

1. Joseph Martin, Inc., uses process costing to account for its product. (20%) Operations take place in the Mixing Department. Since loss is inherent in the production process, management allocates this to its finished goods transferred and ending inventory. Inspection is made when the units are one third complete in the department. Assume that at the inspection point, material and conversion costs are at the same stage of completion. A summary of the costs incurred is as follows:

Work in process beginning inventory, 400 units:	
Material (1/4 complete) .....	\$ 85
Conversion costs (2/5 complete) .....	315
	\$ 400
Current period cost:	
Material .....	11,360
Conversion costs .....	29,064

There were 15,000 units started in production in the Mixing Department, while 12,500 units were transferred to the Finishing Department; 2,000 units were incomplete at the end of the month having three fourths of their material and three fifths conversion costs.

Required:

Prepare a cost of production report using FIFO costing and allocate normal loss costs on physical units. (20%)

2. Candice Company has decided to introduce a new product. The new product (20%) can be manufactured by either a capital-intensive method or labor-intensive method. The manufacturing method will not affect the quality of the product. The estimated manufacturing costs by the two methods are as follows:

	<u>Capital Intensive</u>	<u>Labor Intensive</u>
Raw materials	\$5 00	\$5.60
Direct labor	0.5 direct labor hour @ \$12: \$6.00	0.8 direct labor hour @ \$9: \$7.20
Variable overhead	0.5 direct labor hour @ \$6: \$3.00	0.8 direct labor hour @ \$6: \$4.80
Directly traceable incremental fixed manufacturing costs	\$2,440,000	\$1,320,000

Candice's market research department has recommended an introductory unit sales price of \$30. The incremental selling expenses are estimated to be \$500,000 annually, plus \$2 for each unit sold (regardless of manufacturing method). The estimated break-even point, in annual unit sales of the new product, using each method is:

Capital-intensive Manufacturing Method:

$$\frac{\$2,440,000 + \$500,000}{\$14} = 210,000 \text{ units}$$

Labor-intensive Manufacturing Method:

$$\frac{\$1,320,000 + \$500,000}{\$10.40} = 175,000 \text{ units}$$

Required:

1. What is the annual unit sales volume at which the firm would be indifferent between the two manufacturing methods? (8%)
2. Suppose the capital-intensive manufacturing method involved the elimination of all direct labor. How would break-even analysis be affected? (6%)
3. Identify the business factors that Candice must consider before selecting the capital-intensive versus labor-intensive manufacturing method. (6%)

3. "Wow! just look at the size of that variance," said John Baker, president of Marvel, Inc. "We've got to do something to get costs back under control." The variance to which Mr. Baker was referring is shown in the company's most recent income statement below:

	12,500 units		
	Budgeted	Actual	Variance
Sales	\$1,000,000	\$1,000,000	\$ —
Less cost of goods sold (standard cost, \$60 per unit)	750,000	795,000	45,000*
Gross margin	250,000	205,000	(45,000)
Less operating expenses:			
Selling expenses	120,000	120,000	—
Administrative expenses	70,000	70,000	—
Total operating expenses	190,000	190,000	—
Net income	\$ 60,000	\$ 15,000	\$(45,000)

\* Consists of the following variances:

Direct materials	\$ 4,000 U
Direct labor	5,000 F
Manufacturing overhead	46,000 U
Total variance	<u>\$45,000 U</u>

The company produces and sells a single product. A standard cost card for the product follows:

Standard Cost Card—per Unit of Product	
Direct materials: 3 pounds at \$4 per pound	\$12
Direct labor: 2.5 hours at \$10 per hour	25
Variable manufacturing overhead: 2.5 hours at \$2 per hour	5
Fixed manufacturing overhead: 2.5 hours at \$7.20 per hour*	18
Total standard cost per unit	<u>\$60</u>

\* Based on a denominator activity of 37,500 hours.

The following additional information is available for the period:

- The company purchased 40,000 pounds of materials during the period, at a cost of \$3.85 per pound. All of the material was used to produce 12,500 units. There were no beginning or ending inventories.
- The company worked 30,000 actual direct labor-hours during the period, at an average cost of \$10.25 per hour.
- The company incurred \$62,000 in variable overhead cost during the period. Overhead is applied to products on a basis of direct labor-hours.
- The company incurred \$271,500 in fixed overhead costs during the period; budgeted fixed overhead costs were \$270,000. A denominator activity of 37,500 hours is used to set overhead rates.
- The company closes all variances to cost of goods sold each period, as shown in the income statement above.

Required:

- Compute the direct materials price and quantity variances for the period. (6%)
- Compute the direct labor rate and efficiency variances for the period. (6%)
- Compute the variable overhead spending and efficiency variances and the fixed overhead budget and volume variances for the period. (6%)
- Is the company's problem primarily one of poor control over costs? Explain. (6%)

4. Confirmation Quality Company's unit costs of manufacturing and selling a given item at an activity level of 10,000 units per month are

Manufacturing costs	
Direct materials	\$3.50
Direct labor	1.00
Variable overhead	.80
Fixed overhead	.90
Selling expenses	
Variable	3.00
Fixed	1.10

Required: Ignore income taxes in all requirements. These four parts have no connection with each other.

1. Compute the annual operating income at a selling price of \$12 per unit. (5%)
  2. Compute the expected annual operating income if the volume can be increased by 20% when the selling price is reduced to \$11. Assume the implied cost behavior patterns are correct. (5%)
  3. The company desires to seek an order for 5,000 units from a foreign customer. The variable selling expenses will be reduced by 40%, but the fixed costs for obtaining the order will be \$5,500. Domestic sales will not be affected. Compute the minimum break-even price per unit to be considered. (5%)
  4. The company has an inventory of 2,000 units of this item left over from last year's model. These must be sold through regular channels at reduced prices. The inventory will be valueless unless sold this way. What unit cost is relevant for establishing the minimum selling price of these 2,000 units? (5%)
5. Colgor Company manufactures three products--D, F, and L. The first part (16%) of the manufacturing process is joint and the current period joint costs total \$100,000. Other current information is as follows:

Product	Processing Cost After Split-Off	Number of Units Produced	Number of Units Sold	Unit Sales Price
D	\$ 60,000	5,000	4,000	\$20
F	40,000	2,000	1,500	30
L	140,000	7,000	6,300	40

Required:

1. Compute the dollars that should be assigned to finished goods inventory for financial statement presentation, allocating joint cost by the market value method. (8%)
2. Colgor now discovers that it would be possible to sell products D and F at the split-off point for \$10 and \$8, respectively. Should the company sell these products at the split-off point or process them further? (8%)