for March. Their production department records show that total product costs in March were $225 000 when 50 000 units were produced. Their sales department records show that 46 000 units were sold for $16 each. Monthly administrative and marketing expenses totalled $60 000. What should be net income for March?
   a. $529 000
   b. $473 800
   c. $451 000
   d. $469 000

ANS: D PTS: 1 DIF: Hard OBJ: 2.5
NAT: AACSB: Analytic

68. Which of the following statements is true regarding period costs?
   a. They 'attach' themselves to the product.
   b. They will appear on the balance sheet until the product is sold.
   c. They will appear on the income statement in the year they are incurred.
   d. They will not impact gross margin or net income.

ANS: C PTS: 1 DIF: Easy OBJ: 2.5
NAT: AACSB: Analytic

Refer to the Franklin Street Manufacturing information below.
Franklin Street Manufacturing
Franklin Street Manufacturing has the following cost information available for 2009:

Direct materials used	$10 000
Direct labour costs	25 000
Factory overhead	20 000
Marketing expenses	4000
Administrative expenses	6000

20 000 units were produced during the year out of which 19 000 units were sold for $10 each.

69. What is cost of goods sold for 2009?
   a. $55 000
   b. $52 250
   c. $61 750
   d. $65 000

ANS: B PTS: 1 DIF: Medium OBJ: 2.4
NAT: AACSB: Analytic

70. What is net income for 2009?
   a. $127 750
   b. $137 750
   c. $125 000
   d. $128 250

ANS: A PTS: 1 DIF: Hard OBJ: 2.4
NAT: AACSB: Analytic

71. Brenda's Bakery has the following information available for October:

	Beginning	Ending
Raw materials	$ 4000	$ 2000

Work-in-process	32 000	17 000
Finished goods	5000	3000
Cost of goods manufactured		88 000
Cost of goods sold		90 000
Direct labour costs		35 000
Factory rent and depreciation		10 000
Selling expenses		3000

How much raw material was purchased in October?

a. $23 000
b. $25 000
c. $26 000
d. $28 000

ANS: C PTS: 1 DIF: Hard OBJ: 2.4
NAT: AACSB: Analytic

SHORT ANSWER

1. Provide specific examples of why accurate product or service costing information is important for internal purposes.

ANS:
It may be useful for the following reasons:

- to determine accurate pricing information
- to determine a product's profitability
- for cash budgeting purposes

PTS: 1 DIF: Easy OBJ: 2.1 NAT: AACSB: Analytic

2. Briefly compare a traditional manufacturing environment with a lean production and just-in-time (JIT) manufacturing environment.

ANS:
In a traditional environment, inventories of raw materials, work-in-process, and finished goods are accumulated in order to act as buffers in the event of unexpected demand. Typically, there is a 'push' approach where the manufacturing process is started before the customer order is taken and inventory is subsequently pushed through the manufacturing process. In addition, the factory is organised where similar machines are grouped together. Machine operators do not need to be highly trained because they use very few different machines.

In a lean production and just-in-time (JIT) environment, there is a 'pull' approach where the manufacturing process is not started until a customer order is taken. Buffers of inventory are not accumulated. In addition, the factory is laid out in manufacturing cells where all the machinery needed to make a product is available in one area. There is usually a limited number of highly reliable suppliers used and employees need to be highly trained and reliable as well. Emphasis is placed on reducing waste by not producing more product than is needed, not over-processing a product, not moving products or people more than is needed, and eliminating down time caused by people waiting for work to do and products waiting in mid-assembly.

PTS: 1 DIF: Medium OBJ: 2.2 NAT: AACSB: Analytic

3. Describe the cost accumulation process in a traditional manufacturing environment versus a just-in-time (JIT) environment.

   ANS:
   In a traditional manufacturing environment, when raw materials are received, their cost is recorded in the raw materials account until they are needed for production. When raw materials are needed for production, their costs are moved from the raw materials account to the work-in-process account to be added to direct labour and overhead costs. Once production is complete, all product costs related to the completed units are transferred from work-in-process to the finished goods account until the units are sold. When sold, associated costs are transferred to cost of goods sold. In a just-in-time environment, very little, if any, inventories are maintained. As raw materials, direct labour, and overhead costs are incurred for a specific job, the costs are often put directly into the cost of goods sold account. The cost accumulation process in a just-in-time environment is called backflush costing.

   PTS: 1 DIF: Easy OBJ: 2.4 NAT: AACSB: Analytic

4. Identify at least two characteristics of a lean production and just-in-time (JIT) manufacturing environment.

   ANS:
   Some of the characteristics are as follows:

   - the absence of inventories
   - the use of manufacturing cells
   - a ‘pull’ system
   - fewer but highly reliable suppliers
   - focus on reduction of waste and scrap
   - trained and reliable employees

   PTS: 1 DIF: Easy OBJ: 2.2 NAT: AACSB: Analytic

5. Identify some of the benefits and risks of a lean production and just-in-time (JIT) environment.

   ANS:
   Benefits:
   - Greater efficiency in the time it takes to make a product
   - Reduced inventory storage and holding costs
   - Higher quality products (reduction in product defects)
   - Increased customer satisfaction
   - Increased employee motivation
   - A reduction of waste and scrap
   - Lower overall production costs
   - Lower labour costs
   - Increased manufacturing flexibility

   Risks:
   - Increased raw materials cost (sometimes)
   - Disruption in raw material or direct labour supply can halt the production process leading to lost sales.

   PTS: 1 DIF: Medium OBJ: 2.2 NAT: AACSB: Analytic

6. Describe each of the following as either a *product* or *period* cost.

a.	Factory depreciation	f.	Direct materials
b.	Indirect labour	g.	Indirect materials
c.	Administrative salaries	h.	Advertising
d.	Direct labour	i.	Factory insurance
e.	Utilities used in the factory	j.	Utilities used in the administrative offices

ANS:

a.	product	f.	product
b.	product	g.	product
c.	period	h.	period
d.	product	i.	product
e.	product	j.	period

PTS: 1 DIF: Easy OBJ: 2.3 NAT: AACSB: Analytic

7. Briefly describe the difference between a manufacturing and a non-manufacturing cost.

ANS:
A manufacturing cost is a cost incurred in the factory as a result of the production process. Manufacturing costs consist of direct materials, direct labour, and overhead. These costs are often called product costs because the costs attach themselves to the product and are considered to be inventory on the balance sheet until the product is sold. Non-manufacturing costs are incurred outside of the factory. These costs are often called period costs and are expensed on the income statement in the period incurred.

PTS: 1 DIF: Easy OBJ: 2.3 NAT: AACSB: Analytic

8. Identify with an 'X' the following costs as either a manufacturing (product) or non-manufacturing (period) cost. If it is a manufacturing cost, further identify it as either direct material (DM), direct labour (DL), or overhead (OH).

	Manufacturing Cost			**Non-manufacturing Cost**
	DM	DL	OH	
Indirect labour				
Factory supplies				
Material easily traced to product				
Administrative salaries				
Factory rent				
Indirect materials				
Shipping costs				
Administrative building utilities				
Factory equipment depreciation				
Machine operator				

ANS:

	Manufacturing Cost			**Non-manufacturing Cost**
	DM	DL	OH	
Indirect labour			X	

Factory supplies			X	
Material easily traced to product	X			
Administrative salaries				X
Factory rent			X	
Indirect materials			X	
Shipping costs				X
Administrative building utilities				X
Factory equipment depreciation			X	
Machine operator		X		

PTS: 1 DIF: Medium OBJ: 2.3 NAT: AACSB: Analytic

9. Classify the following as either direct labour (DL), indirect labour (IL), or a period cost (P).

   a. Factory maintenance worker
   b. Company president
   c. Assembly-line worker
   d. Salesperson working on commission
   e. Factory supervisor
   f. Administrative assistant
   g. Machine operator

   ANS:

   a. IL b. P c. DL d. P e. IL f. P g. DL

   PTS: 1 DIF: Easy OBJ: 2.3 NAT: AACSB: Analytic

10. Classify each of the following as either a direct material (DM), indirect material (IM), or period cost (P).

   a. Wood used to build custom bookshelves
   b. Sandpaper, glue, and nails used to build customer bookshelves
   c. Paper supplies used in the administrative offices
   d. Computer chips used in computer
   e. Cleaning supplies used in the factory

   ANS:

   a. DM b. IM c. P d. DM e. IM

   PTS: 1 DIF: Easy OBJ: 2.3 NAT: AACSB: Analytic

PROBLEM

1. Capital Manufacturing produces a unique souvenir product for various museums around the country. During the year, the company incurred the following costs:

Direct material used	$50 000
Direct labour	80 000
Manufacturing overhead	30 000
Marketing expenses	10 000

Administrative expenses	20 000

During the year, 25 000 units were produced out of which 20 000 units were sold for $15 each.

Required:

A. Calculate the total product costs incurred for the year.

B. What is the product cost per unit?

C. What is cost of goods sold for the year?

D. What is net income for the year?

ANS:
A. Total product costs = $160 000 ($50 000 + $80 000 + $30 000)

B. Product cost per unit = $6.40 ($160 000/25 000 units)

C. Cost of goods sold = $128 000 ($6.40 per unit × 20 000 units sold)

D. Net income = $142 000 [(20 000 × $15) – 128 000 – 30 000]

PTS: 1 DIF: Medium OBJ: 2.4 NAT: AACSB: Analytic

2. McClintock Manufacturing Inc. has the following information available for the month of July:

	Beginning	Ending
Raw materials inventory	$12 000	$ 8000
Work-in-process inventory	45 000	55 000
Finished goods inventory	9000	11 000
Raw materials purchased		$45 000
Direct labour costs		80 000
Overhead costs		30 000
Selling and administrative costs		20 000

Required:
A. Calculate raw materials used for July.
B. Calculate cost of goods manufactured for July.
C. Calculate cost of goods sold for July.
D. Assume that sales revenue totalled $250 000, calculate net income for July. (ignore taxes)

ANS:
A. Raw materials used = $49 000 ($12 000 + $45 000 – $8000)
B. Cost of goods manufactured = $149 000 ($45 000 + $49 000 + $80 000 + $30 000 – $55 000)
C. Cost of goods sold = $147 000 ($9000 + $149 000 – $11 000)
D. Net Income = $83 000 ($250 000 – $147 000 – $20 000)

PTS: 1 DIF: Medium OBJ: 2.4 NAT: AACSB: Analytic

3. Pearce Manufacturing Inc. incurred the following costs in February:

Direct labour	$40 000	Advertising costs	$1000
Indirect labour	15 000	Factory rent	4000
Administrative salaries	8000	Factory depreciation	2000
Raw materials purchased	10 000	Administrative rent	3000
Indirect materials used	4000	Administrative depreciation	1000

In addition, the following information is also available:

	Beginning	Ending
Raw materials	$ 2000	$ 4000
Work-in-process	25 000	18 000
Finished goods	4000	12 000

Number of units produced	10 000 units
Number of units sold (sales price of $25 per unit)	9000 units

Required:

A. Calculate total period costs.
B. Calculate raw materials used.
C. Calculate cost of goods manufactured.
D. Calculate the product cost per unit.
E. Calculate cost of goods sold.
F. Calculate net income. (ignore taxes)

ANS:
A. Total period costs = $13 000 (8000 + 1000 + 3000 + 1000)
B. Raw Material used = $8000 (2000 + 10 000 – 4000)
C. Cost of goods manufactured = $80 000
(25 000 + 8000 + 40 000 + 15 000 + 4000 + 4000 + 2000 – 18 000)
D. Product cost = $8.00 per unit ($80 000/10 000 units)
E. Cost of goods sold = $72 000 (9000 units sold × $8.00)
F. NI = $140 000 [(9000 × $25) – 72 000 – 13 000]

PTS: 1 DIF: Hard OBJ: 2.4 NAT: AACSB: Analytic

4. Creative Products Inc. incurred the following costs (in alphabetical order) during 2005 related to one of its products:

Administrative costs	$ 2000
Advertising costs	1000
Direct material used	8000
Direct labour	20 000
Factory equipment depreciation	1000
Factory rent	5000
Indirect labour	3000
Indirect materials	2000

During the year, 3000 units were produced out of which 2750 units were sold for $30 each.

Required:

A. Calculate the total product costs incurred for the year.

B. What is the product cost per unit?
C. What is cost of goods sold for the year?
D. What is net income for the year?

ANS:
A. Total product costs = \$39 000 (8000 + 20 000 + 5000 + 3000 + 2000 + 1000)
B. Product cost per unit = \$13.00 (\$39 000/3000)
C. Cost of goods sold = \$35 750 (2750 × \$13)
D. Net Income = 43 750 [(\$30 × 2750) – 35 750 – 2000 – 1000)

PTS: 1 DIF: Hard OBJ: 2.4 NAT: AACSB: Analytic

5. The following information is available for the Brown Company for the month ended 31 July:

Direct materials purchased	\$ 21 000
Direct labour (2500 hrs@\$12)	30 000
Indirect labour	3000
Indirect materials	2500
Office supplies expense	100
Factory equipment depreciation	2000
Office Equipment depreciation	750
Administrative expenses	20 000
Office utilities	75
Factory utilities	200
Marketing expense	2500
Sales revenue	150 000
Sales commissions expense	1500

	Beginning	Ending
Direct materials inventory	\$27 000	\$ 24 500
Work in process inventory	25 000	29 000
Finished Goods inventory	22 000	15 000

Required:

A. Determine the direct materials used in July.
B. Determine cost of goods manufactured in July.
C. Determine cost of goods sold for July.
D. Prepare an income statement for July. (ignore taxes)

ANS:

A.

Beginning direct materials	\$27 000
Direct materials purchased	21 000
Direct materials available	48 000
Ending direct materials	(24 500)
Direct materials used	\$23 500

B.

Beginning work-in-process inventory	\$25 000
Direct material used	23 500
Direct labour	30 000
Overhead:	

	Indirect labour	$3000	
	Indirect materials	2500	
	Factory equipment depreciation	2000	
	Factory utilities	200	
	Total overhead		7700
	Total manufacturing costs		86 200
	Ending work-in-process inventory		(29 000)
	Cost of goods manufactured		$57 200
C.	Beginning finished goods inventory		$22 000
	Cost of goods manufactured		57 200
	Cost of goods available		79 200
	Ending finished goods inventory		(15 000)
	Cost of goods sold		$64 200

D.

Brown Company
Income Statement
For the Month Ended 31 July

Sales revenue		$150 000
Cost of goods sold		(64 200)
Gross Profit		85 800
Operating expenses:		
Office Supplies expense	$ 100	
Office equipment depreciation	750	
Administrative expenses	20 000	
Office utilities	75	
Marketing expense	2500	
Sales commissions	1500	(24 925)
Net income		$ 60 875

PTS: 1 DIF: Hard OBJ: 2.4 NAT: AACSB: Analytic