Chapter 27(12)
Cost Management for Just-In-Time Environments

OBJECTIVES

Obj 1	Compare and contrast just-in-time (JIT) manufacturing practices with traditional manufacturing practices.
Obj 2	Apply just-in-time manufacturing practices to a traditional manufacturing illustration.
Obj 3	Describe the implications of a just-in-time manufacturing philosophy on cost accounting and performance measurement systems.
Obj 4	Apply just-in-time practices to a non-manufacturing setting.
Obj 5	Describe and illustrate activity analysis for improving operations.

TRUE/FALSE

1. Just-in-Time (JIT) manufacturing focuses on reducing time, cost, and poor quality in processes.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

2. The just-in-time (JIT) philosophy views inventory as a necessary buffer to protect against process problems.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

3. The just-in-time (JIT) philosophy views inventory as an unnecessary waste of resources.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

4. In the just-in-time (JIT) philosophy, unexpected downtime is the result of unreliable processes.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

5. Lead time is the process time between start and completion.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

6. Lead time is value-added time.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

7. Lead time includes both value-added time and nonvalue-added time.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

8. Lead time reduction can be a cost-saving goal for any processed item.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

9. Nonvalue-added activities are performed only because of process ineffectiveness.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

10. Reducing wait time is **not** linked to reducing inventory.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

11. Reducing wait time is directly linked to reducing inventory.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

12. Just-in-Time (JIT) manufacturing favors organizing work around products rather than around processes.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

13. Just-in-Time (JIT) manufacturing favors organizing work around processes rather than around products.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

14. Employee involvement in a product-oriented factory emphasizes employee teams, rather than individual employees.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

15. A setup is the time required to prepare an operation for a new production run.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

16. Long setups and large batch sizes result in smaller inventories.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

17. Within-batch wait time increases total lead time.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

18. Large batch sizes increase lead time.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

19. Just-in-Time (JIT) manufacturing is also called make-to-stock manufacturing.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

20. Just-in-Time (JIT) manufacturing is also called make-to-order manufacturing.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

21. A make-to-order company matches its production schedules to actual customer orders.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

22. Make-to-order companies must produce in large batch sizes.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

23. Make-to-order companies typically produce in small batch sizes.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

24. Maximum effectiveness and efficiency are reached when the just-in-time (JIT) philosophy is used only by manufacturers.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

25. Maximum effectiveness and efficiency are reached when the just-in-time (JIT) philosophy is used by both manufacturers and their suppliers.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

26. A process-oriented layout segments production facilities into functional departments.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

27. In a push manufacturing system, raw materials are released to production based on forecasted demand.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

28. In a push manufacturing system, raw materials are released to production based on actual customer orders.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

29. In a pull manufacturing system, raw materials are released to production based on actual customer orders.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

30. In a pull manufacturing system, raw materials are released to production based on forecasted demand.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

31. Setups are a significant time-consuming activity in traditional production environments.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

32. In a just-in-time (JIT) environment, raw materials are delivered less frequently than in a traditional environment.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

33. In a just-in-time (JIT) environment, raw materials are delivered more frequently than in a traditional environment.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

34. In a just-in-time (JIT) environment, process problems are more visible than they are in a traditional environment.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

35. Under the Just-In-Time production concept, employees are better utilized if they are experts in one operation rather than wasting time training them to learn various production operations.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

36. One inherent risk to using Just-In-Time philosophy is that companies are at higher risk of inventory shortage during volatile times such as strikes, weather, etc. than the traditional philosophy.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

37. In a just-in-time (JIT) environment, process problems are less visible than they are in a traditional environment.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

38. Employee involvement does **not** include performing any indirect manufacturing functions.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

39. Push manufacturing is also referred to as make to order processing.
ANS: F DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

40. Push Manufacturing (made to stock) is a traditional approach to manufacturing.
ANS: T DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

41. In a just-in-time (JIT) environment, operations only respond to customer orders.
ANS: T DIF: Easy OBJ: 27(12)-02
NAT: AACSB Analytic | IMA-Cost Management

42. An advantage of using a just-in-time process is a reduction in set-up costs.
ANS: T DIF: Easy OBJ: 27(12)-02
NAT: AACSB Analytic | IMA-Cost Management

43. In a just-in-time (JIT) system, the work in process and raw materials inventory accounts are combined.
ANS: T DIF: Moderate OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

44. In a just-in-time (JIT) system, the work in process account will show more transactions than in a traditional cost system.
ANS: F DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

45. In a just-in-time (JIT) system, the work in process account will show fewer transactions than in a traditional cost system.
ANS: T DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

46. In a just-in-time (JIT) system, direct labor is eliminated as a separate cost category.
ANS: T DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

47. In a just-in-time (JIT) system, indirect labor is traced directly to products.
ANS: T DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

48. A traditional cost system uses work in process inventories as control points between each process step.
ANS: T DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

49. In a just-in-time (JIT) system, conversion costs are accumulated at the standard cost of good units produced.
ANS: T DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

50. Financial accounting information is better suited for long-term, operational performance summaries than is nonfinancial information.
ANS: T DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

51. Nonfinancial information is better suited for long-term, operational performance summaries than is financial accounting information.
ANS: F DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

52. A nonfinancial measure is operating information that has **not** been translated into dollars.
ANS: T DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

53. In a just-in-time (JIT) environment, the journal entry to record raw materials purchases would include a debit to the raw materials inventory account.
ANS: F DIF: Difficult OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

54. In a just-in-time (JIT) environment, the journal entry to record raw materials purchases would include a debit to the raw and in process inventory account.
ANS: T DIF: Difficult OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

55. In a just-in-time (JIT) environment, the journal entry to record conversion costs would include a debit to the raw and in process inventory account.
ANS: T DIF: Difficult OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

56. In a just-in-time (JIT) environment, the journal entry to record conversion costs would include a debit to the manufacturing overhead control account.
ANS: F DIF: Difficult OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

57. The budgeted cell conversion cost rate is very similar to the predetermined factory rate in that it only includes factory overhead costs.
ANS: F DIF: Moderate OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

58. A just-in-time nonmanufacturing process can be accomplished by consolidating, in one area, all of the services provided to a customer.
ANS: T DIF: Moderate OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

59. An example of a just-in-time nonmanufacturing principle would be to buy new equipment with the intention of increasing services to customers.
ANS: F DIF: Moderate OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

60. Costs of controlling quality include prevention costs and internal failure costs.
ANS: F DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

61. Prevention costs and appraisal costs are considered costs of controlling quality.
ANS: T DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

62. Costs of failing to control quality include prevention costs and external failure costs.
ANS: F DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

63. It is easier to quantify costs of controlling quality than the costs of failing to control quality.
ANS: T DIF: Moderate OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

64. By spending more in costs of controlling quality, the costs of failing to control quality will decrease.
ANS: T DIF: Difficult OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

MATCHING

Identity the following by their type of quality cost.

a. Preventive costs
b. Appraisal costs
c. Internal failure costs
d. External failure costs

1. Scrap

2. Recalls

3. Warranty work

4. Testing

5. Vendor quality

6. Returned merchandise

7. Preventive machine maintenance

8. Operator training

1. ANS: C DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

2. ANS: D DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

3. ANS: D DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

4. ANS: B DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

5. ANS: A DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

6. ANS: D DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

7. ANS: A DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

8. ANS: A DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

Identify the following quality control activities as either value-added or nonvalue-added.
a. Value-added
b. Nonvalue-added

9. scrap material

10. processing returned materials

11. rework

12. finished goods inspection

13. preventive machine maintenance

14. customer service calls

15. design engineering

16. materials inspection

9. ANS: B DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

10. ANS: B DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

11. ANS: B DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

12. ANS: A DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

13. ANS: A DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

14. ANS: B DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

15. ANS: A DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

16. ANS: A DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

MULTIPLE CHOICE

1. Which of the following is an example of value-added time?
   a. Processing time
   b. Wait time during inspection
   c. Wait time in inventory
   d. Both B and C

ANS: A DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

2. Long lead times are the result of:
   a. long setup times
   b. large batch sizes
   c. large inventories
   d. all of the above

ANS: B DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

3. The just-in-time (JIT) philosophy attempts to reduce setup times, which will:
   a. increase batch sizes
   b. not affect batch sizes
   c. increase within-batch wait time
   d. decrease within-batch wait time

ANS: D DIF: Difficult OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

4. What do just-in-time (JIT) manufacturers demand from their vendors?
   a. High quality materials
   b. Low cost materials
   c. On-time deliveries
   d. All of the above

ANS: D DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

5. How are the objectives of just-in-time (JIT) manufacturing achieved?
   a. Product-oriented production layout
   b. Employee involvement
   c. Supplier partnering
   d. All of the above

ANS: D DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

6. What are the objectives of just-in-time (JIT) manufacturing?
   a. Eliminating waste
   b. Increasing inventory levels
   c. Increased number of inspections
   d. A process orientation

ANS: A DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

7. Reduction of inventory is a ____ principle.
    a. Just in Time
    b. Traditional

ANS: A DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

8. Set up time is disregarded as an improvement priority under the ____ manufacturing concept.
    a. Traditional
    b. Just in Time

ANS: A DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

9. ____ manufacturing philosophy emphasizes quality and zero defects.
    a. Traditional
    b. Just In Time

ANS: B DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

10. ____ manufacturing deals with several suppliers in hopes of finding the better price.
    a. Traditional
    b. Just-In-Time

ANS: A DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

11. Just-in-time manufacturing philosophy reduces the following except
    a. inventory
    b. setup time
    c. lead time
    d. overhead costs

ANS: D DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

12. Traditional manufacturing emphasizes the following except
    a. Team oriented employee involvement
    b. Process-oriented layout
    c. Push manufacturing
    d. Increase lead time

ANS: A DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

13. Which of the following is considered nonvalue- added lead time?
    a. Packing
    b. Time moving from operation to operation
    c. Inspections
    d. all of the above

ANS: B DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

14. Which of the following is used to reduce setup time?
    a. Reduce the number of inventory in batches
    b. Increase the number of setups
    c. Increase inventory levels
    d. Increase the number of inventory in batches.

ANS: A DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

15. The Just-In-Time concept emphasizes the product-oriented layout in the manufacturing area. All the following are benefits on this concept except
    a. Reduction of material movement
    b. Production process are grouped together
    c. Work-in-process inventory is reduced.
    d. Production activities are arranged in single cells

ANS: A DIF: Easy OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

16. Under a JIT environment, employees have the responsibility and authority to
    a. purchase inventory
    b. determine output amounts
    c. make decisions about operations, rather than waiting for management.
    d. make engineering changes

ANS: C DIF: Moderate OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

17. Which of the following drives work in process inventory levels higher?
    a. Machine breakdowns
    b. Production rate losses
    c. Rework processes
    d. All of the above

ANS: D DIF: Easy OBJ: 27(12)-02
NAT: AACSB Analytic | IMA-Cost Management

18. Which of the following is characteristic of a just-in-time (JIT) production layout?
    a. Decentralized maintenance
    b. Small production batches
    c. Organization around processes
    d. Both A and B

ANS: D DIF: Easy OBJ: 27(12)-02
NAT: AACSB Analytic | IMA-Cost Management

19. In a just-in-time (JIT) environment, process problems are more visible than they are in a traditional environment because:
    a. inventories are maintained at higher levels
    b. process problems cause production to shut down immediately
    c. the push manufacturing system causes inventories to increase
    d. the lack of work in process inventory creates the problems

ANS: B DIF: Easy OBJ: 27(12)-02
NAT: AACSB Analytic | IMA-Cost Management

20. Examples of transforming a traditional manufacturing environment to a Just-In-Time environment is to do all of the following except
    a. Form partnerships with reliable suppliers.
    b. Reorganize operational processes to organized product lines.
    c. Train employees to perform various operations.
    d. Increase raw materials to produce more thereby increasing finished goods inventory to have to sell

ANS: D DIF: Easy OBJ: 27(12)-02
NAT: AACSB Analytic | IMA-Cost Management

21. Which of the following is characteristic of a just-in-time (JIT) system?
    a. Fewer work in process account transactions
    b. Work in process and raw materials accounts combined
    c. Elimination of the direct labor account
    d. All of the above

ANS: D DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

22. Which of the following is characteristic of a traditional cost system?
    a. Many work in process account transactions
    b. Reliance on financial performance measures
    c. Many process control points
    d. All of the above

ANS: D DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

23. Which of the following is an example of a nonfinancial measure?
    a. Lead time
    b. Setup time
    c. Units scrapped
    d. All of the above

ANS: D DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

24. Which of the following is best suited to providing timely and focused performance information?
    a. Nonfinancial information
    b. Financial accounting information
    c. Cost accounting information
    d. Variance analysis

ANS: A DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

25. Recon Co. operates in a just-in-time (JIT) manufacturing environment. For June production, Recon purchased 2,000 units of raw materials at $6.00 per unit. The journal entry required to record this transaction is:

a. Raw Materials Inventory 12,000
Accounts Payable 12,000

b. Cost of Goods Manufactured 12,000
Accounts Payable 12,000

c. Finished Goods 12,000
Accounts Payable 12,000

d. Raw and In Process Inventory 12,000
Accounts Payable 12,000

ANS: D DIF: Difficult OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

26. Mitchell Manufacturing operates in a just-in-time (JIT) manufacturing environment. Mitchell's actual conversion costs for the month of April follow:

Direct and indirect labor	$120,000
Machine depreciation	85,000
Maintenance and supplies	60,000
Total conversion costs	$265,000

The journal entry to record April's conversion costs will include:

a. a debit to Work in Process Inventory
b. a debit to Raw Materials Inventory
c. a credit to Raw and In Process Inventory
d. a debit to Raw and In Process Inventory

ANS: D DIF: Difficult OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

27. Foley Electronics Corporation manufactures and assembles electronic motor drives for video cameras. The company assembles the motor drives for several accounts. The process consists of a just-in-time cell for each customer. The following information relates only to one customer's just-in-time cell. For the year planned labor and overhead was $76,800,000; materials costs, $25 per unit. Planned production included 9,600 hours to produce 76,800 motor drives. Actual production for the month of August was 5,200 units, and motor drives shipped amounted to 5,040 units. From the foregoing information, determine the budgeted cell conversion cost per hour.

a. $8,800
b. $800
c. $7,200
d. $8,000

ANS: D DIF: Moderate OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

Foley Electronics Corporation manufactures and assembles electronic motor drives for video cameras. The company assembles the motor drives for several accounts. The process consists of a just-in-time cell for each customer. The following information relates only to one customer's just-in-time cell for the coming year. Projected labor and overhead, $4,800,000; materials costs, $25 per unit. Planned production included 2,400 hours to produce 19,200 motor drives. Actual production for August was 1,300 units, and motor drives shipped amounted to 1,260 units.

28. From the foregoing information, determine the budgeted cell conversion cost per unit.
    a. $250.00
    b. $267.00
    c. $308.00
    d. $317.00

ANS: A DIF: Moderate OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

29. From the foregoing information, determine the manufacturing cost per unit.
    a. $292.00
    b. $275.00
    c. $333.00
    d. $342.00

ANS: B DIF: Moderate OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

30. From the foregoing information, determine the amount of the conversion costs charged to Raw and In Process Inventory during August.
    a. $440,000
    b. $400,000
    c. $360,000
    d. $325,000

ANS: D DIF: Moderate OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

31. From the foregoing information, determine the production costs transferred to Finished Goods during August.
    a. $346,500
    b. $412,500
    c. $357,500
    d. $400,000

ANS: C DIF: Moderate OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

32. From the foregoing information, determine the production costs transferred to Cost of Goods Sold during August.
    a. $357,500
    b. $412,500
    c. $400,000
    d. $346,500

ANS: D DIF: Moderate OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

33. Accounting for Just-In-Time operations requires fewer transactions because
    a. large batches of inventory are combined in a smaller number of transactions
    b. costs are accumulated in departments and then transferred to the next department
    c. combined material and conversion costs are transferred to finished goods.
    d. costs are transferred from department to department thus allowing for better controls in costs

ANS: C DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

34. Just-In-Time accounting has fewer transactions because
    a. all manufacturing costs are combined in one account called Raw and In Process Inventory
    b. employees in production cells are required to perform various tasks, some are considered direct costs and some are indirect costs. Therefore the distinction is eliminated.
    c. Less movement of inventory between department to department.
    d. All of the above.

ANS: D DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

35. The budgeted cell conversion cost rate includes which of the following?
    a. factory overhead only
    b. direct labor and direct materials only
    c. direct labor, direct materials, and factory overhead
    d. direct labor and factory overhead only

ANS: D DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

Activity	Activity Cost
Preventive maintenance	$2,000
Warranty work	750
Product design	1,000
Prototype inspection	500
Emergency maintenance	1,250
Rework	750
Scrap processing	500
Processing returned products	750
Machine operator training	1,500
Process audits	500

36. From the above Schedule of Activity Cost, determine the total activity cost.
    a. $6,750
    b. $9,500
    c. $3,750
    d. $6,000

ANS: B DIF: Difficult OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

37. From the above Schedule of Activity Cost, determine the nonvalue-added costs.
    a. $12,000
    b. $ 9,000
    c. $36,000
    d. $16,000

ANS: D DIF: Difficult OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

38. From the above Schedule of Activity Cost, determine the value-added costs.
    a. $96,000
    b. $72,000
    c. $160,000
    d. $120,000

ANS: C DIF: Difficult OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

39. From the above Schedule of Activity Cost, determine the prevention costs.
    a. $96,000
    b. $72,000
    c. $88,000
    d. $128,000

ANS: D DIF: Difficult OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

40. From the above Schedule of Activity Cost, determine the appraisal costs.
    a. $48,000
    b. $72,000
    c. $40,000
    d. $32,000

ANS: D DIF: Difficult OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

41. From the above Schedule of Activity Cost, determine the internal failure costs.
    a. $48,000
    b. $72,000
    c. $40,000
    d. $32,000

ANS: C DIF: Difficult OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

42. From the above Schedule of Activity Cost, determine the external failure costs.
    a. $72,000
    b. $88,000
    c. $32,000
    d. $40,000

ANS: B DIF: Difficult OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

43. The local college is aggressively working in reducing the time that a student needs to enroll for each semester. All except one of the following changes is helping in their efforts.
    a. Counselors are specializing in common degree plans.
    b. One application is good at the Community college and at the transferring University.
    c. A one stop area includes registration, admissions, advising, and ID's. Each working closely with each other.
    d. Reduce the number of degrees being offered.

ANS: D DIF: Easy OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

44. The college would like to increase enrollment by following the just-in-time principle by streamlining the enrollment process. Which of the following would **not** fall in line with the college goal?
    a. reduce the requirements necessary to enroll.
    b. relocate counselors, academic advisors, and financial aid specialists for a major to a central location.
    c. train counselors, academic advisors, and financial aid specialists to serve like majors.
    d. crosstrain counselors, academic advisors, and financial aid specialists.

ANS: A DIF: Moderate OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

45. Which of the following statements is correct?
    a. Costs of controlling quality include prevention and appraisal costs
    b. Costs of failing to control quality include internal and external failure costs
    c. A and B are both correct
    d. A and B are both incorrect.

ANS: C DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

46. All of the following except one are examples of prevention costs
    a. preventive maintenance
    b. operator training
    c. design engineering
    d. testing activities

ANS: D DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

47. The following are examples of external failure costs except
    a. warranty work
    b. returned merchandise
    c. rework
    d. correcting invoice errors

ANS: C DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

48. Which of the following statements best describes the relationship between costs of quality?
    a. The more that is spent on prevention and appraisal costs, the overall costs of quality will be reduced
    b. The more that is spent on prevention and appraisal costs, the overall costs of quality will remain the same.
    c. Overtime prevention and appraisal costs will eliminate all internal and external costs.
    d. Internal and external costs will increase as prevention and appraisal costs increase.

ANS: A DIF: Moderate OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

49. The following are examples of nonvalue added activities except
    a. inspections
    b. rework
    c. preventive maintenance
    d. warranties

ANS: C DIF: Easy OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management

EXERCISE/OTHER

1. Decorations for Every Occasion makes wreaths in batches of 12 at a time. The cutting process takes 3 minutes per wreath, the assembly process is 5 minutes per wreath, and the decorating process time is 8 minutes per wreath. It takes 4 minutes to move the wreaths from the cutting process to the assembly process. The cutting and assembly process are done at the same time, but only one wreath can be decorated at a time.

   (a) Compute the value added, nonvalue added, and the total lead time of the wreath process.

   (b) Compute the value added ratio. Round to the nearest decimal.

ANS:
(a)

Value added lead time: 3 + 5 + 8 =	16
Nonvalue added lead time:	
Move time	4
Within batch wait time (8 min. * (12-1))	88
Total Lead Time	108

(b) Value Added Ratio = 16 / 108 = 14.8%

DIF: Moderate OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management TOP: Example Exercise 27(12)-1

2. Of the following, identify the favorable attributes of the just-in-time manufacturing system.

   (a) having extra inventory to ensure that manufacturing will not run out of direct materials.
   (b) cross training of employees
   (c) giving employees additional authority and responsibility.
   (d) product oriented layout.

ANS:
b, c, d

DIF: Easy OBJ: 27(12)-02
NAT: AACSB Analytic | IMA-Cost Management TOP: Example Exercise 27(12)-2

3. The Nite Lite Company has budgeted its conversion cost for the small lamp production as $58,000 for 1,200 production hours. Each unit produced by the cell requires 20 minutes of process time. During the month, 3,500 units are manufactured in the cell. the estimated material costs per unit is $17.00. Provide the following journal entries.

   (a) Materials are purchased to produce 3,600 units.
   (b) Conversion costs are applied to3,500 units of production.
   (c) 3,400 units are placed into finished goods.

ANS:

(a) Raw and in process inventory	61,200	
Accounts Payable		61,200
($17.00 per unit * 3,600 units)		
(b) Raw and in process inventory	56,389	
Conversion costs		56,389
[($58,000 / 1,200 hours) / (60 min. / 20 min)] = $16.11 $16.11 * 3,500 units) = $56,389		
(c) Finished Goods Inventory	112,574	
Raw and in process inventory		112,574
($17 + 16.11) * 3,400 units		

DIF: Difficult OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management TOP: Example Exercise 27(12)-3

4. A quality control activity analysis indicated the following four activity costs of a hotel.

Verifying credit card information	$30,000
Customer service training	23,000
Discounting room rates due to poor customer service	18,000
Correcting charges to customer invoices	6,000
Total	$77,000

Sales are $700,000 for the year. Prepare a cost of quality report.

ANS:

Cost of Quality Report			
Quality Cost Classification	Quality Cost	Percent of Total Quality Cost	Percent of Total Sales
Prevention	$30,000	38.9%	4.3%
Appraisal	23,000	29.9%	3.3%
Internal Failure	18,000	23.4%	2.6%
Eternal Failure	6,000	7.8%	0.9%
	$77,000	100%	11.1%

DIF: Moderate OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management TOP: Example Exercise 27(12)-4

5. Nite Lites Company payroll department required that every time card be checked twice to ensure pay accuracy. The company has 1000 employees and has determined that the checks cost the company $10,000 per year. They have decided to change this policy and only check those names which appear on the exceptions report and a random check on the entire payroll. Currently only 10% of the payroll is evaluated each payroll. Determine the inspection activity cost per unit on the 1,000 employees both before and after the improvement.

ANS:
Inspection activity before improvement: $10,000/1,000 units = $10 per unit
Inspection activity after improvement: ($10,000 * 10%) / 1,000 units = $1 per unit

DIF: Moderate OBJ: 27(12)-05
NAT: AACSB Analytic | IMA-Cost Management TOP: Exercise Example 27(12)-5

PROBLEM

1. Decorations for Every Occasion makes wreaths in batches of 12 at a time. The cutting process takes 4 minutes per wreath, the assembly process is 6 minutes per wreath, and the decorating process time is 7 minutes per wreath. It takes 5 minutes to move the wreaths from the cutting process to the assembly process. The cutting and assembly process are done at the same time, but only one wreath can be decorated at a time.

   In a effort to improve the lead time, the company has tried reducing the batch size to 8 units. The new process is as follows: cutting process - 3 minutes, assembly process - 4 minutes, and the decorating process is still 7 minutes per wreath. It takes 5 minutes to move the wreaths from the cutting process to the assembly process. The cutting and assembly process are done at the same time, but only one wreath can be decorated at a time.

   (a) Compute the value added, nonvalue added, and the total lead time of the wreath process for both the old and the new manufacturing process.

   (b) Compute the value added ratio. Round to the nearest decimal.

ANS:

(a) Old:

Value added lead time: 4 + 6 + 7 =	17
Nonvalue added lead time:	
Move time	5
Within batch wait time (7 min. * (12-1))	77
Total Lead Time	99

New:

Value added lead time: 3 + 4 + 7 =	14
Nonvalue added lead time:	
Move time	5
Within batch wait time (7 min. * (8-1))	49
Total Lead Time	68

(b) Value Added Ratio (old process) = 17 / 99 = 17.2%
Value Added Ratio (new process) = 14 / 68 = 20.5%

DIF: Moderate OBJ: 27(12)-01
NAT: AACSB Analytic | IMA-Cost Management

2. Weloc Company produces parts for the auto industry. Part X2 is machined in Department #1, which has the following budgeted conversion costs:

Labor	$220,000
Depreciation	30,000
Maintenance	10,000
Supplies	25,600
Total	$285,600

All costs are driven by machine hours. Total possible hours for the year are 2,400. It takes .03 hours to machine one unit of Part X2.

(a) Compute Department #1's budgeted cell conversion cost rate for the current year.

(b) Compute Part X2's budgeted cell conversion cost per unit.

ANS:

(a) Budgeted cell conversion cost rate = $285,600/2,400 hours
= $119 per machine hour

(b)			
Part X2 machine hours	0.03	hrs per unit
Conversion cost rate	× $119	per hour
Budgeted cell conversion cost per unit	$3.57	per unit

DIF: Moderate OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

3. Fashion Pattern Company makes dressmakers' patterns using a machine that stamps the pattern outline onto tissue paper. The stamping center produced 30,000 patterns in August, with a machine time per pattern of 15 seconds. Annual budgeted cell conversion costs were as follows:

Maintenance and supplies	$ 480,000
Depreciation	600,000
Supporting labor	816,000
Total	$1,896,000

Fashion planned 2,000 total machine hours for the year.

Calculate Fashion's budgeted cell conversion cost rate for the year.

ANS:
Budgeted cell conversion cost rate

= Total conversion costs/Available annual hours
= $1,896,000/2,000 hours
= $948 per machine hour

DIF: Difficult OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

4. Thress Manufacturing Co. operates in a just-in-time (JIT) manufacturing environment. The company had scheduled production of 80,000 units during February in its Y12 cell. Actual February production totaled 78,200 units. Thress had budgeted conversion costs for February totaling $756,000 and budgeted production hours totaling 200.

Compute Thress' budgeted cell conversion cost per unit for Cell Y12.

ANS:
Budgeted cell conversion cost per unit

= Budgeted conversion costs/Planned units
= $ 756,000/80,000 units
= $ 9.45 per unit

DIF: Easy OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

5. The Jackson Co. operates in a just-in-time (JIT) manufacturing environment. During 2008, its first year of operations, Jackson budgeted for 40,000 hours in the production of 100,000 units in its cell X-22. Material costs were $7 per unit. Cell X-22 conversion costs were budgeted for the year as follows:

Direct and indirect labor	$900,000
Machine depreciation	125,000
Maintenance and supplies	375,000
Utilities	225,000
Total	$1,625,000

During January, 8,200 units were manufactured, and 8,000 were sold shipped to customers for and $35 each. For the month of January, journalize: (a) the material purchases; (b) application of conversion costs; (c) the transfer from work in process to finished goods; and (d) to record the sales and associated cost of goods sold.

ANS:

(a)

Raw and in process inventory	57,400	
Account payable		57,400

(b)

Raw and in process inventory	133,250	
Conversion costs		133,250

(c)

Finished goods inventory	190,650	
Raw and in process inventory		190,650

(d)

Accounts Receivable	280,000	
Sales		280,000
Cost of Goods Sold	186,000	
Finished goods inventory		186,000

DIF: Moderate OBJ: 27(12)-03
NAT: AACSB Analytic | IMA-Cost Management

Given the following schedule of activity costs:

Quality Control Activities	**Activity Cost**
Process audits	$55,000
Training of machine operators	26,000
Processing returned products	18,000
Scrap processing (disposal)	29,000
Rework	8,000
Preventative maintenance	30,000
Product design	46,000
Warranty work	12,000
Finished goods inspection	22,000

6. From the above schedule, determine the value added costs.
ANS: 179,000 = 55,000+26,000+30,000+46,000+22,000
DIF: Moderate OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

7. From the above schedule, determine the nonvalue added costs.
ANS: 67,000= 18,000+29,000+8,000+12,000
DIF: Moderate OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

8. From the above schedule, determine the internal failure costs.
ANS: 37,000= 8,000+29,000
DIF: Moderate OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

9. From the above schedule, determine the external failure costs.
ANS: 30,000 = 12,000 + 18,000
DIF: Moderate OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management

10. From the above schedule, compute the percentage of non value added activities.
ANS: 27.2% = (8,000+29,000+18,000+12,000)/246,000* *= total costs
DIF: Moderate OBJ: 27(12)-04
NAT: AACSB Analytic | IMA-Cost Management