MIDTERM EXAM
AFM 102: Introduction to Managerial Accounting
Sections 001, 002, 003 and 005
February 27, 2009: 4:30 – 6:00 PM
Instructors: Robert Ducharme; Thomas Vance; Yutao Li

STUDENT NAME:____________________________________
STUDENT ID:________________________________________
UWDIR/Quest Id:___________________________________

LECTURE: (select one) TUTORIAL: (select one)
________ 6:00-8:50 T (001) Ducharme 8:30-9:20 F (101)
________ 8:30-9:20 MWF (002) Vance 9:30-10:20 F (102)
________ 10:30-11:20 MWF (003) Vance 10:30-11:20 F (103)
________ 11:30-12:20 MWF (005) Li 11:30-12:20 F (104)

INSTRUCTIONS:
• This exam has 15 pages. Please verify that this exam has no missing pages.
• You have 90 minutes to complete the exam.
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• Answer multiple-choice questions on the Scantron sheet provided
  o Use black lead HB pencil.
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  o For your own reference, feel free to circle your responses on the exam paper
    (these will not be graded).
• Non-programmable calculators may be used.
• Show all your work as partial points may be awarded (on questions 2-5).
• Clearly label your solutions to each part of Questions 2-5 to facilitate accurate
  marking.

MARKS (Awarded / Possible)
Q1: ________/ 42
Q2: ________/ 9
Q3: ________/ 15
Q4: ________/ 4
Q5: ________/ 10
TOT: ________/ 80
Q1.

ANSWER MULTIPLE CHOICE QUESTIONS ON THE SCANTRON SHEET

One mark per question, unless preceded by ‘**’, then two marks.

1. Identifying alternatives and selecting the best among them is part of which of the following activities which managers carry on in organizations?
   A) Controlling.
   B) Directing.
   C) Planning.
   D) Motivating.

2. How would the insurance premium on Research In Motion’s manufacturing plants generally be classified?

<table>
<thead>
<tr>
<th>Prime cost</th>
<th>Product cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) No</td>
<td>Yes</td>
</tr>
<tr>
<td>B) No</td>
<td>No</td>
</tr>
<tr>
<td>C) Yes</td>
<td>No</td>
</tr>
<tr>
<td>D) Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

3. Which one of the following statements is true about job-order costing?
   A) Job-order costing is used in manufacturing companies and process costing is used in service firms.
   B) In a job-order costing system, costs are traced to departments and then allocated to units of product using an averaging process.
   C) Job-order costing is more likely to be used than process costing in situations where many different products or services are produced each period to customer specifications.
   D) In a Job-order costing, there is no need to keep separate records for each job.

4. Which one of the following statements is true about activity-based costing and traditional costing system?
   A) In the activity-based costing, as in traditional costing systems, non-manufacturing costs are not assigned to products.
   B) When there are batch-level or product-level costs, in comparison to a traditional cost system, an activity-based costing system ordinarily will shift costs from high-volume to low-volume products.
   C) ABC is typically used as a replacement for a company’s traditional costing system.
   D) The first-stage allocation in activity-based costing is the process by which overhead costs are assigned to products before they are assigned to customers.
5. Expense A is a fixed cost; expense B is a variable cost. During the current year, the activity level has increased but is still within the relevant range. In terms of cost per unit of activity, you would expect which of the following statements to be true?
   A) Expense A has remained unchanged.
   B) Expense B has decreased.
   C) Expense A has decreased.
   D) Expense B has increased.

6. Once the break-even point is reached, which of the following statements is true?
   A) The total contribution margin changes from negative to positive.
   B) Operating income will increase by the unit contribution margin for each additional item sold.
   C) Variable expenses will remain constant in total.
   D) The contribution margin ratio begins to decrease.

7. What is the costing method that can be used most easily with break-even analysis and other cost-volume-profit techniques?
   A) Variable costing.
   B) Absorption costing.
   C) Process costing.
   D) Job-order costing.

8. Which of the following best describes the function of managerial accounting within an organization?
   A) It has its primary emphasis on the future.
   B) It is required by regulatory bodies such as the Ontario Securities Commission.
   C) It focuses on the organization as a whole, rather than on the organization's segments.
   D) It places more emphasis on precision of data than financial accounting does.

9. Which one of the following statements about opportunity costs is true?
   A) Opportunity costs are costs that have already been incurred and cannot be changed now or in the future.
   B) Opportunity costs do not appear on the accounting records of an organization.
   C) Opportunity costs are costs that may be shifted to the future with little or no effect on current operations.
   D) Opportunity costs are the difference in total costs that arise from selecting one alternative instead of another.
**10.** Worrell Corporation has a job-order costing system. The following debits (credits) appeared in the Work in Process account for the month of March:

- March 1, balance .................................................. $12,000
- March 31st, direct materials ..................................... 40,000
- March 31st, direct labour ........................................ 30,000
- March 31, manufacturing overhead applied ............... 27,000
- March 31, to finished goods ..................................... (100,000)

Worrell applies overhead at a predetermined rate of 90% of direct labour cost. Job No. 232, the only job still in process at the end of March, has been charged with manufacturing overhead of $2,250. What was the amount of direct materials charged to Job No. 232?

A) $2,250.
B) $2,500.
C) $4,250.
D) $9,000.

11. What is a duration driver?
   A) A simple count of the number of times an activity occurs.
   B) An activity measure that is used for the life of the company.
   C) A measure of the amount of time required to perform an activity.
   D) An activity measure that is used for the life of an activity-based costing system.

**12.** Wilson Company's activity for the first six months of the current year is as follows:

<table>
<thead>
<tr>
<th></th>
<th>Machine Hours</th>
<th>Electrical Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>2,000</td>
<td>$1,560</td>
</tr>
<tr>
<td>February</td>
<td>3,000</td>
<td>$2,200</td>
</tr>
<tr>
<td>March</td>
<td>2,400</td>
<td>$1,750</td>
</tr>
<tr>
<td>April</td>
<td>1,900</td>
<td>$1,430</td>
</tr>
<tr>
<td>May</td>
<td>1,800</td>
<td>$1,480</td>
</tr>
<tr>
<td>June</td>
<td>2,100</td>
<td>$1,600</td>
</tr>
</tbody>
</table>

Using the high-low method, what is the fixed portion of the electrical cost each month?

A) $100.
B) $280.
C) $400.
D) $760.
**13.** Lindsay Company reported the following results from sales of 5,000 units for the month of June:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$200,000</td>
</tr>
<tr>
<td>Variable Expenses</td>
<td>$120,000</td>
</tr>
<tr>
<td>Fixed Expenses</td>
<td>$  60,000</td>
</tr>
</tbody>
</table>

Assume that Lindsay increases the selling price of the product by 10% on July 1. How many units would have to be sold in July in order to generate an operating income of $20,000?
A) 4,000 units.
B) 4,300 units.
C) 4,500 units.
D) 5,000 units.

14. What does manufacturing overhead cost consist of?
A) All manufacturing costs.
B) All manufacturing costs, EXCEPT direct materials and direct labour.
C) Indirect materials but NOT indirect labour.
D) Indirect labour but NOT indirect materials.

**15.** Last year, Black Company reported sales of $640,000, a contribution margin of $160,000, and an operating loss of $40,000. Based on this information, what was the break-even point?
A) $640,000.
B) $480,000.
C) $800,000.
D) $960,000.

**16.** The following monthly data are available for the Eager Company and its only product:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Sales Price</td>
<td>$75</td>
</tr>
<tr>
<td>Unit Variable Expenses</td>
<td>$30</td>
</tr>
<tr>
<td>Total Fixed Expenses</td>
<td>$180,000</td>
</tr>
<tr>
<td>Actual Sales for the Month of March</td>
<td>7,000 units</td>
</tr>
</tbody>
</table>

What was the margin of safety for the company for March?
A) $315,000.
B) $225,000.
C) $135,000.
D) $495,000.
17. Samantha Galloway is a managerial accountant in the accounting department of Mustang Industries, Inc. Samantha has just discovered evidence that some of the corporation's marketing managers have been wrongfully inflating their expense reports in order to obtain higher reimbursements from the firm. According to the Institute of Management Accountants' Standards of Ethical Conduct, what should Samantha do upon discovering this evidence?
   A) Notify the controller.
   B) Notify the marketing managers involved.
   C) Notify the president of the corporation.
   D) Ignore the evidence because she is not part of the Marketing Department.

**18. During the month of May, Bennett Manufacturing Company purchases $43,000 of raw materials. The manufacturing overhead totals $27,000 and the total manufacturing costs are $106,000. Assuming a beginning inventory of raw materials of $8,000 and an ending inventory of raw materials of $6,000, what must be the total for direct labour?**
   A) $34,000.
   B) $38,000.
   C) $36,000.
   D) $45,000.

19. West Co.'s manufacturing costs are as follows:

| Direct materials and direct labour | $700,000 |
| Other variable manufacturing costs | 100,000  |
| Depreciation of factory building and manufacturing equipment | 80,000   |
| Other fixed manufacturing overhead | 13,000   |

What amount should be considered product costs for external reporting purposes if the company uses absorption costing?
   A) $700,000.
   B) $800,000.
   C) $880,000.
   D) $898,000.

20. Which of the following facets of the lean thinking model is often called just-in-time production?
   A) Identify value in specific products/services
   B) Identify the business process that delivers value
   C) Create a pull system that responds to customer orders
   D) Organize work arrangements around the flow of the business process
Use the following to answer questions 21-22:

Fletcher Company has three products with the following characteristics:

<table>
<thead>
<tr>
<th>Monthly Sales in Dollars</th>
<th>Product A</th>
<th>Product B</th>
<th>Product C</th>
</tr>
</thead>
<tbody>
<tr>
<td>$60,000</td>
<td>$80,000</td>
<td>$100,000</td>
<td></td>
</tr>
<tr>
<td>Contribution Margin Ratio</td>
<td>20%</td>
<td>40%</td>
<td>16%</td>
</tr>
</tbody>
</table>

**21. What is the overall contribution margin ratio for the company as a whole, rounded to the nearest tenth of a percent?**
A) 25.3%.
B) 75.0%.
C) 25.0%.
D) 28.5%.

22. If total units sold remain unchanged, but the sales mix shifts more heavily toward Product C, what would the overall contribution margin ratio be expected to do?
A) Increase.
B) Decrease.
C) Remain unchanged.
D) The effect cannot be predicted without additional information.

23. Which of the following concepts used in estimating cost behaviour is unique to the least-squares regression method?
A) Independent variable.
B) Dependent variable.
C) R-squared.
D) Variable cost per unit.

24. Which of the following types of information contained in a business plan is LEAST likely to be found in the accounting records of a typical company?
A) Financial
B) Competitors
C) Internal
D) Non-financial
**25.** Company Y is considering two production technologies, Bronze and Platinum, for producing its new product. The cost structures of the two technologies are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Bronze</th>
<th>Platinum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling Price per Unit</td>
<td>$150</td>
<td>$150</td>
</tr>
<tr>
<td>Variable Production Costs per Unit</td>
<td>$120</td>
<td>$50</td>
</tr>
<tr>
<td>Total Fixed Production Costs</td>
<td>$300,000</td>
<td>$1,210,000</td>
</tr>
</tbody>
</table>

At what level of sales volume in units (rounded to the nearest whole unit) would Company Y be indifferent in choosing between the Bronze and Platinum technologies?
A) 10,000 units.
B) 12,100 units.
C) 13,000 units.
D) Cannot be determined without additional information.

26. What is the outcome if the cost of goods sold is greater than the cost of goods manufactured?
A) Work-in-process inventory has decreased during the period.
B) Finished goods inventory has increased during the period.
C) Total manufacturing costs must be greater than cost of goods manufactured.
D) Finished goods inventory has decreased during the period.

27. A manufacturing company prepays its insurance coverage for a three-year period. The premium for the three years is $2,700 and is paid at the beginning of the first year. Eighty percent of the premium applies to manufacturing operations and 20% applies to selling and administrative activities. What amounts should be considered product costs and period costs respectively for the first year of coverage?

<table>
<thead>
<tr>
<th>Product Costs</th>
<th>Period Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) $2,700</td>
<td>$ 0</td>
</tr>
<tr>
<td>B) $2,160</td>
<td>$ 540</td>
</tr>
<tr>
<td>C) $1,440</td>
<td>$ 360</td>
</tr>
<tr>
<td>D) $720</td>
<td>$ 180</td>
</tr>
</tbody>
</table>

28. What are discretionary fixed costs?
A) They vary directly and proportionately with the level of activity.
B) They have a long-term planning horizon, generally encompassing many years.
C) They are made up of plant, equipment, and basic organizational costs.
D) None of these options.
29. Which of the following statements about the treatment of overhead costs in a normal job-order costing system is true?
   A) Actual overhead costs are not charged to jobs
   B) Actual overhead costs do not appear on the job cost sheet nor do they appear in the work in process account
   C) Only the applied overhead cost, based on the predetermined overhead rate, appears on the job cost sheet and in the work in process account.
   D) All of the above

30. Which of the following is NOT a limitation of activity-based costing?
   A) Maintaining an activity-based costing system is more costly than maintaining a traditional direct labour-based costing system.
   B) Changing from a traditional direct labour-based costing system to an activity-based costing system changes product margins and other key performance indicators used by managers. Such changes are often resisted by managers.
   C) In practice, most managers insist on fully allocating all costs to products, customers, and other costing objects in an activity-based costing system. This results in overstated costs.
   D) More accurate product costs may result in increasing the selling prices of some products.

**31. Green Company's variable expenses are 60% of sales. At a sales level of $400,000, the company's degree of operating leverage is 4. At this sales level, fixed expenses equal which of the following?**
   A) $180,000.
   B) $100,000.
   C) $120,000.
   D) $ 75,000.

**32. More Company has two divisions: L and M. During July, the contribution margin in Division L was $60,000. The contribution margin ratio in Division M was 40%, and its sales were $250,000. Division M's segment margin was $60,000. The common fixed expenses were $50,000, and the company net income was $20,000. What was the segment margin for Division L?**
   A) $ 0.
   B) $10,000.
   C) $50,000.
   D) $60,000.

End of multiple choice questions.
Q2. (9 marks)

Picard Company used a predetermined overhead rate based on direct labour hours. The estimated annual manufacturing overhead costs and direct labour hours were $150,000 and 20,000, respectively. Actual overhead costs and direct labour hours are $100,000 and 16,000 hours, respectively.
The overhead that had been applied to production during the year was distributed among the ending balances in the accounts as follows:

<table>
<thead>
<tr>
<th>Account</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work in Process, ending</td>
<td>$12,800</td>
</tr>
<tr>
<td>Finished Goods, ending</td>
<td>$21,000</td>
</tr>
<tr>
<td>Cost of Goods Sold, ending</td>
<td>$86,200</td>
</tr>
</tbody>
</table>

**Required:**

a) What was the predetermined manufacturing overhead rate? What was the total manufacturing overhead costs applied during the period?

b) Was manufacturing overhead under or overapplied? Calculate the amount of the under or overapplied overhead?

c) Assume that the amount of under or overapplied manufacturing overhead is immaterial and that the company chooses the simple method of clearing manufacturing overhead to the income statement for the current period. Prepare a summary journal entry to close any under or overapplied manufacturing overhead to be consistent with the company’s policy.
Q3. (15 marks)

The Barnett Company manufactures and sells a unique electronic part. The company's plant is highly automated with low variable and high fixed manufacturing costs. Operating results on an absorption costing basis for two years of activity follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Year 12</th>
<th>Year 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$528,000</td>
<td>$704,000</td>
</tr>
<tr>
<td>Costs of goods sold:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginning inventory</td>
<td>$-0-</td>
<td>$220,000</td>
</tr>
<tr>
<td>Costs of goods manufactured</td>
<td>550,000</td>
<td>496,000</td>
</tr>
<tr>
<td>Goods available for sale</td>
<td>550,000</td>
<td>716,000</td>
</tr>
<tr>
<td>Less ending inventory</td>
<td>220,000</td>
<td>186,000</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>330,000</td>
<td>530,000</td>
</tr>
<tr>
<td>Gross margin</td>
<td>198,000</td>
<td>174,000</td>
</tr>
<tr>
<td>Less selling and administrative expense</td>
<td>160,000</td>
<td>180,000</td>
</tr>
<tr>
<td>Operating Income (loss)</td>
<td>$38,000</td>
<td>$(6,000)</td>
</tr>
</tbody>
</table>

Production (units) | 50,000 | 32,000 |
Sales (units) | 30,000 | 40,000 |

Additional information about the company follows:

- Variable manufacturing costs (direct labour, direct materials, and variable manufacturing overhead) total $3 per unit, and fixed manufacturing overhead costs total $400,000.
- Fixed manufacturing costs are applied to units of product on the basis of the number of units produced each year (i.e., a new fixed overhead rate is computed each year).
- The company uses a FIFO inventory flow assumption.
- Variable selling and administrative expenses are $2 per unit sold. Fixed selling and administrative expenses total $100,000.

**Required:**
a) What is the absorption unit product cost in year 12 and year 13? Show your work.
b) Provide a *variable costing* operating income statement in contribution margin format for year 13.

c) Instead of a FIFO inventory flow, assume LIFO. What would the value of ending inventory be in Year 13 under *absorption costing*?
Q4. (4 marks)

Davis Company uses an activity-based costing system in which there are three activity cost pools. The company has provided the following data concerning its costs and its activity-based costing system:

Costs:
- Manufacturing Overhead $400,000
- Selling and Administrative Expenses $200,000
- Total $600,000

Resource Consumption:

<table>
<thead>
<tr>
<th>Activity Cost Pools</th>
<th>Order Size</th>
<th>Customer Support</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Overhead</td>
<td>35%</td>
<td>55%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>Selling and Administrative Expenses</td>
<td>50%</td>
<td>30%</td>
<td>20%</td>
<td>100%</td>
</tr>
</tbody>
</table>

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

Required:
How much cost, in total, would be allocated in the first-stage allocation to the Customer Support activity cost pool? Show all calculations.
Q5. (10 marks)

Acton Company has two products: A and B. The annual production and sales of Product A is 800 units and of Product B is 500 units. The company has traditionally used direct labour hours as the basis for applying all manufacturing overhead to products. Product A requires 0.3 direct labour hours per unit, and Product B requires 0.2 direct labour hours per unit. The total estimated overhead for next period is $92,023.

The company is considering switching to an activity-based costing system for the purpose of computing unit product costs for external reports. The new activity-based costing system would have three overhead activity cost pools—Activity 1, Activity 2, and General Factory—with estimated overhead costs and expected activity as follows:

<table>
<thead>
<tr>
<th>Activity Cost Pool</th>
<th>Estimated Overhead Costs</th>
<th>Product A</th>
<th>Product B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>$14,487</td>
<td>500</td>
<td>600</td>
<td>1,100</td>
</tr>
<tr>
<td>Activity 2</td>
<td>$64,800</td>
<td>2,500</td>
<td>500</td>
<td>3,000</td>
</tr>
<tr>
<td>General Factory</td>
<td>$12,736</td>
<td>240</td>
<td>100</td>
<td>340</td>
</tr>
<tr>
<td>Total</td>
<td><strong>$92,023</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Note: The General Factory activity cost pool's costs are allocated on the basis of direct labour hours.)

a) How much overhead would be allocated to a unit of Product B under the traditional costing method?
b) What are the overhead allocation rates for each activity under the new *ABC* cost system?

c) How much overhead would be allocated to a unit of Product B under the new *ABC* cost system?
STUDENT NAME:____________________________________

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LECTURE: (select one) TUTORIAL: (select one)

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    ________ / 15

 _____ 12:30-1:20 F (105)

_____ 11:30-12:20 MWF (005) Li  _____ 1:30-2:20 F (106)
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_____ 2:30-3:20 F (107)

_____ 3:30-4:20 F (108)

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<tr>
<td>B) No</td>
<td>No</td>
</tr>
<tr>
<td>C) Yes</td>
<td>No</td>
</tr>
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<td>D) Yes</td>
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4. Which one of the following statements is true about activity-based costing and traditional costing system?
   A) In the activity-based costing, as in traditional costing systems, non-manufacturing costs are not assigned to products.
   B) **When there are batch-level or product-level costs, in comparison to a traditional cost system, an activity-based costing system ordinarily will shift costs from high-volume to low-volume products.**
   C) ABC is typically used as a replacement for a company’s traditional costing system.
   D) The first-stage allocation in activity-based costing is the process by which overhead costs are assigned to products before they are assigned to customers.
5. Expense A is a fixed cost; expense B is a variable cost. During the current year, the activity level has increased but is still within the relevant range. In terms of cost per unit of activity, you would expect which of the following statements to be true?
A) Expense A has remained unchanged.
B) Expense B has decreased.
C) Expense A has decreased.
D) Expense B has increased.

6. Once the break-even point is reached, which of the following statements is true?
A) The total contribution margin changes from negative to positive.
B) Operating income will increase by the unit contribution margin for each additional item sold.
C) Variable expenses will remain constant in total.
D) The contribution margin ratio begins to decrease.

7. What is the costing method that can be used most easily with break-even analysis and other cost-volume-profit techniques?
A) Variable costing.
B) Absorption costing.
C) Process costing.
D) Job-order costing.

8. Which of the following best describes the function of managerial accounting within an organization?
A) It has its primary emphasis on the future.
B) It is required by regulatory bodies such as the Ontario Securities Commission.
C) It focuses on the organization as a whole, rather than on the organization's segments.
D) It places more emphasis on precision of data than financial accounting does.

9. Which one of the following statements about opportunity costs is true?
A) Opportunity costs are costs that have already been incurred and cannot be changed now or in the future.
B) Opportunity costs do not appear on the accounting records of an organization.
C) Opportunity costs are costs that may be shifted to the future with little or no effect on current operations.
D) Opportunity costs are the difference in total costs that arise from selecting one alternative instead of another.
**10. Worrell Corporation has a job-order costing system. The following debits (credits) appeared in the Work in Process account for the month of March:

March 1, balance.......................... $........ 12,000
March 31st, direct materials.................. 40,000
March 31st, direct labour.................... 30,000
March 31, manufacturing overhead applied.. 27,000
March 31, to finished goods................ (100,000)

Worrell applies overhead at a predetermined rate of 90% of direct labour cost. Job No. 232, the only job still in process at the end of March, has been charged with manufacturing overhead of $2,250. What was the amount of direct materials charged to Job No. 232?
A) $2,250.
B) $2,500.
C) **$4,250.**
D) $9,000.

11. What is a duration driver?
A) A simple count of the number of times an activity occurs.
B) An activity measure that is used for the life of the company.
C) A measure of the amount of time required to perform an activity.
D) An activity measure that is used for the life of an activity-based costing system.

**12. Wilson Company's activity for the first six months of the current year is as follows:

<table>
<thead>
<tr>
<th>Month</th>
<th>Machine Hours</th>
<th>Electrical Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>2,000</td>
<td>$1,560</td>
</tr>
<tr>
<td>February</td>
<td>3,000</td>
<td>$2,200</td>
</tr>
<tr>
<td>March</td>
<td>2,400</td>
<td>$1,750</td>
</tr>
<tr>
<td>April</td>
<td>1,900</td>
<td>$1,430</td>
</tr>
<tr>
<td>May</td>
<td>1,800</td>
<td>$1,480</td>
</tr>
<tr>
<td>June</td>
<td>2,100</td>
<td>$1,600</td>
</tr>
</tbody>
</table>

Using the high-low method, what is the fixed portion of the electrical cost each month?
A) $100.
B) $280.
C) **$400.**
D) $760.
13. Lindsay Company reported the following results from sales of 5,000 units for the month of June:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$200,000</td>
</tr>
<tr>
<td>Variable Expenses</td>
<td>$120,000</td>
</tr>
<tr>
<td>Fixed Expenses</td>
<td>$  60,000</td>
</tr>
</tbody>
</table>

Assume that Lindsay increases the selling price of the product by 10% on July 1. How many units would have to be sold in July in order to generate an operating income of $20,000?

A) 4,000 units.
B) 4,300 units.
C) 4,500 units.
D) 5,000 units.

14. What does manufacturing overhead cost consist of?
A) All manufacturing costs.
B) All manufacturing costs, EXCEPT direct materials and direct labour.
C) Indirect materials but NOT indirect labour.
D) Indirect labour but NOT indirect materials.

15. Last year, Black Company reported sales of $640,000, a contribution margin of $160,000, and an operating loss of $40,000. Based on this information, what was the break-even point?
A) $640,000.
B) $480,000.
C) $800,000.
D) $960,000.

16. The following monthly data are available for the Eager Company and its only product:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Sales Price</td>
<td>$75</td>
</tr>
<tr>
<td>Unit Variable Expenses</td>
<td>$30</td>
</tr>
<tr>
<td>Total Fixed Expenses</td>
<td>$180,000</td>
</tr>
<tr>
<td>Actual Sales for the Month of March</td>
<td>7,000 units</td>
</tr>
</tbody>
</table>

What was the margin of safety for the company for March?
A) $315,000.
B) $225,000.
C) $135,000.
D) $495,000.
17. Samantha Galloway is a managerial accountant in the accounting department of Mustang Industries, Inc. Samantha has just discovered evidence that some of the corporation's marketing managers have been wrongfully inflating their expense reports in order to obtain higher reimbursements from the firm. According to the Institute of Management Accountants' Standards of Ethical Conduct, what should Samantha do upon discovering this evidence?

A) Notify the controller.
B) Notify the marketing managers involved.
C) Notify the president of the corporation.
D) Ignore the evidence because she is not part of the Marketing Department.

18. During the month of May, Bennett Manufacturing Company purchases $43,000 of raw materials. The manufacturing overhead totals $27,000 and the total manufacturing costs are $106,000. Assuming a beginning inventory of raw materials of $8,000 and an ending inventory of raw materials of $6,000, what must be the total for direct labour?

A) $34,000.
B) $38,000.
C) $36,000.
D) $45,000.

19. West Co.'s manufacturing costs are as follows:

| Direct materials and direct labour | $700,000 |
| Other variable manufacturing costs | 100,000 |
| Depreciation of factory building and manufacturing equipment | 80,000 |
| Other fixed manufacturing overhead | 18,000 |

What amount should be considered product costs for external reporting purposes if the company uses absorption costing?

A) $700,000.
B) $800,000.
C) $880,000.
D) $898,000.

20. Which of the following facets of the lean thinking model is often called just-in-time production?

A) Identify value in specific products/services
B) Identify the business process that delivers value
C) Create a pull system that responds to customer orders
D) Organize work arrangements around the flow of the business process
Use the following to answer questions 21-22:

Fletcher Company has three products with the following characteristics:

<table>
<thead>
<tr>
<th></th>
<th>Product A</th>
<th>Product B</th>
<th>Product C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly Sales in Dollars</td>
<td>$60,000</td>
<td>$80,000</td>
<td>$100,000</td>
</tr>
<tr>
<td>Contribution Margin Ratio</td>
<td>20%</td>
<td>40%</td>
<td>16%</td>
</tr>
</tbody>
</table>

21. What is the overall contribution margin ratio for the company as a whole, rounded to the nearest tenth of a percent?
   A) 25.3%.
   B) 75.0%.
   C) 25.0%.
   D) 28.5%.

22. If total units sold remain unchanged, but the sales mix shifts more heavily toward Product C, what would the overall contribution margin ratio be expected to do?
   A) Increase.
   B) Decrease.
   C) Remain unchanged.
   D) The effect cannot be predicted without additional information.

23. Which of the following concepts used in estimating cost behaviour is unique to the least-squares regression method?
   A) Independent variable.
   B) Dependent variable.
   C) R-squared.
   D) Variable cost per unit.

24. Which of the following types of information contained in a business plan is LEAST likely to be found in the accounting records of a typical company?
   A) Financial
   B) Competitors
   C) Internal
   D) Non-financial
**25.** Company Y is considering two production technologies, Bronze and Platinum, for producing its new product. The cost structures of the two technologies are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Bronze</th>
<th>Platinum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling Price per Unit</td>
<td>$150</td>
<td>$150</td>
</tr>
<tr>
<td>Variable Production Costs per Unit</td>
<td>$120</td>
<td>$50</td>
</tr>
<tr>
<td>Total Fixed Production Costs</td>
<td>$300,000</td>
<td>$1,210,000</td>
</tr>
</tbody>
</table>

At what level of sales volume in units (rounded to the nearest whole unit) would Company Y be indifferent in choosing between the Bronze and Platinum technologies?
A) 10,000 units.
B) 12,100 units.
C) 13,000 units.
D) Cannot be determined without additional information.

26. What is the outcome if the cost of goods sold is greater than the cost of goods manufactured?
A) Work-in-process inventory has decreased during the period.
B) Finished goods inventory has increased during the period.
C) Total manufacturing costs must be greater than cost of goods manufactured.
D) Finished goods inventory has decreased during the period.

27. A manufacturing company prepaids its insurance coverage for a three-year period. The premium for the three years is $2,700 and is paid at the beginning of the first year. Eighty percent of the premium applies to manufacturing operations and 20% applies to selling and administrative activities. What amounts should be considered product costs and period costs respectively for the first year of coverage?

<table>
<thead>
<tr>
<th></th>
<th>Product Costs</th>
<th>Period Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>A)</td>
<td>$2,700</td>
<td>$ 0</td>
</tr>
<tr>
<td>B)</td>
<td>$2,160</td>
<td>$ 540</td>
</tr>
<tr>
<td>C)</td>
<td>$1,440</td>
<td>$ 360</td>
</tr>
<tr>
<td>D)</td>
<td>$720</td>
<td>$ 180</td>
</tr>
</tbody>
</table>

28. What are discretionary fixed costs?
A) They vary directly and proportionately with the level of activity.
B) They have a long-term planning horizon, generally encompassing many years.
C) They are made up of plant, equipment, and basic organizational costs.
D) None of these options.
29. Which of the following statements about the treatment of overhead costs in a normal job-order costing system is true?
   A) Actual overhead costs are not charged to jobs
   B) Actual overhead costs do not appear on the job cost sheet nor do they appear in the work in process account.
   C) Only the applied overhead cost, based on the predetermined overhead rate, appears on the job cost sheet and in the work in process account.
   D) All of the above

30. Which of the following is NOT a limitation of activity-based costing?
   A) Maintaining an activity-based costing system is more costly than maintaining a traditional direct labour-based costing system.
   B) Changing from a traditional direct labour-based costing system to an activity-based costing system changes product margins and other key performance indicators used by managers. Such changes are often resisted by managers.
   C) In practice, most managers insist on fully allocating all costs to products, customers, and other costing objects in an activity-based costing system. This results in overstated costs.
   D) More accurate product costs may result in increasing the selling prices of some products.

31. Green Company's variable expenses are 60% of sales. At a sales level of $400,000, the company's degree of operating leverage is 4. At this sales level, fixed expenses equal which of the following?
   A) $180,000.
   B) $100,000.
   C) $120,000.
   D) $75,000.

32. More Company has two divisions: L and M. During July, the contribution margin in Division L was $60,000. The contribution margin ratio in Division M was 40%, and its sales were $250,000. Division M’s segment margin was $60,000. The common fixed expenses were $50,000, and the company net income was $20,000. What was the segment margin for Division L?
   A) $0.
   B) $10,000.
   C) $50,000.
   D) $60,000.

End of multiple choice questions.
Q2. (9 marks)

Picard Company used a predetermined overhead rate based on direct labour hours. The estimated annual manufacturing overhead costs and direct labour hours were $150,000 and 20,000, respectively. Actual overhead costs and direct labour hours are $100,000 and 16,000 hours, respectively.

The overhead that had been applied to production during the year was distributed among the ending balances in the accounts as follows:

- Work in Process, ending: $12,800
- Finished Goods, ending: $21,000
- Cost of Goods Sold, ending: $86,200

**Required:**

a) What was the predetermined manufacturing overhead rate? What was the total manufacturing overhead costs applied during the period?

**SOLUTION:**

\[
\text{Predetermined manufacturing overhead rate} = \frac{\$150,000}{20,000 \text{ DLH}} = \$7.50 \text{ per direct labour hour (DLH)}
\]

\[
\text{Applied manufacturing overhead:} \quad \$120,000
\]

\[
= \$7.50 (c/f) \times 16,000 \text{ DLHs}
\]

b) Was manufacturing overhead under or overapplied? Calculate the amount of the under or overapplied overhead?

**SOLUTION:**

\[
\begin{align*}
\text{Actual manufacturing overhead costs} & \quad \$100,000 \\
\text{Less: Applied manufacturing overhead costs} & \quad 120,000 (1 c/f)
\end{align*}
\]

Overapplied manufacturing overhead costs $20,000 (1)

\[
(1)
\]

c) Assume that the amount of under or overapplied manufacturing overhead is immaterial and that the company chooses the simple method of clearing manufacturing overhead to the income statement for the current period. Prepare a summary journal entry to close any under or overapplied manufacturing overhead to be consistent with the company’s policy.

**SOLUTION:**

\[
\begin{align*}
\text{Manufacturing Overhead} & \quad (1) \quad \$20,000 (1) -> \text{amount c/f from part (b)} \\
\text{Cost of Goods Sold} & \quad (1) \quad \$20,000
\end{align*}
\]
The Barnett Company manufactures and sells a unique electronic part. The company's plant is highly automated with low variable and high fixed manufacturing costs. Operating results on an absorption costing basis for two years of activity follows:

<table>
<thead>
<tr>
<th></th>
<th>Year 12</th>
<th>Year 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$528,000</td>
<td>$704,000</td>
</tr>
<tr>
<td>Costs of goods sold:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginning inventory</td>
<td>$-0-</td>
<td>$220,000</td>
</tr>
<tr>
<td>Costs of goods manufactured</td>
<td>550,000</td>
<td>496,000</td>
</tr>
<tr>
<td>Goods available for sale</td>
<td>550,000</td>
<td>716,000</td>
</tr>
<tr>
<td>Less ending inventory</td>
<td>220,000</td>
<td>186,000</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>330,000</td>
<td>530,000</td>
</tr>
<tr>
<td>Gross margin</td>
<td>198,000</td>
<td>174,000</td>
</tr>
<tr>
<td>Less selling and administrative expense</td>
<td>160,000</td>
<td>180,000</td>
</tr>
<tr>
<td>Operating Income (loss)</td>
<td>$38,000</td>
<td>$(6,000)</td>
</tr>
</tbody>
</table>

Production (units) | 50,000 | 32,000 |
Sales (units) | 30,000 | 40,000 |

Additional information about the company follows:
- Variable manufacturing costs (direct labour, direct materials, and variable manufacturing overhead) total $3 per unit, and fixed manufacturing overhead costs total $400,000.
- Fixed manufacturing costs are applied to units of product on the basis of the number of units produced each year (i.e., a new fixed overhead rate is computed each year).
- The company uses a FIFO inventory flow assumption.
- Variable selling and administrative expenses are $2 per unit sold. Fixed selling and administrative expenses total $100,000.

**Required:**
a) What is the absorption unit product cost in year 12 and year 13? Show your work.

**SOLUTION:**

<table>
<thead>
<tr>
<th></th>
<th>year 12</th>
<th>year 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>beginning inventory (units)</td>
<td>0</td>
<td>20,000</td>
</tr>
<tr>
<td>production (units)</td>
<td>50,000</td>
<td>32,000</td>
</tr>
<tr>
<td>sales (units)</td>
<td>30,000</td>
<td>40,000</td>
</tr>
<tr>
<td>ending inventory (units)</td>
<td>20,000</td>
<td>12,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>year 12</th>
<th>year 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM,DL,VMOH</td>
<td>$3.00</td>
<td>$3.00</td>
</tr>
<tr>
<td>FMOH – year 12</td>
<td>$8.00</td>
<td>-</td>
</tr>
<tr>
<td>– year 13</td>
<td></td>
<td>($400,000/50,000 units produced)</td>
</tr>
<tr>
<td>absorption cost unit product cost</td>
<td>$11.00</td>
<td>$15.50</td>
</tr>
<tr>
<td>(.5) correct unit cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(.5) correct unit cost</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
b) Provide a *variable costing* operating income statement in contribution margin format for year 13.

**SOLUTION:**

- **Year 13**

  Sales | $704,000 (5) = 40,000 x $17.60
  
  Less variable expenses:
  
  Variable cost of goods sold
  
  - Beginning inventory | $60,000 = 20,000 (1) x $3 (1)
  - Add: manufacturing costs | 96,000 = 32,000 (1) x $3
  - Goods available for sale | 156,000 = 52,000 x $3
  - Less: ending inventory | 36,000 = 12,000 (1) x $3
  - Variable costs of goods sold | 120,000 = 40,000 x $3
  
  Variable selling expense | $80,000 = 40,000 x $2
  
  Total variable expense | $200,000 = 40,000 (1) x $5
  
  Contribution margin | $504,000 = 40,000 (1) x $12.60
  
  Less fixed expense:
  
  Fixed manufacturing overhead | $400,000 (5) given
  
  Fixed selling and administrative | $100,000 (5) given
  
  Total fixed expense | $500,000
  
  Operating income (loss) | $4,000 (5) must be correct

---

c) Instead of a FIFO inventory flow, assume LIFO. What would the value of ending inventory be in Year 13 under *absorption costing*?

**SOLUTION:**

- Ending inventory assuming LIFO under AC = 12,000 units x $11.00 = $132,000 (5) (1.5 c/f)
  
  **NOTE:** as year 12 began with no inventory, then the LIFO cost flow assumption would dictate that all the year 13 units were sold and that the 12,000 units in ending inventory in year 13 were produced in year 12, at a product cost of $11.00 per unit.
Q4. (4 marks)

Davis Company uses an activity-based costing system in which there are three activity cost pools. The company has provided the following data concerning its costs and its activity-based costing system:

Costs:
- Manufacturing Overhead: $400,000
- Selling and Administrative Expenses: $200,000
- Total: $600,000

Resource Consumption:

<table>
<thead>
<tr>
<th>Activity Cost Pools</th>
<th>Order Size</th>
<th>Customer Support</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Overhead</td>
<td>35%</td>
<td>55%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>Selling and Administrative Expenses</td>
<td>50%</td>
<td>30%</td>
<td>20%</td>
<td>100%</td>
</tr>
</tbody>
</table>

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

Required:
How much cost, in total, would be allocated in the first-stage allocation to the Customer Support activity cost pool? Show all calculations.

SOLUTION:

Resource Consumption:

<table>
<thead>
<tr>
<th>Activity Cost Pools</th>
<th>Order Size</th>
<th>Customer Support</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Overhead</td>
<td>$140,000</td>
<td>(2) $220,000</td>
<td>$40,000</td>
<td>$400,000</td>
</tr>
<tr>
<td>Selling and Administrative Expenses</td>
<td>$100,000</td>
<td>(1) $60,000</td>
<td>$40,000</td>
<td>$200,000</td>
</tr>
<tr>
<td>Total</td>
<td>$240,000</td>
<td>(1) $280,000</td>
<td>$80,000</td>
<td>$600,000</td>
</tr>
</tbody>
</table>

(must be correct)
Q5. (10 marks)

Acton Company has two products: A and B. The annual production and sales of Product A is 800 units and of Product B is 500 units. The company has traditionally used direct labour hours as the basis for applying all manufacturing overhead to products. Product A requires 0.3 direct labour hours per unit, and Product B requires 0.2 direct labour hours per unit. The total estimated overhead for next period is $92,023.

The company is considering switching to an activity-based costing system for the purpose of computing unit product costs for external reports. The new activity-based costing system would have three overhead activity cost pools—Activity 1, Activity 2, and General Factory—with estimated overhead costs and expected activity as follows:

<table>
<thead>
<tr>
<th>Activity Cost Pool</th>
<th>Estimated Overhead Costs</th>
<th>Expected Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>$14,487</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>600</td>
</tr>
<tr>
<td>Activity 2</td>
<td>$64,800</td>
<td>2,500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500</td>
</tr>
<tr>
<td>General Factory</td>
<td>$12,736</td>
<td>240</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$92,023</strong></td>
<td><strong>340</strong></td>
</tr>
</tbody>
</table>

(Note: The General Factory activity cost pool's costs are allocated on the basis of direct labour hours.)

a) How much overhead would be allocated to a unit of Product B under the traditional costing method?

**SOLUTION:**

\[
\text{total estimated DLH for production:} \\
= (800 \times 0.3 \text{ DLH for product A}) + (500 \times 0.2 \text{ DLH for product B}) \\
= 240 + 100 = 340 \text{ DLH}
\]

\[
\text{POHR} = \frac{\text{budgeted OH cost}}{\text{budgeted OH activity level}} = \frac{$92,023}{340 \text{ DLH}} = $270.66 \text{ per DLH}
\]

\[
\text{OH allocated to Product B under traditional costing} = 0.2 \text{ DLH} \times $270.66 = $54.13
\]

-- OR --

\[
\text{total OH allocated to product B} = $92,023 \times \frac{100}{340} = $27,065
\]

(award maximum points less 2 point penalty if solution not given on a per unit basis)
b) What are the overhead allocation rates for each activity under the new $ABC$ cost system?

SOLUTION:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Overhead Costs</th>
<th>Expected Activity</th>
<th>Activity Cost Driver Rate = OH$/Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Pool</td>
<td></td>
<td>Product A</td>
<td>Product B</td>
</tr>
<tr>
<td>Activity 1</td>
<td>$14,487</td>
<td>500</td>
<td>600</td>
</tr>
<tr>
<td>Activity 2</td>
<td>$64,800</td>
<td>2,500</td>
<td>500</td>
</tr>
<tr>
<td>General Factory</td>
<td>$12,736</td>
<td>240</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>$92,023</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

c) How much overhead would be allocated to a unit of Product B under the new $ABC$ cost system?

SOLUTION:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Estimated Overhead Costs</th>
<th>OH cost based on Expected Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Pool</td>
<td></td>
<td>Product A</td>
</tr>
<tr>
<td>Activity 1</td>
<td>$14,487</td>
<td>$6,585</td>
</tr>
<tr>
<td>Activity 2</td>
<td>$64,800</td>
<td>$54,000</td>
</tr>
<tr>
<td>General Factory</td>
<td>$12,736</td>
<td>$8,990</td>
</tr>
<tr>
<td>Total</td>
<td>$92,023</td>
<td>$69,575</td>
</tr>
<tr>
<td>est # units produced</td>
<td>800 units</td>
<td>(1) 500 units</td>
</tr>
<tr>
<td>OH allocated per unit</td>
<td>(1) 800 units</td>
<td>(1) 500 units</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

End of midterm exam.