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# Chapter 2--Product Costing: Manufacturing Processes, Cost Terminology, and Cost Flows

Student: \_\_\_\_\_

1. Which of the following types of organizations is most likely to have a raw materials inventory account?
  - A. A retailer.
  - B. A manufacturer.
  - C. A service provider.
  - D. A wholesaler.
  
2. Which of the following statements about manufacturing in a traditional environment is true?
  - A. Factories are organized 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.
  
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.
  
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.
  
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.

6. 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. favorable

7. 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.

8. 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.

9. 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.

10. 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 more suppliers.

11. 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

12. 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.

13. 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

14. Which of the following is a effect of using 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 labor.
- B. Increase in the need for highly reliable suppliers.
- C. Reduction in the motivation of the work force.
- D. Reduction in the processing time.

15. Which of the following is a risk that would more likely be seen in a lean production and just-in-time (JIT) manufacturing environment than in a traditional production environment?

- A. Reduced customer satisfaction due to product quality.
- 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.

16. 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.

17. 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.

18. Which of the following statements is false regarding nonmanufacturing 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 labor costs.

19. Which of the following types of employees would most likely have their wage be classified as direct labor?

- A. Factory maintenance worker
- B. Factory supervisor
- C. Managerial accountant
- D. Assembly-line factory worker

20. Which of the following types of employees would most likely have their wage be classified as indirect labor?

- A. Factory supervisor
- B. Managerial accountant
- C. Salesperson
- D. Machine operator

21. Manufacturing overhead includes:

- A. advertising costs.
- B. indirect materials.
- C. sales commissions.
- D. shipping charges for finished goods.

22. Which of the following is not an example of a manufacturing overhead cost?

- A. Shipping charges on finished products
- B. Indirect materials
- C. Indirect labor
- D. Depreciation on factory equipment

23. 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.

24. 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

25. 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

**26. Jasper Corporation**

Jasper Corporation incurred the following costs which includes salaries and wages in April:

Salesperson's salaries	\$32,000	Factory maintenance	\$25,000
Factory insurance	10,000	Administrative utilities	4,000
Factory supervisor salary	30,000	Administrative supplies	1,500
Advertising	10,000	Delivery truck insurance	5,000
Factory machine operator	22,000	Factory machine depreciation	5,500
Direct materials used	30,000	Receptionist salary	17,500

Refer to the Jasper Corporation information above. Total product costs are:

- A. \$132,500
- B. \$154,500
- C. \$122,500
- D. \$127,500

**27. Jasper Corporation**

Jasper Corporation incurred the following costs which includes salaries and wages in April:

Salesperson's salaries	\$32,000	Factory maintenance	\$25,000
Factory insurance	10,000	Administrative utilities	4,000
Factory supervisor salary	30,000	Administrative supplies	1,500
Advertising	10,000	Delivery truck insurance	5,000
Factory machine operator	22,000	Factory machine depreciation	5,500
Direct materials used	30,000	Receptionist salary	17,500

Refer to the Jasper Corporation information above. Total period costs are:

- A. \$65,000
- B. \$60,000
- C. \$38,000
- D. \$70,000

28. Which of the following is not a manufacturing cost?

- A. Direct material costs
- B. Administrative costs
- C. Factory overhead costs
- D. Direct labor costs

29. In general, costs incurred in the factory those do not qualify as either direct material or direct labor are called:

- A. manufacturing costs.
- B. manufacturing overhead.
- C. nonmanufacturing costs.
- D. selling and administrative costs.

30. Manufacturing costs typically consist of:

- A. direct materials, direct labor, and administrative costs.
- B. production and shipping costs.
- C. direct materials, direct labor, and manufacturing overhead.
- D. manufacturing overhead and selling costs.

31. 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.

32. When nonmanufacturing costs are subtracted from gross margin, the result is called:

- A. cost of goods sold.
- B. net operating income.
- C. sales.
- D. nonmanufacturing income.

**33. Michael's Manufacturing, Inc.**

Michael's Manufacturing, Inc. has the following information available for the month of July:

	Beginning	Ending
Raw materials inventory	\$40,000	\$ 62,000
Work-in-process inventory	85,000	45,000
Finished goods inventory	20,000	37,000
Raw materials purchased		\$150,000
Direct labor costs		50,000
Overhead costs		45,000

Refer to the Michael's Manufacturing, Inc. information above. Raw materials used for July is:

- A. \$150,000
- B. \$128,000
- C. \$190,000
- D. \$172,000

**34. Michael's Manufacturing, Inc.**

Michael's Manufacturing, Inc. has the following information available for the month of July:

	Beginning	Ending
Raw materials inventory	\$40,000	\$ 62,000
Work-in-process inventory	85,000	45,000
Finished goods inventory	20,000	37,000
Raw materials purchased		\$150,000
Direct labor costs		50,000
Overhead costs		45,000

Refer to the Michael's Manufacturing, Inc. information above. Cost of goods manufactured for July is:

- A. \$183,000
- B. \$206,000
- C. \$263,000
- D. \$223,000



**35. Michael's Manufacturing, Inc.**

Michael's Manufacturing, Inc. has the following information available for the month of July:

	Beginning	Ending
Raw materials inventory	\$40,000	\$ 62,000
Work-in-process inventory	85,000	45,000
Finished goods inventory	20,000	37,000
Raw materials purchased		\$150,000
Direct labor costs		50,000
Overhead costs		45,000

Refer to the Michael's Manufacturing, Inc. information above. Cost of goods sold for July is:

- A. \$246,000
- B. \$206,000
- C. \$280,000
- D. \$263,000

**36. Nate's Novelties, Inc.**

Nate's Novelties, Inc. has the following information available for July:

	Beginning	Ending
Raw materials inventory	\$12,000	\$ 9,000
Work-in-process inventory	35,000	20,000
Finished goods inventory	20,000	44,000
Raw materials purchased		\$25,000
Direct labor costs		55,000
Overhead costs		35,000

Refer to the Nate's Novelties, Inc. information above. Raw materials used for July is:

- A. \$21,000.
- B. \$22,000.
- C. \$25,000.
- D. \$28,000.

**37. Nate's Novelties, Inc.**

Nate's Novelties, Inc. has the following information available for July:

	Beginning	Ending
Raw materials inventory	\$12,000	\$ 9,000
Work-in-process inventory	35,000	20,000
Finished goods inventory	20,000	44,000
Raw materials purchased		\$25,000
Direct labor costs		55,000
Overhead costs		35,000

Refer to the Nate's Novelties, Inc. information above. Cost of goods manufactured for July is:

- A. \$153,000.
- B. \$103,000.
- C. \$130,000.
- D. \$133,000.

**38. Nate's Novelties, Inc.**

Nate's Novelties, Inc. has the following information available for July:

	Beginning	Ending
Raw materials inventory	\$12,000	\$ 9,000
Work-in-process inventory	35,000	20,000
Finished goods inventory	20,000	44,000
Raw materials purchased		\$25,000
Direct labor costs		55,000
Overhead costs		35,000

Refer to the Nate's Novelties, Inc. information above. Cost of goods sold for July is:

- A. \$106,000.
- B. \$157,000.
- C. \$129,000.
- D. \$109,000.

**39. Thompson Inc. has the following selected information available for 2011:**

Cost of goods manufactured	\$220,000
Cost of goods sold	150,000
Direct labor costs incurred	65,000
Raw material purchased	90,000
Raw material used	100,000
Beginning work in process	23000
Ending work in process	11000

Manufacturing overhead costs in 2011 amounted to:

- A. \$67,000.
- B. \$55,000.
- C. \$43,000.
- D. \$53,000.

40. 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

41. 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

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

	Beginning		Ending
Raw materials	\$ 4,000		\$ 2,000
Work-in-process	32,000		17,000
Finished goods	5,000		3,000
	Cost of goods manufactured		88,000
	Cost of goods sold		90,000
	Direct labor costs		35,000
	Factory rent and depreciation		10,000
Selling expenses			3,000

How much raw material was purchased in October?

- A. \$23,000
- B. \$25,000
- C. \$26,000
- D. \$28,000

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

Direct material purchased	\$ 40,000
Direct material used	45,000
Direct labor 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.

**44. Franklin Street Manufacturing**

Franklin Street Manufacturing has the following cost information available for 2011:

Direct materials used	\$10,000
Direct labor costs	25,000
Factory overhead	20,000
Marketing expenses	4,000
Administrative expenses	6,000

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

Refer to the Franklin Street Manufacturing information above. What is cost of goods sold for 2011?

- A. \$55,000
- B. \$52,250
- C. \$61,750
- D. \$65,000

**45. Franklin Street Manufacturing**

Franklin Street Manufacturing has the following cost information available for 2011:

Direct materials used	\$10,000
Direct labor costs	25,000
Factory overhead	20,000
Marketing expenses	4,000
Administrative expenses	6,000

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

Refer to the Franklin Street Manufacturing information above. What is net operating income for 2011? (Ignore taxes)

- A. \$127,750
- B. \$137,750
- C. \$125,000
- D. \$128,250

46. Which of the following increases the work in process account?

- A. Cost of goods sold
- B. Sales commission
- C. Administrative costs
- D. Raw material used

47. Which of the following decreases the work in process account?

- A. Transferring raw materials to work in process account.
- B. Transferring cost of goods manufactured from work in process account.
- C. Transferring cost of goods sold from work in process account.
- D. Transferring raw materials from work in process account.

48. Product costs that are transferred into finished goods inventory are called:

- A. cost of goods manufactured.
- B. cost of goods sold.
- C. period costs.
- D. raw materials used.

49. Product costs that are transferred out of finished goods are called:

- A. work in process.
- B. cost of goods manufactured.
- C. cost of goods sold.
- D. period costs.

50. Which of the following types of companies would not have the following cost pattern?

Raw materials ® Work-in-process ® Finished goods ® Cost of goods sold

- A. Tire manufacturer
- B. Automotive manufacturer
- C. Retailer / merchandiser
- D. Construction company

51. Clyde Retailers 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

52. In the books of a manufacturing company, 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.

53. In 2011 Bradshaw Inc. incurred \$40,000 of manufacturing overhead costs which will be paid for in 2012. 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. Finished Goods 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

54. In the books of a manufacturing company, 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.

55. When the cost of a product is matched with its sales revenue, the result (difference) is called:

- A. net operating income.
- B. gross margin.
- C. cost of goods sold.
- D. cost of goods manufactured.

56. 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 totaled \$60,000. What should be net operating income for March? (Ignore taxes)

- A. \$529,000
- B. \$473,800
- C. \$451,000
- D. \$469,000

57. Which of the following statements is true regarding period costs?

- A. They "attach" themselves to the product.
- B. They will appear 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 operating income.

58. 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. \$ 4,800.
- B. \$ 2,400.
- C. \$ 9,600.
- D. \$14,400.

**59. Jones Manufacturing Inc.**

Jones Manufacturing Inc. incurred the following costs in November:

Direct labor	\$50,000	Advertising costs	\$ 3,000
Indirect labor	20,000	Factory rent	10,000
Administrative salaries	25,000	Factory depreciation	6,000
Direct materials purchased	23,000	Administrative rent	5,000
Indirect materials used	4,000	Administrative depreciation	7,000

In addition, the following information is also available:

	Beginning	Ending
Raw materials	\$ 5,000	\$ 8,000
Work in process	60,000	55,000
Finished goods	17,250	9,200
Number of units produced	20,000 units	
Number of units sold		
(sales price of \$25 per unit)	21,400 units	

Refer to the Jones Manufacturing Inc. information above. Cost of goods manufactured in November is:

- A. \$ 91,000.
- B. \$115,000.
- C. \$155,000.
- D. \$143,000.

**60. Jones Manufacturing Inc.**

Jones Manufacturing Inc. incurred the following costs in November:

Direct labor	\$50,000	Advertising costs	\$ 3,000
Indirect labor	20,000	Factory rent	10,000
Administrative salaries	25,000	Factory depreciation	6,000
Direct materials purchased	23,000	Administrative rent	5,000
Indirect materials used	4,000	Administrative depreciation	7,000

In addition, the following information is also available:

	Beginning	Ending
Raw materials	\$ 5,000	\$ 8,000
Work in process	60,000	55,000
Finished goods	17,250	9,200
Number of units produced	20,000 units	
Number of units sold		
(sales price of \$25 per unit)	21,400 units	

Refer to the Jones Manufacturing Inc. information above. Net operating income for November is: (Ignore taxes)

- A. \$371,950.
- B. \$411,950.
- C. \$369,150.
- D. \$382,000.

**61. Jones Manufacturing Inc.**

Jones Manufacturing Inc. incurred the following costs in November:

Direct labor	\$50,000	Advertising costs	\$ 3,000
Indirect labor	20,000	Factory rent	10,000
Administrative salaries	25,000	Factory depreciation	6,000
Direct materials purchased	23,000	Administrative rent	5,000
Indirect materials used	4,000	Administrative depreciation	7,000



In addition, the following information is also available:

	Beginning	Ending
Raw materials	\$ 5,000	\$ 8,000
Work in process	60,000	55,000
Finished goods	17,250	9,200
Number of units produced	20,000 units	
Number of units sold (sales price of \$25 per unit)	21,400 units	

Refer to the Jones Manufacturing Inc. information above. The product cost per unit in November is:

- A. \$4.55.
- B. \$7.75.
- C. \$5.75.
- D. \$5.37.

## 62. Scott Products

Scott Products manufactures high-quality running shoes. The following information is available for 2011:

	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 labor 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 2011 out of which 40,900 pairs were sold for \$70 each.

Refer to the Scott Products information above. Cost of goods manufactured for 2011 is:

- A. \$990,000.
- B. \$973,000.
- C. \$848,000.
- D. \$865,000.

### 63. Scott Products

Scott Products manufactures high-quality running shoes. The following information is available for 2011:

	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 labor 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 2011 out of which 40,900 pairs were sold for \$70 each.

Refer to the Scott Products information above. What is net operating income for 2011? (ignore taxes)

- A. \$1,920,000.
- B. \$2,025,000.
- C. \$1,890,000.
- D. \$2,045,000.

### 64. Hillsborough Street Manufacturing Inc.

Hillsborough Street Manufacturing Inc. incurred the following costs in 2011:

Direct materials used	\$51,000
Direct labor costs	45,000
Factory rent and utilities	18,000
Factory equipment depreciation	7,500
Marketing expenses	8,000
Administrative expenses	10,000

45,000 units were produced during the year out of which 38,000 units were sold for \$10 each. There was no beginning or ending raw materials or work in process inventory.

Refer to the Hillsborough Street Manufacturing Inc. information above. What is the product cost per unit?

- A. \$3.67
- B. \$3.20
- C. \$3.10
- D. \$2.70

**65. Hillsborough Street Manufacturing Inc.**

Hillsborough Street Manufacturing Inc. incurred the following costs in 2011:

Direct materials used	\$51,000
Direct labor costs	45,000
Factory rent and utilities	18,000
Factory equipment depreciation	7,500
Marketing expenses	8,000
Administrative expenses	10,000

45,000 units were produced during the year out of which 38,000 units were sold for \$10 each. There was no beginning or ending raw materials or work in process inventory.

Refer to the Hillsborough Street Manufacturing Inc. information above. What is cost of goods sold for the year?

- A. \$102,600
- B. \$121,500
- C. \$117,800
- D. \$139,500

**66. Hillsborough Street Manufacturing Inc.**

Hillsborough Street Manufacturing Inc. incurred the following costs in 2011:

Direct materials used	\$51,000
Direct labor costs	45,000
Factory rent and utilities	18,000
Factory equipment depreciation	7,500
Marketing expenses	8,000
Administrative expenses	10,000

45,000 units were produced during the year out of which 38,000 units were sold for \$10 each. There was no beginning or ending raw materials or work in process inventory.

Refer to the Hillsborough Street Manufacturing Inc. information above. What is the net operating income for the year? (Ignore taxes)

- A. \$222,500
- B. \$244,200
- C. \$240,500
- D. \$259,400

**67. Hudson Inc.**

Hudson Inc. has the following information available for September:

	Beginning	Ending
Raw materials	\$ 8,000	\$ 5,000
Work-in-process	30,000	40,000
Finished goods	7,000	3,000
Raw materials purchased		25,000
Direct labor costs		70,000
Manufacturing overhead costs		30,000
Administrative costs		12,000
Marketing costs		6,000

Refer to the Hudson Inc. information above. Total nonmanufacturing costs for September are:

- A. \$113,000.
- B. \$161,000.
- C. \$ 18,000.
- D. \$ 43,000.

**68. Hudson Inc.**

Hudson Inc. has the following information available for September:

	Beginning	Ending
Raw materials	\$ 8,000	\$ 5,000
Work-in-process	30,000	40,000
Finished goods	7,000	3,000
Raw materials purchased		25,000
Direct labor costs		70,000
Manufacturing overhead costs		30,000
Administrative costs		12,000
Marketing costs		6,000

Refer to the Hudson Inc. information above. Cost of goods manufactured for September is:

- A. \$118,000.
- B. \$136,000.
- C. \$115,000.
- D. \$133,000.

**69. Hudson Inc.**

Hudson Inc. has the following information available for September:

	Beginning	Ending
Raw materials	\$ 8,000	\$ 5,000
Work-in-process	30,000	40,000
Finished goods	7,000	3,000
Raw materials purchased		25,000
Direct labor costs		70,000
Manufacturing overhead costs		30,000
Administrative costs		12,000
Marketing costs		6,000

Refer to the Hudson Inc. information above. Cost of goods sold for September is:

- A. \$119,000.
- B. \$143,000.
- C. \$140,000.
- D. \$122,000.

**70. Hudson Inc.**

Hudson Inc. has the following information available for September:

	Beginning	Ending
Raw materials	\$ 8,000	\$ 5,000
Work-in-process	30,000	40,000
Finished goods	7,000	3,000
Raw materials purchased		25,000
Direct labor costs		70,000
Manufacturing overhead costs		30,000
Administrative costs		12,000
Marketing costs		6,000

Refer to the Hudson Inc. information above. Sales revenue for September totaled \$400,000. Net operating income for September is: (Ignore taxes)

- A. \$257,000.
- B. \$260,000.
- C. \$264,000.
- D. \$278,000.

71. Which of the following statements accurately describes manufacturing cost flows in a just-in-time (JIT) environment?

- A. Direct labor 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.

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

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

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

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

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

- |    |                               |    |  |
|----|-------------------------------|----|--|
| a. | factory depreciation          | f. | direct materials                             |
| b. | indirect labor                | g. | indirect materials                           |
| c. | administrative salaries       | h. | advertising                                  |
| d. | direct labor                  | i. | factory insurance                            |
| e. | utilities used in the factory | j. | utilities used in the administrative offices |

77. Briefly describe the difference between a manufacturing and a nonmanufacturing cost.

78. Identify with an "X" the following costs as either a manufacturing (product) or nonmanufacturing (period) cost. If it is a manufacturing cost, further identify it as either direct material (DM), direct labor (DL), or overhead (OH).

Manufacturing Cost	Nonmanufacturing Cost		
	DM	DL	OH
Indirect labor			
Factory supplies			
Material easily traced to product			
Administrative salaries			
Factory rent			
Indirect materials			
Shipping costs on sales			
Administrative building utilities			
Factory equipment depreciation			
Machine operator			

79. Classify the following as either direct labor (DL), indirect labor (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

80. 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



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

82. 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	\$100,000
Direct labor	80,000
Manufacturing overhead	50,000
Marketing expenses	15,000
Administrative expenses	20,000

During the year, 25,000 units were produced out of which 20,000 units were sold for \$20 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 operating income for the year? (Ignore taxes)

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

	Beginning		Ending
Raw materials inventory	\$20,000		\$ 14,000
Work-in-process inventory	35,000		50,000
Finished goods inventory	20,000		37,000
Raw materials purchased			\$100,000
Direct labor costs			50,000
Overhead costs			45,000
	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 totaled \$300,000, calculate net operating income for July. (Ignore taxes)

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

Direct labor	\$40,000	Advertising costs	\$1,000
Indirect labor	15,000	Factory rent	4,000
Administrative salaries	8,000	Factory depreciation	2,000
Raw materials purchased	10,000	Administrative rent	3,000
Indirect materials used	4,000	Administrative depreciation	1,000

In addition, the following information is also available:

	Beginning	Ending
Raw materials	\$ 2,000	\$ 4,000
Work-in-process	25,000	18,000
Finished goods	4,000	12,000
Number of units produced	10,000 units	
Number of units sold		
(sales price of \$25 per unit)	9,000 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 operating income. (Ignore taxes)

85. Creative Products Inc. incurred the following costs (in alphabetical order) during 2012 related to one of its products:

Administrative costs	\$ 2,000
Advertising costs	1,000
Direct material used	8,000
Direct labor	20,000
Factory equipment depreciation	1,000
Factory rent	5,000
Indirect labor	3,000
Indirect materials	2,000

During the year, 3,000 units were produced out of which 2,750 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 operating income for the year? (Ignore taxes)

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

Direct materials purchased	\$ 21,000
Direct labor (2,500 hrs@\$12)	30,000
Indirect labor	3,000
Indirect materials	2,500
Office supplies expense	100
Factory equipment depreciation	2,000
Office equipment depreciation	750
Administrative expenses	20,000
Office utilities	75
Factory utilities	200
Marketing expense	2,500
Sales revenue	150,000
Sales commissions expense	1,500

	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)



## Chapter 2--Product Costing: Manufacturing Processes, Cost Terminology, and Cost Flows **Key**

1. Which of the following types of organizations is most likely to have a raw materials inventory account?  
A. A retailer.  
**B.** A manufacturer.  
C. A service provider.  
D. A wholesaler.
2. Which of the following statements about manufacturing in a traditional environment is true?  
A. Factories are organized 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.
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.
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.
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.

6. 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. favorable

7. 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.**

8. 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.

9. 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.

10. 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 more suppliers.

11. 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**

12. 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.

13. 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

14. Which of the following is a effect of using 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 labor.
- B. Increase in the need for highly reliable suppliers.
- C.** Reduction in the motivation of the work force.
- D. Reduction in the processing time.

15. Which of the following is a risk that would more likely be seen in a lean production and just-in-time (JIT) manufacturing environment than in a traditional production environment?

- A. Reduced customer satisfaction due to product quality.
- 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.

16. 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.

17. 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.



18. Which of the following statements is false regarding nonmanufacturing 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 labor costs.

19. Which of the following types of employees would most likely have their wage be classified as direct labor?

- A. Factory maintenance worker
- B. Factory supervisor
- C. Managerial accountant
- D.** Assembly-line factory worker

20. Which of the following types of employees would most likely have their wage be classified as indirect labor?

- A.** Factory supervisor
- B. Managerial accountant
- C. Salesperson
- D. Machine operator

21. Manufacturing overhead includes:

- A. advertising costs.
- B.** indirect materials.
- C. sales commissions.
- D. shipping charges for finished goods.

22. Which of the following is not an example of a manufacturing overhead cost?

- A.** Shipping charges on finished products
- B. Indirect materials
- C. Indirect labor
- D. Depreciation on factory equipment

23. 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.

24. 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

25. 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

### 26. Jasper Corporation

Jasper Corporation incurred the following costs which includes salaries and wages in April:

Salesperson's salaries	\$32,000	Factory maintenance	\$25,000
Factory insurance	10,000	Administrative utilities	4,000
Factory supervisor salary	30,000	Administrative supplies	1,500
Advertising	10,000	Delivery truck insurance	5,000
Factory machine operator	22,000	Factory machine depreciation	5,500
Direct materials used	30,000	Receptionist salary	17,500

Refer to the Jasper Corporation information above. Total product costs are:

- A. \$132,500
- B. \$154,500
- C.** \$122,500
- D. \$127,500

### 27. Jasper Corporation

Jasper Corporation incurred the following costs which includes salaries and wages in April:

Salesperson's salaries	\$32,000	Factory maintenance	\$25,000
Factory insurance	10,000	Administrative utilities	4,000
Factory supervisor salary	30,000	Administrative supplies	1,500
Advertising	10,000	Delivery truck insurance	5,000
Factory machine operator	22,000	Factory machine depreciation	5,500
Direct materials used	30,000	Receptionist salary	17,500

Refer to the Jasper Corporation information above. Total period costs are:

- A. \$65,000
- B. \$60,000
- C. \$38,000
- D.** \$70,000

28. Which of the following is not a manufacturing cost?

- A. Direct material costs
- B. Administrative costs**
- C. Factory overhead costs
- D. Direct labor costs

29. In general, costs incurred in the factory those do not qualify as either direct material or direct labor are called:

- A. manufacturing costs.
- B. manufacturing overhead.**
- C. nonmanufacturing costs.
- D. selling and administrative costs.

30. Manufacturing costs typically consist of:

- A. direct materials, direct labor, and administrative costs.
- B. production and shipping costs.
- C. direct materials, direct labor, and manufacturing overhead.**
- D. manufacturing overhead and selling costs.

31. 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.

32. When nonmanufacturing costs are subtracted from gross margin, the result is called:

- A. cost of goods sold.
- B. net operating income.**
- C. sales.
- D. nonmanufacturing income.

### 33. Michael's Manufacturing, Inc.

Michael's Manufacturing, Inc. has the following information available for the month of July:

	Beginning	Ending
Raw materials inventory	\$40,000	\$ 62,000
Work-in-process inventory	85,000	45,000
Finished goods inventory	20,000	37,000
Raw materials purchased		\$150,000
Direct labor costs		50,000
Overhead costs		45,000

Refer to the Michael's Manufacturing, Inc. information above. Raw materials used for July is:

- A. \$150,000
- B. \$128,000**
- C. \$190,000
- D. \$172,000

### 34. Michael's Manufacturing, Inc.

Michael's Manufacturing, Inc. has the following information available for the month of July:

	Beginning	Ending
Raw materials inventory	\$40,000	\$ 62,000
Work-in-process inventory	85,000	45,000
Finished goods inventory	20,000	37,000
Raw materials purchased		\$150,000
Direct labor costs		50,000
Overhead costs		45,000

Refer to the Michael's Manufacturing, Inc. information above. Cost of goods manufactured for July is:

- A. \$183,000
- B. \$206,000
- C. \$263,000**
- D. \$223,000

**35. Michael's Manufacturing, Inc.**

Michael's Manufacturing, Inc. has the following information available for the month of July:

	Beginning	Ending
Raw materials inventory	\$40,000	\$ 62,000
Work-in-process inventory	85,000	45,000
Finished goods inventory	20,000	37,000
Raw materials purchased		\$150,000
Direct labor costs		50,000
Overhead costs		45,000

Refer to the Michael's Manufacturing, Inc. information above. Cost of goods sold for July is:

- A.** \$246,000
- B. \$206,000
- C. \$280,000
- D. \$263,000

**36. Nate's Novelties, Inc.**

Nate's Novelties, Inc. has the following information available for July:

	Beginning	Ending
Raw materials inventory	\$12,000	\$ 9,000
Work-in-process inventory	35,000	20,000
Finished goods inventory	20,000	44,000
Raw materials purchased		\$25,000
Direct labor costs		55,000
Overhead costs		35,000

Refer to the Nate's Novelties, Inc. information above. Raw materials used for July is:

- A. \$21,000.
- B. \$22,000.
- C. \$25,000.
- D.** \$28,000.

**37. Nate's Novelties, Inc.**

Nate's Novelties, Inc. has the following information available for July:

	Beginning	Ending
Raw materials inventory	\$12,000	\$ 9,000
Work-in-process inventory	35,000	20,000
Finished goods inventory	20,000	44,000
Raw materials purchased		\$25,000
Direct labor costs		55,000
Overhead costs		35,000

Refer to the Nate's Novelties, Inc. information above. Cost of goods manufactured for July is:

- A. \$153,000.
- B. \$103,000.
- C. \$130,000.
- D. \$133,000.**

**38. Nate's Novelties, Inc.**

Nate's Novelties, Inc. has the following information available for July:

	Beginning	Ending
Raw materials inventory	\$12,000	\$ 9,000
Work-in-process inventory	35,000	20,000
Finished goods inventory	20,000	44,000
Raw materials purchased		\$25,000
Direct labor costs		55,000
Overhead costs		35,000

Refer to the Nate's Novelties, Inc. information above. Cost of goods sold for July is:

- A. \$106,000.
- B. \$157,000.
- C. \$129,000.
- D. \$109,000.**

**39. Thompson Inc. has the following selected information available for 2011:**

Cost of goods manufactured	\$220,000
Cost of goods sold	150,000
Direct labor costs incurred	65,000
Raw material purchased	90,000
Raw material used	100,000
Beginning work in process	23000
Ending work in process	11000

Manufacturing overhead costs in 2011 amounted to:

- A. \$67,000.
- B. \$55,000.
- C. \$43,000.**
- D. \$53,000.

40. 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

41. 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

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

	Beginning		Ending
Raw materials	\$ 4,000		\$ 2,000
Work-in-process	32,000		17,000
Finished goods	5,000		3,000
	Cost of goods manufactured		88,000
	Cost of goods sold		90,000
	Direct labor costs		35,000
	Factory rent and depreciation		10,000
Selling expenses			3,000

How much raw material was purchased in October?

- A. \$23,000
- B. \$25,000
- C. \$26,000**
- D. \$28,000

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

Direct material purchased	\$ 40,000
Direct material used	45,000
Direct labor 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.

#### 44. Franklin Street Manufacturing

Franklin Street Manufacturing has the following cost information available for 2011:

Direct materials used	\$10,000
Direct labor costs	25,000
Factory overhead	20,000
Marketing expenses	4,000
Administrative expenses	6,000

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

Refer to the Franklin Street Manufacturing information above. What is cost of goods sold for 2011?

- A. \$55,000
- B. \$52,250**
- C. \$61,750
- D. \$65,000

#### 45. Franklin Street Manufacturing

Franklin Street Manufacturing has the following cost information available for 2011:

Direct materials used	\$10,000
Direct labor costs	25,000
Factory overhead	20,000
Marketing expenses	4,000
Administrative expenses	6,000

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

Refer to the Franklin Street Manufacturing information above. What is net operating income for 2011? (Ignore taxes)

- A. \$127,750**
- B. \$137,750
- C. \$125,000
- D. \$128,250



46. Which of the following increases the work in process account?

- A. Cost of goods sold
- B. Sales commission
- C. Administrative costs
- D. Raw material used**

47. Which of the following decreases the work in process account?

- A. Transferring raw materials to work in process account.
- B. Transferring cost of goods manufactured from work in process account.**
- C. Transferring cost of goods sold from work in process account.
- D. Transferring raw materials from work in process account.

48. Product costs that are transferred into finished goods inventory are called:

- A. cost of goods manufactured.**
- B. cost of goods sold.
- C. period costs.
- D. raw materials used.

49. Product costs that are transferred out of finished goods are called:

- A. work in process.
- B. cost of goods manufactured.
- C. cost of goods sold.**
- D. period costs.

50. Which of the following types of companies would not have the following cost pattern?

Raw materials ® Work-in-process ® Finished goods ® Cost of goods sold

- A. Tire manufacturer
- B. Automotive manufacturer
- C. Retailer / merchandiser**
- D. Construction company

51. Clyde Retailers 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**

52. In the books of a manufacturing company, 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.

53. In 2011 Bradshaw Inc. incurred \$40,000 of manufacturing overhead costs which will be paid for in 2012. 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. Finished Goods 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

54. In the books of a manufacturing company, 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.

55. When the cost of a product is matched with its sales revenue, the result (difference) is called:

- A. net operating income.
- B. gross margin.**
- C. cost of goods sold.
- D. cost of goods manufactured.

56. 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 totaled \$60,000. What should be net operating income for March? (Ignore taxes)

- A. \$529,000
- B. \$473,800
- C. \$451,000
- D. \$469,000**

57. Which of the following statements is true regarding period costs?

- A. They "attach" themselves to the product.
- B. They will appear 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 operating income.

58. 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. \$ 4,800.**
- B. \$ 2,400.
- C. \$ 9,600.
- D. \$14,400.

**59. Jones Manufacturing Inc.**

Jones Manufacturing Inc. incurred the following costs in November:

Direct labor	\$50,000	Advertising costs	\$ 3,000
Indirect labor	20,000	Factory rent	10,000
Administrative salaries	25,000	Factory depreciation	6,000
Direct materials purchased	23,000	Administrative rent	5,000
Indirect materials used	4,000	Administrative depreciation	7,000

In addition, the following information is also available:

	Beginning	Ending
Raw materials	\$ 5,000	\$ 8,000
Work in process	60,000	55,000
Finished goods	17,250	9,200
Number of units produced	20,000 units	
Number of units sold		
(sales price of \$25 per unit)	21,400 units	

Refer to the Jones Manufacturing Inc. information above. Cost of goods manufactured in November is:

- A. \$ 91,000.
- B. \$115,000.**
- C. \$155,000.
- D. \$143,000.

**60. Jones Manufacturing Inc.**

Jones Manufacturing Inc. incurred the following costs in November:

Direct labor	\$50,000	Advertising costs	\$ 3,000
Indirect labor	20,000	Factory rent	10,000
Administrative salaries	25,000	Factory depreciation	6,000
Direct materials purchased	23,000	Administrative rent	5,000
Indirect materials used	4,000	Administrative depreciation	7,000

In addition, the following information is also available:

	Beginning	Ending
Raw materials	\$ 5,000	\$ 8,000
Work in process	60,000	55,000
Finished goods	17,250	9,200
Number of units produced	20,000 units	
Number of units sold		
(sales price of \$25 per unit)	21,400 units	

Refer to the Jones Manufacturing Inc. information above. Net operating income for November is: (Ignore taxes)

- A. \$371,950.**
- B. \$411,950.
- C. \$369,150.
- D. \$382,000.

**61. Jones Manufacturing Inc.**

Jones Manufacturing Inc. incurred the following costs in November:

Direct labor	\$50,000	Advertising costs	\$ 3,000
Indirect labor	20,000	Factory rent	10,000
Administrative salaries	25,000	Factory depreciation	6,000
Direct materials purchased	23,000	Administrative rent	5,000
Indirect materials used	4,000	Administrative depreciation	7,000

In addition, the following information is also available:

	Beginning	Ending
Raw materials	\$ 5,000	\$ 8,000
Work in process	60,000	55,000
Finished goods	17,250	9,200
Number of units produced	20,000 units	
Number of units sold (sales price of \$25 per unit)	21,400 units	

Refer to the Jones Manufacturing Inc. information above. The product cost per unit in November is:

- A. \$4.55.
- B. \$7.75.
- C. \$5.75.**
- D. \$5.37.

## 62. Scott Products

Scott Products manufactures high-quality running shoes. The following information is available for 2011:

	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 labor 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 2011 out of which 40,900 pairs were sold for \$70 each.

Refer to the Scott Products information above. Cost of goods manufactured for 2011 is:

- A. \$990,000.
- B. \$973,000.
- C. \$848,000.**
- D. \$865,000.

### 63. Scott Products

Scott Products manufactures high-quality running shoes. The following information is available for 2011:

	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 labor 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 2011 out of which 40,900 pairs were sold for \$70 each.

Refer to the Scott Products information above. What is net operating income for 2011? (ignore taxes)

- A.** \$1,920,000.
- B. \$2,025,000.
- C. \$1,890,000.
- D. \$2,045,000.

### 64. Hillsborough Street Manufacturing Inc.

Hillsborough Street Manufacturing Inc. incurred the following costs in 2011:

Direct materials used	\$51,000
Direct labor costs	45,000
Factory rent and utilities	18,000
Factory equipment depreciation	7,500
Marketing expenses	8,000
Administrative expenses	10,000

45,000 units were produced during the year out of which 38,000 units were sold for \$10 each. There was no beginning or ending raw materials or work in process inventory.

Refer to the Hillsborough Street Manufacturing Inc. information above. What is the product cost per unit?

- A. \$3.67
- B. \$3.20
- C. \$3.10
- D.** \$2.70

**65. Hillsborough Street Manufacturing Inc.**

Hillsborough Street Manufacturing Inc. incurred the following costs in 2011:

Direct materials used	\$51,000
Direct labor costs	45,000
Factory rent and utilities	18,000
Factory equipment depreciation	7,500
Marketing expenses	8,000
Administrative expenses	10,000

45,000 units were produced during the year out of which 38,000 units were sold for \$10 each. There was no beginning or ending raw materials or work in process inventory.

Refer to the Hillsborough Street Manufacturing Inc. information above. What is cost of goods sold for the year?

- A.** \$102,600
- B. \$121,500
- C. \$117,800
- D. \$139,500

**66. Hillsborough Street Manufacturing Inc.**

Hillsborough Street Manufacturing Inc. incurred the following costs in 2011:

Direct materials used	\$51,000
Direct labor costs	45,000
Factory rent and utilities	18,000
Factory equipment depreciation	7,500
Marketing expenses	8,000
Administrative expenses	10,000

45,000 units were produced during the year out of which 38,000 units were sold for \$10 each. There was no beginning or ending raw materials or work in process inventory.

Refer to the Hillsborough Street Manufacturing Inc. information above. What is the net operating income for the year? (Ignore taxes)

- A. \$222,500
- B. \$244,200
- C. \$240,500
- D.** \$259,400

**67. Hudson Inc.**

Hudson Inc. has the following information available for September:

	Beginning	Ending
Raw materials	\$ 8,000	\$ 5,000
Work-in-process	30,000	40,000
Finished goods	7,000	3,000
Raw materials purchased		25,000
Direct labor costs		70,000
Manufacturing overhead costs		30,000
Administrative costs		12,000
Marketing costs		6,000

Refer to the Hudson Inc. information above. Total nonmanufacturing costs for September are:

- A. \$113,000.
- B. \$161,000.
- C. \$ 18,000.**
- D. \$ 43,000.

**68. Hudson Inc.**

Hudson Inc. has the following information available for September:

	Beginning	Ending
Raw materials	\$ 8,000	\$ 5,000
Work-in-process	30,000	40,000
Finished goods	7,000	3,000
Raw materials purchased		25,000
Direct labor costs		70,000
Manufacturing overhead costs		30,000
Administrative costs		12,000
Marketing costs		6,000

Refer to the Hudson Inc. information above. Cost of goods manufactured for September is:

- A. \$118,000.**
- B. \$136,000.
- C. \$115,000.
- D. \$133,000.



**69. Hudson Inc.**

Hudson Inc. has the following information available for September:

	Beginning	Ending
Raw materials	\$ 8,000	\$ 5,000
Work-in-process	30,000	40,000
Finished goods	7,000	3,000
Raw materials purchased		25,000
Direct labor costs		70,000
Manufacturing overhead costs		30,000
Administrative costs		12,000
Marketing costs		6,000

Refer to the Hudson Inc. information above. Cost of goods sold for September is:

- A. \$119,000.
- B. \$143,000.
- C. \$140,000.
- D. \$122,000.**

**70. Hudson Inc.**

Hudson Inc. has the following information available for September:

	Beginning	Ending
Raw materials	\$ 8,000	\$ 5,000
Work-in-process	30,000	40,000
Finished goods	7,000	3,000
Raw materials purchased		25,000
Direct labor costs		70,000
Manufacturing overhead costs		30,000
Administrative costs		12,000
Marketing costs		6,000

Refer to the Hudson Inc. information above. Sales revenue for September totaled \$400,000. Net operating income for September is: (Ignore taxes)

- A. \$257,000.
- B. \$260,000.**
- C. \$264,000.
- D. \$278,000.

71. Which of the following statements accurately describes manufacturing cost flows in a just-in-time (JIT) environment?

- A. Direct labor 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.

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

It may be useful for the following reasons:

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

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

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 organized 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.

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

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

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

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 labor costs
- Increased manufacturing flexibility

Risks:

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

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

- |    |                               |    |  |
|----|-------------------------------|----|--|
| a. | factory depreciation          | f. | direct materials                             |
| b. | indirect labor                | g. | indirect materials                           |
| c. | administrative salaries       | h. | advertising                                  |
| d. | direct labor                  | i. | factory insurance                            |
| e. | utilities used in the factory | j. | utilities used in the administrative offices |

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

77. Briefly describe the difference between a manufacturing and a nonmanufacturing cost.

A manufacturing cost is a cost incurred in the factory as a result of the production process. Manufacturing costs consist of direct materials, direct labor, 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. Nonmanufacturing costs are incurred outside of the factory. These costs are often called period costs and are expensed on the income statement in the period when incurred.

78. Identify with an "X" the following costs as either a manufacturing (product) or nonmanufacturing (period) cost. If it is a manufacturing cost, further identify it as either direct material (DM), direct labor (DL), or overhead (OH).

Manufacturing Cost	Nonmanufacturing Cost		
	DM	DL	OH
Indirect labor			
Factory supplies			
Material easily traced to product			
Administrative salaries			
Factory rent			
Indirect materials			
Shipping costs on sales			
Administrative building utilities			
Factory equipment depreciation			
Machine operator			

Manufacturing Cost	Nonmanufacturing Cost		
	DM	DL	OH
Indirect labor			X
Factory supplies			X
Material easily traced to product	X		
Administrative salaries			X
Factory rent			X
Indirect materials			X
Shipping costs on sales			X
Administrative building utilities			X
Factory equipment depreciation			X
Machine operator		X	

79. Classify the following as either direct labor (DL), indirect labor (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

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

80. 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

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

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

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 labor 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 labor, 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.

82. 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	\$100,000
Direct labor	80,000
Manufacturing overhead	50,000
Marketing expenses	15,000
Administrative expenses	20,000

During the year, 25,000 units were produced out of which 20,000 units were sold for \$20 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 operating income for the year? (Ignore taxes)
- 
- A. Total product costs = \$230,000 ( $\$100,000 + 80,000 + 50,000$ )
  - B. Product cost per unit = \$9.20 ( $\$230,000/25,000$  units)
  - C. Cost of goods sold = \$184,000 ( $\$9.20$  per unit  $\times$  20,000 units sold)
  - D. Net operating income = \$181,000 [ $(20,000$  units  $\times$  \$20) - 184,000 - 15,000 - 20,000]

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

	Beginning		End ing
Raw material s inventor y	\$20,000		\$ 14,000
Work-in -process inventor y	35,000		50,000
Finished goods inventor y	20,000		37,000
Raw material s purchase d			\$100,000
Direct labor costs			50,000
Overhea d costs			45,000
	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 totaled \$300,000, calculate net operating income for July. (Ignore taxes)

- A. Raw materials used = \$106,000 = (\$20,000 + 100,000 - 14,000)
- B. Cost of goods manufactured = \$186,000 = (\$35,000 + 106,000 + 50,000 + 45,000 - 50,000)
- C. Cost of goods sold = \$169,000 = (\$20,000 + 186,000 - 37,000)
- D. Net operating income = \$111,000 = (\$300,000 - 169,000 - 20,000)

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

Direct labor	\$40,000	Advertising costs	\$1,000
Indirect labor	15,000	Factory rent	4,000
Administrative salaries	8,000	Factory depreciation	2,000
Raw materials purchased	10,000	Administrative rent	3,000
Indirect materials used	4,000	Administrative depreciation	1,000

In addition, the following information is also available:

	Beginning	Ending
Raw materials	\$ 2,000	\$ 4,000
Work-in-process	25,000	18,000
Finished goods	4,000	12,000
Number of units produced	10,000 units	
Number of units sold		
(sales price of \$25 per unit)	9,000 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 operating income. (Ignore taxes)

- A. Total period costs = \$13,000 = (\$8,000 + 1,000 + 3,000 + 1,000)
- B. Raw Material used = \$8,000 = \$(2,000 + 10,000 - 4,000)
- C. Cost of goods manufactured = \$80,000 =  
(25,000 + 8,000 + 40,000 + 15,000 + 4,000 + 4,000 + 2,000 - 18,000)
- D. Product cost per unit = \$8.00 per unit = (\$80,000/10,000 units)
- E. Cost of goods sold = \$72,000 = (9,000 units sold ´ \$8.00)
- F. Net operating income = \$140,000 = [(9,000 units ´ \$25) - 72,000 - 13,000]

85. Creative Products Inc. incurred the following costs (in alphabetical order) during 2012 related to one of its products:

Administrative costs	\$ 2,000
Advertising costs	1,000
Direct material used	8,000
Direct labor	20,000
Factory equipment depreciation	1,000
Factory rent	5,000
Indirect labor	3,000
Indirect materials	2,000



During the year, 3,000 units were produced out of which 2,750 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 operating income for the year? (Ignore taxes)

- A. Total product costs = \$39,000 = \$(8,000 + 20,000 + 5,000 + 3,000 + 2,000 + 1,000)
- B. Product cost per unit = \$13.00 = (\$39,000 / 3,000 units)
- C. Cost of goods sold = \$35,750 = (2,750 units × \$13)
- D. Net operating income = 43,750 = [(\$30 × 2,750 units) - 35,750 - 2,000 - 1,000]

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

Direct materials purchased	\$ 21,000
Direct labor (2,500 hrs@ \$12)	30,000
Indirect labor	3,000
Indirect materials	2,500
Office supplies expense	100
Factory equipment depreciation	2,000
Office equipment depreciation	750
Administrative expenses	20,000
Office utilities	75
Factory utilities	200
Marketing expense	2,500
Sales revenue	150,000
Sales commissions expense	1,500

	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)

A.	Beginning direct materials	\$27,000	
	Direct materials purchased	<u>21,000</u>	
	Direct materials available	48,000	
	Ending direct materials	<u>(24,500)</u>	
	Direct materials used	\$23,500	
B.	Beginning work in process inventory	\$25,000	
	Direct material used	23,500	
	Direct labor	30,000	
	Overhead:		
	Indirect labor	\$3,000	
	Indirect materials	2,500	
	Factory equipment depreciation	2,000	
	Factory utilities	<u>200</u>	
	Total overhead	<u>7,700</u>	
	Total manufacturing costs	86,200	
	Ending work in process inventory	<u>(29,000)</u>	
	Cost of goods manufactured	\$57,200	
C.	Beginning finished goods inventory		\$22,000
	Cost of goods manufactured	<u>57,200</u>	
	Cost of goods available for sale	79,200	
	Ending finished goods inventory	<u>(15,000)</u>	
	Cost of goods sold		\$64,200

D.

Brown  
Company  
Income  
Statement  
For the  
Month  
Ended  
July 31

Sales revenue	\$150,000	
Cost of goods sold	<u>(64,200)</u>	
Gross margin	85,800	
Operating expenses:		
Office Supplies expense	\$ 100	
Office equipment depreciation	750	
Administrative expenses	20,000	
Office utilities	75	
Marketing expense	2,500	
Sales commissions	<u>1,500</u>	<u>(24,925)</u>
Net operating income	<u>\$ 60,875</u>	