

7.1 Distinguish between a static budget and a flexible budget.

1) A variance is the difference between the actual result and a budgeted amount.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-1

2) Variances and flexible budgets help managers gain insights into why actual results differ from planned performance.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-1

3) A static budget is a budget that can be changed or altered after it is developed.

Answer: FALSE

Explanation: A flexible budget is a budget that can be changed or altered after it is developed.

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-1

4) A flexible budget is a budget that is developed using budgeted revenue or cost amounts and is not adjusted at the end of the budgeted period.

Answer: FALSE

Explanation: After each time period, the budgeted variable costs and budgeted revenue amounts will be adjusted according to the actual quantity produced and sold.

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-1

5) A variance is the difference between the actual cost for the current and previous year.

Answer: FALSE

Explanation: A variance is the difference between actual results and expected (or budgeted) performance.

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-1

6) The only difference between the static budget and flexible budget is that the static budget is prepared using planned output.

Answer: TRUE

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-1

7) Management by exception is the practice of focusing management attention on areas where performance meets expectations.

Answer: FALSE

Explanation: Management by exception is the practice of focusing management attention on areas where performance fails to meet expectations.

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-1

8) A variance is considered to be

A) the gap between an actual result and a benchmark amount.

B) the required number of inputs for one standard output.

C) the difference between an actual result and a budget amount.

D) the difference between a budgeted amount and a standard amount.

E) a standard.

Answer: C

Diff: 1 Type: MC

Skill: Remember

Objective: LO 7-1

9) The type of budget that is based on one level of output, without adjustment for any operational or financial changes is called

A) a balanced budget.

B) a cost budget.

C) a flexible budget.

D) a static budget.

E) a standard budget.

Answer: D

Diff: 1 Type: MC

Skill: Remember

Objective: LO 7-1

10) A budget that is adjusted in accordance with changes in actual output is called

A) a balanced budget.

B) a cost budget.

C) a flexible budget.

D) a trial balance budget.

E) a static budget.

Answer: C

Diff: 1 Type: MC

Skill: Remember

Objective: LO 7-1

11) Some financial variances show increases in operating income relative to a budgeted or allocated amount, and others show decreases in operating income. Respectively, these variances are

- A) budgeted, standard.
- B) favourable, unfavourable.
- C) standard, budgeted.
- D) unfavourable, favourable.
- E) fixed, variable.

Answer: B

Diff: 1 Type: MC

Skill: Understand

Objective: LO 7-1

12) Management by exception is the practice of concentrating on

- A) the master budget variances.
- B) on areas where performance fails to meet expectations.
- C) favourable variances.
- D) unfavourable variances.
- E) exceptional results.

Answer: B

Diff: 1 Type: MC

Skill: Remember

Objective: LO 7-1

13) General Insurance Company had a static budgeted operating income of \$4.6 million; however, actual income was \$3.0 million. What is the static budget variance of operating income?

- A) \$1,000,000 favourable
- B) \$1,000,000 unfavourable
- C) \$1,600,000 favourable
- D) \$3,000,000 favourable
- E) \$1,600,000 unfavourable

Answer: E

Explanation: E) $(\$3,000,000) - (\$4,600,000) = \$1,600,000$ unfavourable

Diff: 1 Type: MC

Skill: Apply

Objective: LO 7-1

Use the information below to answer the following question(s).

Ames Golf Company used the following data to evaluate their current operating system. The company sells 1 pack of golf balls for \$10 per pack. The \$10 selling price is also the budgeted selling price.

	<u>Budgeted</u>	<u>Actual</u>
Units Sold	1,000,000	990,000
Variable Costs	\$3,000,000	\$2,500,000
Fixed Costs	\$1,800,000	\$1,850,000

14) What is the actual operating income for Ames Golf Company using the actual results?

- A) <\$3,360,000>
- B) \$4,750,000
- C) \$5,200,000
- D) \$5,550,000
- E) \$5,970,000

Answer: D

Explanation: D)	<u>Actual Results</u>
Units Sold	990,000
Revenues	\$9,900,000
Variable Costs	<u>2,500,000</u>
Contribution Margin	\$7,400,000
Fixed Costs	<u>1,850,000</u>
Operating Income	<u>\$5,550,000</u>

Diff: 1 Type: MC

Skill: Apply

Objective: LO 7-1

15) What is the budgeted operating income for Ames Golf Company?

- A) \$7,000,000
- B) \$5,970,000
- C) \$5,550,000
- D) \$5,200,000
- E) \$4,750,000

Answer: D

Explanation: D)	<u>Static Budget</u>
Units Sold	1,000,000
Revenues	\$10,000,000
Variable Costs	<u>3,000,000</u>
Contribution Margin	\$7,000,000
Fixed Costs	<u>1,800,000</u>
Operating Income	<u>\$5,200,000</u>

Diff: 1 Type: MC

Skill: Apply

Objective: LO 7-1

16) What is the total static budget variance for Ames Golf Company?

- A) \$650,000 favourable
- B) \$450,000 unfavourable
- C) \$400,000 favourable
- D) \$390,000 unfavourable
- E) \$350,000 favourable

Answer: E

Explanation: E) Revenues	\$(100,000) U
Variable Costs	<u>500,000</u> F
Contribution Margin	\$400,000 F
Fixed Costs	<u>(50,000)</u> U
Operating Income	<u>\$350,000</u> F

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-1

17) A company uses a static budget approach and the previous management accountant calculated the following information: Fixed costs variance \$10,000 U; revenues variance \$400,000 F; contribution margin variance \$60,000 F. What is the total static-budget variance?

- A) \$50,000 F
- B) \$50,000 U
- C) \$230,000 F
- D) \$230,000 U
- E) \$390,000 F

Answer: A

Explanation: A) \$60,000 F - \$10,000 U = \$50,000 F

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-1

Answer the following question(s) using the information below.

Abernathy Corporation used the following data to evaluate their current operating system. The company sells items for \$10 each and used a budgeted selling price of \$10 per unit.

	<u>Actual</u>	<u>Budgeted</u>
Units sold	92,000 units	90,000 units
Variable costs	\$450,800	\$432,000
Fixed costs	\$95,000	\$100,000

18) What is the static-budget variance of revenues?

- A) \$20,000 favourable
- B) \$20,000 unfavourable
- C) \$2,000 favourable
- D) \$2,000 unfavourable
- E) \$25,000 unfavourable

Answer: A

Explanation: A) $(92,000 \text{ units} \times \$10) - (90,000 \text{ units} \times \$10) = \$20,000 \text{ F}$

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-1

19) What is the static-budget variance of variable costs?

- A) \$1,200 favourable
- B) \$18,800 favourable
- C) \$20,000 favourable
- D) \$1,200 unfavourable
- E) \$18,800 unfavourable

Answer: E

Explanation: E) $\$450,800 - \$432,000 = \$18,800 \text{ U}$

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-1

20) What is the static-budget variance of operating income?

- A) \$3,800 favourable
- B) \$1,200 unfavourable
- C) \$6,200 favourable
- D) \$6,200 unfavourable
- E) \$1,200 favourable

Answer: C

Explanation: C)	<u>Actual Results</u>	<u>Static Budget</u>	<u>Static-budget Variance</u>
Units sold	<u>92,000</u>	<u>90,000</u>	
Revenues	\$920,000	\$900,000	\$20,000 F
Variable costs	<u>450,800</u>	<u>432,000</u>	<u>18,800</u> U
Contribution margin	\$469,200	\$468,000	1,200 F
Fixed costs	<u>95,000</u>	<u>100,000</u>	<u>5,000</u> F
Operating income	<u>\$374,200</u>	<u>\$368,000</u>	<u>\$6,200</u> F

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-1

Use the information below to answer the following question(s).

Bates Corporation used the following data to evaluate their current operating system. The company sells items for \$10 each and used a budgeted selling price of \$10 per unit.

	<u>Actual</u>	<u>Budgeted</u>
Units sold	495,000 units	500,000 units
Variable costs	\$1,250,000	\$1,500,000
Fixed costs	\$925,000	\$900,000

21) What is the static-budget variance of revenues?

- A) \$50,000 favourable
- B) \$50,000 unfavourable
- C) \$5,000 favourable
- D) \$5,000 unfavourable
- E) \$25,000 unfavourable

Answer: B

Explanation: B) $(495,000 \text{ units} \times \$10) - (500,000 \text{ units} \times \$10) = \$50,000 \text{ U}$

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-1

22) What is the static-budget variance of variable costs?

- A) \$200,000 favourable
- B) \$50,000 unfavourable
- C) \$50,000 favourable
- D) \$250,000 unfavourable
- E) \$250,000 favourable

Answer: E

Explanation: E) $\$1,250,000 - \$1,500,000 = \$250,000$ F

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-1

23) What is the static-budget variance of operating income?

- A) \$175,000 favourable
- B) \$195,000 unfavourable
- C) \$225,000 favourable
- D) \$200,000 unfavourable
- E) \$200,000 favourable

Answer: A

Explanation: A)

	<u>Actual Results</u>	<u>Static Budget</u>	<u>Static-budget Variance</u>
Units sold	<u>495,000</u>	<u>500,000</u>	
Revenues	\$4,950,000	\$5,000,000	\$(50,000)U
Variable costs	<u>1,250,000</u>	<u>1,500,000</u>	<u>250,000</u> F
Contribution margin	\$3,700,000	\$3,500,000	200,000 F
Fixed costs	<u>925,000</u>	<u>900,000</u>	<u>(25,000)</u> U
Operating income	<u>\$2,775,000</u>	<u>\$2,600,000</u>	<u>\$175,000</u> F

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-1

Use the information below to answer the following question(s).

Everclean Filter Corporation used the following data to evaluate their current operating system. The company sells items for \$10 each and had used a budgeted selling price of \$11 per unit.

	<u>Actual</u>	<u>Budgeted</u>
Units sold	306,000 units	300,000 units
Variable costs	\$965,000	\$950,000
Fixed costs	\$ 53,000	\$ 50,000

24) What is the static-budget variance of revenues?

- A) \$60,000 favourable
- B) \$240,000 favourable
- C) \$240,000 unfavourable
- D) \$6,000 favourable
- E) \$6,000 unfavourable

Answer: C

Explanation: C) $(306,000 \text{ units} \times \$10) - (300,000 \text{ units} \times \$11) = \$240,000 \text{ U}$

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-1

25) What is the static-budget variance of variable costs?

- A) \$13,000 favourable
- B) \$13,000 unfavourable
- C) \$15,000 favourable
- D) \$15,000 unfavourable
- E) \$3,000 unfavourable

Answer: D

Explanation: D) $\$965,000 - \$950,000 = \$15,000 \text{ U}$

Diff: 1 Type: MC

Skill: Apply

Objective: LO 7-1

26) What is the static-budget variance of operating income?

- A) \$258,000 unfavourable
- B) \$258,000 favourable
- C) \$222,000 favourable
- D) \$222,000 unfavourable
- E) \$3,000 unfavourable

Answer: A

Explanation: A)

	<u>Actual Results</u>	<u>Static Budget</u>	<u>Static-budget Variance</u>	
Units sold	<u>306,000</u>	<u>300,000</u>		
Revenues	\$3,060,000	\$3,300,000	\$240,000	U
Variable costs	<u>965,000</u>	<u>950,000</u>	<u>15,000</u>	U
Contribution margin	\$2,095,000	\$2,080,000	255,000	U
Fixed costs	<u>53,000</u>	<u>50,000</u>	<u>3,000</u>	U
Operating income	<u>\$ 2,042,000</u>	<u>\$2,030,000</u>	<u>\$258,000</u>	F

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-1

27) Caan Corporation used the following data to evaluate their current operating system. The company sells items for \$20 each and used a budgeted selling price of \$20 per unit.

	<u>Actual</u>	<u>Budgeted</u>
Units sold	200,000 units	203,000 units
Variable costs	\$1,250,000	\$1,500,000
Fixed costs	\$ 925,000	\$ 900,000

Required:

Prepare a Level 1 static-budget variance analysis using a income statement in contribution margin format. Use the following three column headings: Actual Results, Static Budget, Static-budget Variance.

Answer:	<u>Actual Results</u>	<u>Static Budget</u>	<u>Static-budget Variance</u>	
Units sold	<u>200,000</u>	<u>203,000</u>		
Revenues	\$4,000,000	\$4,060,000	\$60,000	U
Variable costs	<u>1,250,000</u>	<u>1,500,000</u>	<u>250,000</u>	F
Contribution margin	\$2,750,000	\$2,560,000	190,000	F
Fixed costs	<u>925,000</u>	<u>900,000</u>	<u>25,000</u>	U
Operating income	<u>\$1,825,000</u>	<u>\$1,660,000</u>	<u>\$165,000</u>	F

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-1

7.2 Develop Level 2 flexible budgets, and calculate flexible-budget and sales-volume variances.

1) Variances can be expected to vary within some normal limits, so not all variances require further investigation.

Answer: TRUE

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-2

2) The static-budget variance can be subdivided into the flexible-budget variance and the sales-volume variance.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-2

3) A flexible budget enables managers to compute a richer set of variances than a static budget does.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-2

4) Determining the actual quantity of the revenue driver is one step in the development of a flexible budget.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-2

5) The sales-volume variance is the difference between the flexible-budget amount and the static-budget amount; unit selling prices, unit variable costs, and fixed costs are held constant.

Answer: TRUE

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-2

6) The flexible-budget variance is the difference between the actual results and the flexible-budget amount for the actual levels of the revenue and cost drivers.

Answer: TRUE

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-2

7) The flexible-budget variance pertaining to revenues is also called the variance of operating income.

Answer: FALSE

Explanation: Revenue and operating income are not the same.

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-2

8) The sales-volume variance of operating income is a measure of efficiency.

Answer: FALSE

Explanation: Sales-volume measures the differences caused by using different budgeted amounts.

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-2

9) The flexible-budget variance may be the result of inaccurate forecasting of units sold.

Answer: FALSE

Explanation: The *sales-volume* variance is the result of inaccurate forecasting of units sold.

Diff: 3 Type: TF

Skill: Understand

Objective: LO 7-2

10) Decreasing demand for a product may create a favourable sales-volume variance.

Answer: FALSE

Explanation: Decreasing demand for a product may create an *unfavourable* sales-volume variance.

Diff: 2 Type: TF

Skill: Understand

Objective: LO 7-2

11) An unfavourable variance is conclusive evidence of poor performance.

Answer: FALSE

Explanation: An unfavourable variance suggests further investigation, not conclusive evidence of poor performance.

Diff: 2 Type: TF

Skill: Understand

Objective: LO 7-2

12) The flexible budget contains

A) budgeted amounts for alternative levels of output.

B) actual amounts for budgeted output.

C) revenue based on budgeted quantity and actual unit price.

D) actual costs for planned output.

E) the difference between flexible and static budget fixed costs.

Answer: A

Diff: 1 Type: MC

Skill: Remember

Objective: LO 7-2

13) A packaging company produces a variety of cardboard boxes in an automated process. Expected production per month is 160,000 units. The required direct materials costs \$0.30 per unit. Variable manufacturing overhead costs are \$24,000 per month and are allocated based on units of production. Direct labour is budgeted to be \$6,400. The company only produces based on customer orders, so all production is considered sold as it is produced. Revenue for the month will be \$240,000. What is the budgeted contribution margin per unit?

- A) \$1.50 per unit
- B) \$1.31 per unit
- C) \$1.16 per unit
- D) \$1.05 per unit
- E) \$1.01 per unit

Answer: E

Explanation: E) $(\$240,000/160,000 \text{ units}) = \1.50 per unit

$(\$24,000/160,000 \text{ units}) = \0.15 per unit

$(\$6,400/160,000 \text{ units}) = \0.04 per unit

$\$1.50 - [0.15 + 0.04 + 0.30] = \1.01

Diff: 1 Type: MC

Skill: Apply

Objective: LO 7-2

14) A packaging company produces cardboard boxes in an automated process. The required direct materials costs \$0.30 per unit. Fixed manufacturing overhead costs are budgeted at \$24,000 per month and are allocated based on units of production. The budgeted contribution margin per unit is \$0.85, and administration fixed costs are budgeted at \$7,500 per month. What is the flexible-budget amount for operating income for 40,000 and 20,000 units, respectively?

- A) \$26,000; \$20,000
- B) \$36,000; \$30,000
- C) \$40,000; \$34,000
- D) \$44,000; \$38,000
- E) \$2,500; <\$14,500>

Answer: E

Explanation: E) $CM.85(40,000 \text{ units}) = \$34,000$

M. OVH 24,000

 \$10,000

Admin 7,500

\$2,500

CM 85(20,000 units) = \$17,000

M. OVH 24,000

 <\$7,000>

Admin 7,500

<\$14,500>

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-2

15) The flexible-budget variance measures

A) what the costs and revenues should have been for the budgeted number of outputs.

B) the difference between budgeted expenditures and actual expenditures for the budgeted number of outputs.

C) the difference between budgeted and actual variable costs.

D) [expected expenditures for the actual number of outputs] + [the actual expenditures for the actual number of outputs].

E) [actual cost for the actual level of the revenue or cost driver] - [budget unit amount × the actual level of the revenue or cost driver].

Answer: E

Diff: 2 Type: MC

Skill: Remember

Objective: LO 7-2

16) Use the following data to prepare a flexible budget for possible sales/production levels of 10,000; 11,000; and, 12,000 units. Show the contribution margin at each activity level.

Sales price \$24.00 per unit

Variable costs:

Manufacturing \$12.00 per unit

Administrative \$3.00 per unit

Selling \$1.00 per unit

Fixed costs:

Manufacturing \$60,000

Administrative \$20,000

Answer: Flexible Budget for Various Levels of Sales/Production Activity

Units	<u>10,000</u>	<u>11,000</u>	<u>12,000</u>
Sales	<u>\$240,000</u>	<u>\$264,000</u>	<u>\$288,000</u>
Variable costs:			
Manufacturing	120,000	132,000	144,000
Administrative	30,000	33,000	36,000
Selling	<u>10,000</u>	<u>11,000</u>	<u>12,000</u>
Total variable costs	<u>\$160,000</u>	<u>\$176,000</u>	<u>\$192,000</u>
Contribution margin	\$80,000	\$88,000	\$96,000
Fixed costs:			
Manufacturing	60,000	60,000	60,000
Administrative	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>
Operating income/(loss)	<u>\$-0-</u>	<u>\$8,000</u>	<u>\$16,000</u>

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-2

17) Nicholas Company manufactures TVs. Some of the company's data was misplaced. Use the following information to replace the lost data:

	Actual Results	Flexible Variances	Flexible Budget	Sales- Volume Variances	Static Budget
Analysis					
Units Sold	112,500		112,500		103,125
Revenues	\$42,080	\$1,000 F	(A)	\$1,400 U	(B)
Variable Costs	(C)	\$200 U	\$15,860	\$2,340 F	\$18,200
Fixed Costs	\$8,280	\$860 F	\$9,140		\$9,140
Operating Income	\$17,740	(D)	\$16,080	(E)	\$15,140

Required:

- What are the respective flexible-budget revenues (A)?
- What are the static-budget revenues (B)?
- What are the actual variable costs (C)?
- What is the total flexible-budget variance (D)?
- What is the total sales-volume variance (E)?
- What is the total static-budget variance?

Answer:

- $\$42,080 - \$1,000 = \$41,080$
- $\$41,080 + \$1,400 = \$42,480$
- $\$15,860 + \$200 = \$16,060$
- $\$17,740 - \$16,080 = \$1,660$ favourable
- $\$2,340$ favourable + $\$1,400$ unfavourable = $\$940$ favourable
- $\$17,740 - \$15,140 = \$2,600$ favourable

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-2

18) Whistler Table Company manufactures tables for schools. The current year operating budget is based on sales of 20,000 units at \$100 per table. Operating income is anticipated to be \$120,000. Budgeted variable costs are \$64 per unit while fixed costs total \$600,000.

Actual income for the year was \$2,184,000 on actual sales of 21,000 units. Actual variable costs were \$60 per unit and fixed costs totaled \$570,000.

Required:

Prepare a Level 2 variance analysis report with both flexible-budget and sales-volume variances.

Answer: Whistler Table Company

Variance Analysis

	Actual Results	Flexible Variances	Flexible Budget	Sales- Volume Variances	Static Budget
Units sold	<u>21,000</u>	<u> </u>	<u>21,000</u>	<u> </u>	<u>20,000</u>
Sales	\$2,184,000	\$84,000F	\$2,100,000	\$100,000F	\$2,000,000
Var. costs	<u>1,260,000</u>	<u>84,000F</u>	<u>1,344,000</u>	<u>64,000U</u>	<u>1,280,000</u>
Cont. margin	\$924,000	\$168,000F	\$756,000	\$36,000F	\$720,000
Fixed costs	<u>570,000</u>	<u>30,000F</u>	<u>600,000</u>	<u> </u>	<u>600,000</u>
Oper. Income	<u>\$354,000</u>	<u>\$198,000F</u>	<u>\$156,000</u>	<u>\$36,000F</u>	<u>\$120,000</u>

Total flexible budget variance = \$198,000 favourable.

Total sales-volume variance = \$36,000 favourable.

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-2

19) Bach Table Company manufactures tables for schools. The current year operating budget is based on sales of 40,000 units at \$50 per table. Operating income is anticipated to be \$300,000. Budgeted variable costs are \$30 per unit, while fixed costs total \$500,000.

Actual income for the year was a surprising \$2,268,000 on actual sales of 42,000 units. Actual variable costs were \$33 per unit and fixed costs totaled \$550,000.

Required:

Prepare a Level 2 variance analysis report with both flexible-budget and sales-volume variances.

Answer: Bach Table Company
Variance Analysis

	Actual Results	Flexible Variances	Flexible Budget	Sales- Volume Variances	Static Budget
Units sold	<u>42,000</u>		<u>42,000</u>		<u>40,000</u>
Sales	\$2,268,000	\$168,000 F	\$2,100,000	\$100,000 F	\$2,000,000
Variable costs	<u>1,386,000</u>	<u>126,000</u> U	<u>1,260,000</u>	<u>60,000</u> U	<u>1,200,000</u>
Contribution margin	\$882,000	\$42,000 F	\$840,000	\$40,000 F	\$800,000
Fixed costs	<u>550,000</u>	<u>50,000</u> U	<u>500,000</u>	<u>0</u>	<u>500,000</u>
Operating income	<u>\$332,000</u>	<u>\$ 8,000</u> U	<u>\$340,000</u>	<u>\$40,000</u> F	<u>\$300,000</u>

Total flexible-budget variance = \$8,000 unfavourable.

Total sales-volume variance = \$40,000 favourable.

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-2

20) Explain the difference between a static budget and a flexible budget. Explain what is meant by a static budget variance and a flexible budget variance.

Answer: A static budget is one based on the level of output planned at the start of the budget period. A flexible budget calculates budgeted revenue and budgeted costs based on the actual output in the budget period. The only difference between the static budget and the flexible budget is that the static budget is prepared for the planned output, whereas the flexible budget is prepared based on the actual output.

A static budget variance is the difference between the actual results and the corresponding budgeted amounts in the static budget. A flexible-budget variance is the difference between an actual result and the corresponding flexible-budget amount based on the actual output in the budget period.

Diff: 2 Type: ES

Skill: Understand

21) Describe the purpose of variance analysis.

Answer: Variance analysis should help the company learn about what happened and how to perform better and should not be a tool in playing the "blame game."

Diff: 1 Type: ES

Skill: Understand

Objective: LO 7-2

7.3 Develop Level 3 rate and efficiency variances for direct manufacturing costs.

1) An input-price variance is the difference between actual quantity of input used and the budgeted quantity of input that should have been used, multiplied by the budgeted price.

Answer: FALSE

Explanation: An input-price (rate variance) is the difference between the actual rate and the budgeted rate multiplied by the actual quantity of input in question.

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-3

2) Rate variances are considered to be the difference between the actual price and the budgeted price multiplied by the actual quantity of input goods or services.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-3

3) Rate variances are the difference between actual inputs used and budgeted inputs that should have been used, multiplied by the budgeted price.

Answer: FALSE

Explanation: An input-price (rate variance) is the difference between the actual rate and the budgeted rate multiplied by the actual quantity of input in question.

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-3

4) The terms, *usage variances* and *efficiency variances* mean the same thing.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-3

5) If a company has a favourable efficiency variance, it uses less inputs than were budgeted for the output units achieved.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-3

6) A flexible-budget variance can be decomposed into an efficiency variance and a rate variance.

Answer: TRUE

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-3

7) The term efficiency variance is the direct cost portion of the flexible-budget variance.

Answer: FALSE

Explanation: The flexible-budget variance for direct-cost inputs is subdivided into two detailed variances, the efficiency variance and the rate variance.

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-3

8) For any actual level of output, the efficiency variance is the difference between actual quantity of input used and the budgeted quantity of input allowed to produce actual output, multiplied by the budgeted price.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-3

Use the information below to answer the following question(s).

The following data for a pottery company pertain to the production of 2,000 clay pots during July.

Direct Materials (all materials purchased were used):

Standard cost: \$6.00 per kilogram of clay

Total actual cost: \$11,200

Standard cost allowed for units produced was \$12,000

Materials efficiency variance was \$240 unfavourable

Direct Manufacturing Labour:

Standard cost is 2 pots per hour at \$24.00 per hour

Actual cost per hour was \$24.50

Actual labour was 972 hours

9) What is the standard direct material amount per pot?

A) 1.00 kilogram

B) 1.88 kilograms

C) 2.12 kilograms

D) 3.00 kilograms

E) 4.00 kilograms

Answer: A

Explanation: A) Standard cost per pot = $\$12,000 / \$6 = 2,000$ kg. allowed

Standard number of kilograms per pot = $2,000 \text{ kg.} / 2,000 \text{ pots} = 1.0$ kilogram per pot

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

10) What is the direct manufacturing labour efficiency variance?

- A) \$672 unfavourable
- B) \$500 favourable
- C) \$672 favourable
- D) \$500 unfavourable
- E) \$28 favourable

Answer: C

Explanation: C) $[(2,000 \text{ hrs./2}) - 972] \times \$24 = \$672 \text{ F}$

Diff: 3 Type: MC

Skill: Apply

Objective: LO 7-3

11) What is the direct manufacturing labour rate variance?

- A) \$186 favourable
- B) \$486 unfavourable
- C) \$486 favourable
- D) \$672 unfavourable
- E) \$672 favourable

Answer: B

Explanation: B) Labour rate variance = $(\$24.00 - \$24.50) \times 972 \text{ hrs.} = \486 unfavourable

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

12) What is the direct materials rate variance for the clay pots?

- A) \$560 unfavourable
- B) \$560 favourable
- C) \$800 unfavourable
- D) \$800 favourable
- E) \$1,040 favourable

Answer: E

Explanation: E) Materials rate variance = Total variance - efficiency variance

= $(\$11,200 - 12,000) - \240 unfavourable

= \$1,040 favourable

Diff: 3 Type: MC

Skill: Apply

Objective: LO 7-3

Use the information below to answer the following question(s).

Tractor Corporation produces toy tractors. The company uses the following direct cost categories:

Category	Standard Inputs for 1 output	Std. Cost per input
Direct Materials	4.00	\$12.50
Direct Labour	1.40	9.50
Direct Marketing	0.54	5.50

Actual performance for the company is shown below:

Actual output: 5,000 units

Direct Materials:

Materials costs	\$299,000
Input purchased and used	23,000
Actual price per input	\$13.00

Direct Manufacturing Labour:

Labour costs	\$95,000
Labour-hours of input	9,500
Actual price per hour	\$10.00

Direct Marketing Labour:

Labour costs	\$40,000
Labour-hours of input	5,000
Actual price per hour	\$8.00

13) What is the combined total of the flexible budget variances?

- A) \$102,650 unfavourable
- B) \$99,000 unfavourable
- C) \$78,500 unfavourable
- D) \$75,150 favourable
- E) \$75,150 unfavourable

Answer: A

Explanation: A)	<u>Actual Results</u>	<u>Flex. Bud.</u>	<u>Variances</u>
Direct Materials	\$299,000	\$250,000	\$49,000 U
Direct Mfg. Labour	95,000	66,500	28,500 U
Direct Marketing Labour	<u>40,000</u>	<u>14,850</u>	<u>25,150 U</u>
			<u>\$102,650 U</u>

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-2, 3

14) What is the rate variance of the direct materials?

- A) \$10,000 favourable
- B) \$11,500 unfavourable
- C) \$11,500 favourable
- D) \$10,000 unfavourable
- E) \$11,000 favourable

Answer: B

Explanation: B) $(\$13.00 - \$12.50) \times (23,000) = \$11,500$ unfavourable

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

15) What is the efficiency variance for direct materials?

- A) \$47,350 favourable
- B) \$36,000 unfavourable
- C) \$36,000 favourable
- D) \$37,500 unfavourable
- E) \$23,750 unfavourable

Answer: D

Explanation: D) $[23,000 - (5,000 \text{ units} \times 4.00)] \times \$12.50 = \$37,500$ unfavourable

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

16) What is the rate variance of the direct manufacturing labour, and the direct marketing labour, respectively?

- A) \$4,750 favourable; \$12,500 favourable
- B) \$8,000 favourable; \$10,000 favourable
- C) \$3,500 unfavourable; \$6,750 unfavourable
- D) 3,500 favourable; \$6,750 favourable
- E) \$4,750 unfavourable; \$12,500 unfavourable

Answer: E

Explanation: E) Mfg. Labour $(\$10.00 - \$9.50) \times 9,500 = \$4,750$ unfavourable

Mkt. Labour $(\$8.00 - \$5.50) \times 5,000 = \$12,500$ unfavourable

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

17) What are the efficiency variances for direct manufacturing labour and direct marketing labour, respectively?

- A) \$25,000 favourable; \$18,400 favourable
- B) \$23,750 favourable; \$12,650 unfavourable
- C) \$25,000 unfavourable; \$18,400 unfavourable
- D) \$23,750 unfavourable; \$12,650 unfavourable
- E) \$23,750 favourable; \$12,650 favourable

Answer: D

Explanation: D) Mfg. Labour = $[9,500 \text{ hours} - (5,000 \times 1.40 \text{ hours})] \times \$9.50 = \$23,750$ unfavourable

Mkt. Labour = $[5,000 \text{ hours} - (5,000 \times 0.54 \text{ hours})] \times \$5.50 = \$12,650$ unfavourable

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

Use the information below to answer the following question(s).

A company makes table lamps, for which the following standards have been developed:

	Standard Inputs Expected for Each <u>Unit of Output</u>	Standard Price Expected per <u>Unit of Output</u>
Direct materials	20 kilograms	\$2 per kilogram
Direct labour	6 hours	\$8 per hour

During January, production of 100 lamps was expected, but 110 lamps were actually completed. Direct materials purchased and used were 2,100 kilograms at an actual price of \$2.20 per kilogram. Direct labour cost for the month was \$5,310, and the actual pay per hour was \$9.00.

18) The direct-material rate variance for January is

- A) \$420 unfavourable.
- B) \$420 favourable.
- C) \$400 favourable.
- D) \$400 unfavourable.
- E) \$20 favourable.

Answer: A

Explanation: A) $(\$2.20 - \$2.00) \times 2,100 = \$420$ unfavourable

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

19) The direct-labour efficiency variance for the month of January is

- A) \$630 unfavourable.
- B) \$560 unfavourable.
- C) \$630 favourable.
- D) \$560 favourable.
- E) \$70 favourable.

Answer: D

Explanation: D) $[\$5,310/9 - 110(6)] \times \$8 = \$560$ favourable

Diff: 3 Type: MC

Skill: Apply

Objective: LO 7-3

20) For any actual level of output, the difference between the input that was actually used and the input should have been used is

- A) an effectiveness variance.
- B) a purchase cost variance.
- C) the variance rate.
- D) a rate variance.
- E) an efficiency variance.

Answer: E

Diff: 1 Type: MC

Skill: Remember

Objective: LO 7-2

Use the information below to answer the following question(s).

All Good Things Ltd. planned on producing 600 units for the year. However, actual production was 400 units.

Information concerning the direct labour cost for All Good Things Ltd. is as follows: actual results 1,000 hours at \$25 per hour; static budget amounts were 1,200 hours at \$21 per hour.

21) What is the All Good Things Ltd. static-budget variance?

- A) \$400 F
- B) \$400 U
- C) \$600 F
- D) \$200 F
- E) \$200 U

Answer: D

Explanation: D) $\$25,000 - \$25,200 = \$200$ F

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-2, 3

22) What is the All Good Things Ltd. flexible-budget variance?

- A) \$8,400 F
- B) \$8,400 U
- C) \$8,200 U
- D) \$8,200 F
- E) \$200 U

Answer: C

Explanation: C) Actual results = $\$25 \times 1,000 = \$25,000$

Static budget = $\$21 \times 800 = \underline{16,800}$

Variance = \$8,200 U

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-2, 3

23) What is the All Good Things Ltd. sales-volume variance?

- A) \$8,400 F
- B) \$8,400 U
- C) \$8,200 U
- D) \$8,200 F
- E) \$200 F

Answer: A

Explanation: A) Static budget = $\$21 \times 1,200 \text{ hrs.} = \$25,200$

Flexible budget - $\$21 \times 800 \text{ hrs.} = \underline{16,800}$

Variance = \$8,400 F

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

24) What is the All Good Things Ltd. direct labour rate variance?

- A) \$4,200 U
- B) \$4,200 F
- C) \$200 F
- D) \$4,000 F
- E) \$4,000 U

Answer: E

Explanation: E) $(\$25 - \$21) \times 1,000 = \$4,000 \text{ U}$

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

25) What is the All Good Things Ltd. direct labour input-efficiency variance?

- A) \$4,200 U
- B) \$4,200 F
- C) \$5,000 U
- D) \$5,000 F
- E) \$200 U

Answer: A

Explanation: A) $(1,000 - 800) \times \$21 = \$4,200$ U

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

Use the information below to answer the following question(s).

Robb Industries Inc. (RII), developed standard costs for direct material and direct labour. In 2016, RII estimated the following standard costs for one of their major products, the 10-litre plastic container.

	<u>Budgeted quantity</u>	<u>Budgeted price</u>
Direct materials	0.10 kilograms	\$30 per kilogram
Direct labour	0.05 hours	\$15 per hour

During June 2017, RII produced and sold 5,000 containers using 490 kilograms of direct materials at an average actual cost per kilogram of \$32 and 250 direct manufacturing labour-hours at an average actual wage of \$15.25 per hour.

26) June's direct material flexible-budget variance is

- A) \$980 unfavourable.
- B) \$300 favourable.
- C) \$680 favourable.
- D) \$980 favourable.
- E) \$680 unfavourable.

Answer: E

Explanation: E) $(490 \times \$32) - (5,000 \times 0.10 \times \$30) = \$680$ U

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-2, 3

27) June's direct material rate variance is

- A) \$980 unfavourable.
- B) \$1,000 favourable.
- C) \$680 favourable.
- D) \$980 favourable.
- E) \$1,000 unfavourable.

Answer: A

Explanation: A) $490 \times (\$32 - \$30) = \$980$ U

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

28) June's direct material efficiency variance is

- A) \$320 unfavourable.
- B) \$300 favourable.
- C) \$680 favourable.
- D) \$300 unfavourable.
- E) \$320 favourable.

Answer: B

Explanation: B) $\$30 \times (490 - 500) = \300 F

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

29) June's direct manufacturing labour rate variance is

- A) neither favourable or unfavourable.
- B) \$62.50 favourable.
- C) \$128.00 unfavourable.
- D) \$62.50 unfavourable.
- E) \$128.00 favourable.

Answer: D

Explanation: D) $250 \text{ dlh} \times (\$15.25 - \$15.00) = \62.50 U

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

30) June's direct manufacturing labour efficiency variance is

- A) \$62.50 unfavourable.
- B) \$62.50 favourable.
- C) \$128.00 unfavourable.
- D) \$128.00 favourable.
- E) neither favourable nor unfavourable.

Answer: E

Explanation: E) $[250 \text{ dlh} - (5,000 \times 0.05)] \times \$15 = \text{Zero}$

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

Use the information below to answer the following question(s).

Sawyer Industries Inc. (SII), developed standard costs for direct material and direct labour. In 2016, SII estimated the following standard costs for one of their major products, the 30-litre heavy-duty plastic container.

	<u>Budgeted quantity</u>	<u>Budgeted price</u>
Direct materials	0.20 kilograms	\$25 per kilogram
Direct labour	0.10 hours	\$15 per hour

During July 2017, SII produced and sold 10,000 containers using 2,200 kilograms of direct materials at an average actual cost per kilogram of \$24 and 1,050 direct manufacturing labour hours at an average actual wage of \$14.75 per hour.

31) July's direct material flexible-budget variance is

- A) \$2,800 unfavourable.
- B) \$2,200 favourable.
- C) \$5,000 unfavourable.
- D) \$2,200 unfavourable.
- E) \$2,800 favourable.

Answer: A

Explanation: A) $(2,200 \times \$24) - (10,000 \times 0.20 \times \$25) = \$2,800$ U

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-2, 3

32) July's direct material rate variance is

- A) \$2,800 favourable.
- B) \$2,200 favourable.
- C) \$5,000 unfavourable.
- D) \$2,200 unfavourable.
- E) \$2,000 favourable.

Answer: B

Explanation: B) $2,200 \times (\$24 - \$25) = \$2,200$ F

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

33) July's direct material efficiency variance is

- A) \$4,800 favourable.
- B) \$2,200 favourable.
- C) \$5,000 unfavourable.
- D) \$5,000 favourable.
- E) \$4,800 unfavourable.

Answer: C

Explanation: C) $\$25 \times [2,200 - (10,000 \times 0.20)] = \$5,000$ U

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

34) July's direct manufacturing labour flexible-budget variance is

- A) \$750.00 unfavourable.
- B) \$262.50 favourable.
- C) \$262.50 unfavourable.
- D) \$487.50 favourable.
- E) \$487.50 unfavourable.

Answer: E

Explanation: E) $(1,050 \times \$14.75) - (10,000 \times 0.10 \times \$15) = \$487.50$ U

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-2, 3

35) July's direct manufacturing labour rate variance is

- A) \$250.00 favourable.
- B) \$262.50 favourable.
- C) \$487.50 favourable.
- D) \$262.50 unfavourable.
- E) \$250.00 unfavourable.

Answer: B

Explanation: B) $1,050 \text{ dlh} \times (\$14.75 - \$15.00) = \262.50 F

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

36) July's direct manufacturing labour efficiency variance is

- A) \$750.00 unfavourable.
- B) \$262.50 favourable.
- C) \$487.50 favourable.
- D) \$750.00 favourable.
- E) neither favourable or unfavourable.

Answer: A

Explanation: A) $[1,050 \text{ dlh} - (10,000 \times 0.10)] \times \$15 = \$750$ U

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

Answer the following question(s) using the information below.

Apple Valley Orchards, Inc. (AVO), developed standard costs for direct material and direct labour. In 2016, AVO estimated the following standard costs for one of their most well loved products, the AVO classic Grandma's large apple pie which had a brown sugar coating on the top of the crust as well as including cranberry and mince ingredients in addition to the apples.

	<u>Budgeted quantity</u>	<u>Budgeted price</u>
Direct materials	1.5 kilograms	\$7.25 per kilogram
Direct labour	0.25 hours	\$14.00 per hour

During September 2017, AVO produced and sold 1,200 pies using 1,875 kilograms of direct materials at an average cost per kilogram of \$7.00 and 280 direct labour hours at an average wage of \$14.25 per hour.

37) September's direct material flexible-budget variance is

- A) \$100.00 unfavourable.
- B) \$100.00 favourable.
- C) \$75.00 unfavourable.
- D) \$75.00 favourable.
- E) \$125.00 unfavourable.

Answer: C

Explanation: C) $(1,875 \times \$7.00) - (1,200 \times 1.5 \times \$7.25) = \$75.00 \text{ U}$

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-2, 3

38) September's direct material rate variance is

- A) \$468.75 favourable.
- B) \$300.00 favourable.
- C) \$468.75 unfavourable.
- D) \$450.00 favourable.
- E) \$300.00 unfavourable.

Answer: A

Explanation: A) $1,875 \times (\$7.00 - \$7.25) = \$468.75 \text{ F}$

C)

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

39) September's direct material efficiency variance is

- A) \$468.75 unfavourable.
- B) \$525.00 favourable.
- C) \$525.00 unfavourable.
- D) \$543.75 favourable.
- E) \$543.75 unfavourable.

Answer: E

Explanation: A)

C)

E) $7.25 \times [1,875 - (1,200 \times 1.5)] = \543.75 U

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

40) September's direct labour flexible-budget variance is

- A) \$525.00 unfavourable.
- B) \$210.00 favourable.
- C) \$210.00 unfavourable.
- D) \$280.00 favourable.
- E) \$280.00 unfavourable.

Answer: B

Explanation: A)

B) $(280 \times \$14.25) - (1,200 \times 0.25 \times \$14) = \$210.00$ F

C)

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-2, 3

41) September's direct labour rate variance is

- A) \$75.00 unfavourable.
- B) \$75.00 favourable.
- C) \$70.00 unfavourable.
- D) \$70.00 favourable.
- E) \$90.00 unfavourable.

Answer: C

Explanation: A)

C) $280 \text{ dlh} \times (\$14.25 - \$14.00) = \70 U

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

42) September's direct labour efficiency variance is

A) \$285.00 unfavourable.

B) \$285.00 favourable.

C) \$290.00 unfavourable.

D) \$280.00 unfavourable.

E) \$280.00 favourable.

Answer: E

Explanation: A)

E) $[280 \text{ dlh} - (1,200 \times 0.25)] \times \$14 = \$280 \text{ F}$

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-3

43) Littrell Company produces chairs and has determined the following direct cost categories and budgeted amounts:

<u>Category</u>	<u>Standard Inputs for 1 output</u>	<u>Standard Cost per input</u>
Direct Materials	1.00	\$7.50
Direct Labour	0.30	9.00
Direct Marketing	0.50	3.00

Actual performance for the company is shown below:

Actual output: (in units)	<u>4,000</u>
Direct Materials:	
Materials costs	\$30,225
Input purchased and used	3,900
Actual price per input	\$7.75
Direct Manufacturing Labour:	
Labour costs	\$11,470
Labour-hours of input	1,240
Actual price per hour	\$9.25
Direct Marketing Labour:	
Labour costs	\$5,880
Labour-hours of input	2,100
Actual price per hour	\$2.80

Required:

- What is the combined total of the flexible-budget variances?
- What is the rate variance of the direct materials?
- What is the rate variance of the direct manufacturing labour and the direct marketing labour, respectively?
- What is the efficiency variance for direct materials?
- What are the efficiency variances for direct manufacturing labour and direct marketing labour, respectively?

Answer:

a.

	<u>Actual Result</u>	<u>Flexible Budget</u>	<u>Variances</u>
Direct materials	\$30,225	\$30,000	\$225 U
Direct manufacturing labour	11,470	10,800	670 U
Direct marketing labour	<u>5,880</u>	<u>6,000</u>	<u>120</u> F
	<u>\$47,575</u>	<u>\$46,800</u>	<u>\$775</u> U

b. $(\$7.75 - \$7.50) \times (3,900) = \$975$ unfavourable

c. Manufacturing Labour $(\$9.25 - \$9.00) \times 1,240 = \$310$ unfavourable
Marketing Labour $(\$2.80 - \$3.00) \times 2,100 = \$420$ favourable

d. $[3,900 - (4,000 \text{ units} \times 1.00)] \times \$7.50 = \$750$ favourable

e. Manufacturing Labour = $[1,240 \text{ hours} - (4,000 \times 0.30 \text{ hours})] \times \$9.00 = \$360$ U
Marketing Labour = $[2,100 \text{ hours} - (4,000 \times 0.50 \text{ hours})] \times \$3.00 = \$300.00$ U

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-2, 3

44) Mittrell Company produces chairs and has determined the following direct cost categories and budgeted amounts:

<u>Category</u>	<u>Standard Inputs for 1 output</u>	<u>Standard Cost per input</u>
Direct Materials	1.00	\$9.50
Direct Labour	0.60	12.00
Direct Marketing	0.20	2.50

Actual performance for the company is shown below:

Actual output: (in units)	<u>5,000</u>
Direct Materials:	
Materials costs	\$41,625
Input purchased and used	4,500
Actual price per input	\$9.25
Direct Manufacturing Labour:	
Labour costs	\$35,125
Labour-hours of input	2,810
Actual price per hour	\$12.50
Direct Marketing Labour:	
Labour costs	\$3,080
Labour-hours of input	1,100
Actual price per hour	\$2.80

Required:

- What is the combined total of the flexible-budget variances?
- What is the rate variance of the direct materials?
- What is the rate variance of the direct manufacturing labour and the direct marketing labour, respectively?
- What is the efficiency variance for direct materials?
- What are the efficiency variances for direct manufacturing labour and direct marketing labour, respectively?

Answer:

a.

	<u>Actual Result</u>	<u>Flexible Budget</u>	<u>Variances</u>
Direct materials	\$41,625	\$47,500	\$5,875F
Direct manufacturing labour	35,125	36,000	875F
Direct marketing labour	<u>3,080</u>	<u>2,500</u>	<u>580U</u>
	<u>\$47,575</u>	<u>\$46,800</u>	<u>\$6,170F</u>

b. $(\$9.25 - \$9.50) \times (4,500) = \$1,125 \text{ F}$

c. Manufacturing Labour $(\$12.50 - \$12.00) \times 2,810 = \$1,405 \text{ U}$
Marketing Labour $(\$2.80 - \$2.50) \times 1,100 = \$330 \text{ U}$

d. $[4,500 - (5,000 \text{ units} \times 1.00)] \times \$9.50 = \$4,750 \text{ F}$

e. Manufacturing Labour $= [2,810 \text{ hours} - (5,000 \times 0.6 \text{ hours})] \times \$12.00 = \$2,280 \text{ F}$
Marketing Labour $= [1,100 \text{ hours} - (5,000 \times 0.20 \text{ hours})] \times \$2.50 = \$250 \text{ U}$

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-2, 3

45) Wilson's Winter Woolens manufactures jackets and other wool clothing. A certain designed ski parka requires the following:

Direct materials standard 2 square metres at \$13.50 per metre
Direct manufacturing labour standard 1.5 hours at \$20.00 per hour

During the third quarter, the company made 1,500 parkas and used 3,150 square metres of fabric costing \$39,375. Direct labour totaled 2,100 hours for \$45,150.

Required:

- a. Compute the direct materials price and efficiency variances for the quarter.
- b. Compute the direct manufacturing labour rate and efficiency variances for the quarter.

Answer:

- a. Direct materials variances:

$$\begin{aligned}\text{Actual unit cost} &= \$39,375 / 3,150 \text{ square metres} \\ &= \$12.50 \text{ per square metre}\end{aligned}$$

$$\begin{aligned}\text{Rate variance} &= 3,150 \times (\$13.50 - \$12.50) \\ &= \$3,150 \text{ favourable}\end{aligned}$$

$$\begin{aligned}\text{Efficiency variance} &= \$13.50 \times [3,150 - (1,500 \times 2)] \\ &= \$2,025 \text{ unfavourable}\end{aligned}$$

- b. Direct manufacturing labour variances:

$$\begin{aligned}\text{Actual labour rate} &= \$45,150 / 2,100 \\ &= \$21.50 \text{ per hour}\end{aligned}$$

$$\begin{aligned}\text{Rate variance} &= 2,100 \times (\$21.50 - \$20.00) \\ &= \$3,150 \text{ unfavourable}\end{aligned}$$

$$\begin{aligned}\text{Efficiency variance} &= \$20.00 \times (2,100 - (1,500 \times 1.5)) \\ &= \$3,000 \text{ favourable}\end{aligned}$$

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-3

46) Wilson's Summer Cottons manufactures shirts and other cotton clothing. A certain designed t-shirt requires the following:

Direct materials standard 0.9 square metres at \$1.50 per metre
Direct manufacturing labour standard 0.25 hours at \$14.00 per hour

During the third quarter, the company made 7,500 t-shirts and used 8,250 square metres of fabric costing \$11,550. Direct labour totaled 1,650 hours for \$23,265.

Required:

- a. Compute the direct materials price and efficiency variances for the quarter.
- b. Compute the direct manufacturing labour rate and efficiency variances for the quarter.

Answer:

- a. Direct materials variances:

$$\begin{aligned}\text{Actual unit cost} &= \$11,550 / 8,250 \text{ square metres} \\ &= \$1.40 \text{ per square metre}\end{aligned}$$

$$\begin{aligned}\text{Rate variance} &= 8,250 \times (\$1.50 - \$1.40) \\ &= \$825 \text{ favourable}\end{aligned}$$

$$\begin{aligned}\text{Efficiency variance} &= \$1.50 \times [(0.9 \times 7,500) - 8,250] \\ &= \$2,250 \text{ unfavourable}\end{aligned}$$

- b. Direct manufacturing labour variances:

$$\begin{aligned}\text{Actual labour rate} &= \$23,265 / 1,650 \\ &= \$14.10 \text{ per hour}\end{aligned}$$

$$\begin{aligned}\text{Rate variance} &= 1,650 \times (\$14.00 - 14.10) \\ &= \$165 \text{ unfavourable}\end{aligned}$$

$$\begin{aligned}\text{Efficiency variance} &= \$14.00 \times (7,500 \times 0.25) - 1,650] \\ &= \$3,150 \text{ favourable}\end{aligned}$$

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-3

47) Al's Boxes manufactures corrugated boxes. The standard materials allowed for each box is 0.5 kilograms of paper, which has a standard cost of \$5 per kilogram. During April 10,000 kilograms were used to manufacture 19,500 boxes. The actual materials cost was \$5.25 per kilogram.

Required:

- a. Determine the materials rate variance.
- b. Determine the materials efficiency variance.

Answer:

- a. Rate variance = $(\$5 - \$5.25) \times 10,000 = \$2,500$ unfavourable
- b. Efficiency variance = $(10,000 - (19,500 \times 0.5)) \times \$5 = \$1,250$ unfavourable

Diff: 1 Type: ES

Skill: Apply

Objective: LO 7-3

48) Jan's Boxes manufactures corrugated boxes. The standard materials allowed for each box is 0.3 kilograms of paper, which has a standard cost of \$4.50 per kilogram. During April 6,300 kilograms were used to manufacture 18,000 boxes. The actual materials cost was \$4.55 per kilogram.

Required:

- a. Determine the materials rate variance.
- b. Determine the materials efficiency variance.

Answer:

- a. Rate variance = $(\$4.50 - \$4.55) \times 6,300 = \$315$ unfavourable
- b. Efficiency variance = $[(18,000 \times 0.3) - 6,300] \times \$4.50 = \$4,050$ unfavourable

Diff: 1 Type: ES

Skill: Apply

Objective: LO 7-3

49) Glenn's Draperies manufactures curtains. A certain window requires the following:

Direct materials standard is 10 square metres at \$5 per metre

Direct manufacturing labour standard is 5 hours at \$10

During the second quarter the company made 1,500 curtains and used 14,000 square metres of fabric costing \$68,600. Direct labour totaled 7,600 hours for \$79,800.

Required:

- a. Compute the direct materials price and efficiency variances for the quarter.
- b. Compute the direct manufacturing labour rate and efficiency variances for the quarter.

Answer:

a.

Direct materials variances:

Actual unit cost

= \$68,600/14,000 square metre

= \$4.90 per square metre

Rate variance

= 14,000 × (\$5.00 - \$4.90)

= \$1,400 favourable

Efficiency variance

= \$5.00 × (14,000 - (1,500 × 10))

= \$5,000 favourable

b.

Direct manufacturing labour variances:

Actual labour rate

= \$79,800/7,600

= \$10.50 per hour

Rate variance = 7,600 × (\$10.50 - \$10.00)

= \$3,800 unfavourable

Efficiency variance = \$10.00 × (7,600 - 7,500)

= \$1,000 unfavourable

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-3

50) Video Producers manufactures two types of videos: regular and CD. The regular tapes require 5 units of direct material X at a standard price of \$2 per unit. The CDs require 2 units of direct material Y at a standard price of \$3.

During January the company purchased 9,000 units of X for \$2.10 each and 3,600 units of Y at \$3.20 each. January production used 8,800 units of X and 3,400 units of Y. Outputs of finished tapes was 1,750 of each type.

Required:

Compute the price and efficiency variances for each material.

For the rate variances use two different responsibility assumptions. First assume that rate variances are isolated at the time of purchase; second assume that the rate variances are isolated as materials are placed into production.

The efficiency variances for each material are determined during production.

Answer: Rate variances based on units purchased.

Material X rate variance = $(9,000 \times \$2.10) - (9,000 \times \$2)$
= \$18,900 - \$18,000
= \$900 unfavourable

Material Y rate variance = $(3,600 \times \$3) - (3,600 \times \$3.20)$
= \$10,800 - \$11,520
= \$720 unfavourable

Rate variances based on units used in production.

Material X rate variance = $(8,800 \times \$2.10) - (8,800 \times \$2)$
= \$18,480 - \$17,600
= \$880 unfavourable

Material Y rate variance = $(3,400 \times \$3) - (3,400 \times \$3.20)$
= \$10,200 - \$10,880
= \$680 unfavourable

Efficiency variances (same for both rate variance methods).

Material X efficiency variance = $(1,750 \times 5 \times \$2) - (8,800 \times \$2)$
= \$17,500 - \$17,600
= \$100 unfavourable

Material Y efficiency variance = $(1,750 \times 2 \times \$3) - (3,400 \times \$3)$
= \$10,500 - \$10,200
= \$300 favourable

Diff: 3 Type: ES

Skill: Apply

Objective: LO 7-3

51) Vienna Chocolate Company produces fudge in large batches. One batch of fudge has the following standard costs and amounts:

Standard kilograms of sugar	100
Standard cost per kilogram of sugar	\$1.90
Standard direct labour hours	2.0
Standard direct labour cost per hour	\$18.00

Vienna Chocolate Company produced 400 batches of fudge in the most recent month. Actual input costs and per batch usage levels were as follows:

Actual kilograms of sugar used	102
Actual cost per kilogram of sugar	\$2.10
Actual direct labour hours	1.8
Actual direct labour cost per hour	\$17.50

Required:

- Calculate the total material input rate variance.
- Calculate the total material efficiency variance.
- Calculate the total labour rate variance.
- Calculate the total labour efficiency variance.

Answer:

- Material input rate variance

$$((\$1.90 - \$2.10) \times 102 \text{ kg.}) \times 400 \text{ batches} = \$8,160 \text{ unfavourable}$$

- Material efficiency variance

$$((100 \text{ kg.} - 102 \text{ kg.}) \times \$1.90) \times 400 \text{ batches} = \$1,520 \text{ unfavourable}$$

- Labour rate variance

$$((\$18.00 - \$17.50) \times 1.8 \text{ hours}) \times 400 \text{ batches} = \$360 \text{ favourable}$$

- Labour efficiency variance

$$((2 \text{ hours} - 1.8 \text{ hours}) \times \$18.00) \times 400 \text{ batches} = \$1,440 \text{ favourable}$$

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-3

52) Brussels Chocolate Company produces chocolates in large batches. One batch of chocolate has the following standard costs and amounts:

Standard kilograms of sugar	125
Standard cost per kilogram of sugar	\$1.60
Standard direct labour hours	0.75
Standard direct labour cost per hour	\$21.00

Brussels Chocolate Company produced 600 batches of chocolates in the most recent month. Actual input costs and per batch usage levels were as follows:

Actual kilograms of sugar used	126
Actual cost per kilogram of sugar	\$1.65
Actual direct labour hours	0.80
Actual direct labour cost per hour	\$20.75

Required:

- Calculate the total material input rate variance.
- Calculate the total material efficiency variance.
- Calculate the total labour rate variance.

Answer:

- Material input rate variance

$$((\$1.60 - \$1.65) \times 126 \text{ kg.}) \times 600 \text{ batches} = \$3,780 \text{ unfavourable}$$

- Material efficiency variance

$$((125 \text{ kg.} - 126 \text{ kg.}) \times \$1.60) \times 600 \text{ batches} = \$960 \text{ unfavourable}$$

- Labour rate variance

$$((\$21.00 - \$20.75) \times 0.8 \text{ hours}) \times 600 \text{ batches} = \$120 \text{ favourable}$$

- Labour efficiency variance

$$((0.75 \text{ hours} - 0.8 \text{ hours}) \times \$21.00) \times 600 \text{ batches} = \$630 \text{ unfavourable}$$

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-3

53) Cayman Designs makes chair cushions. The standard direct materials quantity is 1 kilogram per cushion at a cost of \$2.50 per kilogram. The actual results for the production of 20,000 cushions was 1.25 kilograms per cushion, at a cost of \$2.40 per kilogram. Calculate the direct materials input rate variance and the direct materials efficiency variance.

Answer:

a. Material input rate variance

$$(\$2.50 - \$2.40) \times (20,000 \times 1.25 \text{ kg}) = \$2,500 \text{ favourable}$$

b. Material efficiency variance

$$((20,000 \text{ kg.} - (20,000 \times 1.25 \text{ kg})) \times \$2.50) = \$12,500 \text{ unfavourable}$$

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-3

54) mal dive Designs makes chair cushions. The standard direct materials quantity is 0.8 kilogram per cushion at a cost of \$2.70 per kilogram. The actual results for the production of 15,000 cushions was 0.75 kilograms per cushion, at a cost of \$2.65 per kilogram. Calculate the direct materials input rate variance and the direct materials efficiency variance.

Answer:

a. Material input rate variance

$$((\$2.70 - \$2.65) \times (15,000 \times 0.75 \text{ kg})) = \$562.50 \text{ favourable}$$

b. Material efficiency variance

$$((0.80 - 0.75) \times 15,000) \times \$2.70 = \$2,025 \text{ favourable}$$

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-3

55) The following data for the Alma Company pertain to the production of 1,000 urns during August.

Direct Materials (all materials purchased were used):

Standard cost: \$6.00 per kilogram.

Total actual cost: \$5,600.

Standard cost allowed for units produced was \$6,000.

Materials efficiency variance was \$120 unfavourable.

Direct Manufacturing Labour:

Standard cost is 2 urns per hour at \$24.00 per hour.

Actual cost per hour was \$24.50.

Labour efficiency variance was \$336 favourable.

Required:

- What is standard direct material cost and quantity per urn?
- What is the direct material rate variance?
- What is the total actual cost of direct manufacturing labour?
- What is the labour rate variance for direct manufacturing labour?

Answer:

a.

$$\begin{aligned}\text{Standard cost per urn} &= \$6,000/1,000 \\ &= \$6.00 \text{ per urn}\end{aligned}$$

$$\begin{aligned}\text{Standard number of kilograms per urn} &= \$6.00/\$6.00 \\ &= 1.0 \text{ kilogram per urn}\end{aligned}$$

b.

$$\begin{aligned}\text{Materials rate variance} &= \text{Total variance} - \text{efficiency variance} \\ &= (\$5,600 - \$6,000) - \$120\text{U} \\ &= \$520 \text{ favourable}\end{aligned}$$

c.

$$\begin{aligned}\text{Total standard labour cost of actual hours} &= ((1,000/2) \times \$24) - \$336 \text{ F} \\ &= \$11,664\end{aligned}$$

$$\text{Actual hours} = \$11,664/24 = 486 \text{ hours}$$

$$\text{Total actual costs} = 486 \times \$24.50 = \$11,907$$

d.

$$\begin{aligned}\text{Labour rate variance} &= \$11,907 - \$11,664 \\ &= \$243 \text{ U}\end{aligned}$$

Diff: 3 Type: ES

Skill: Apply

Objective: LO 7-3

56) The following data for the low grow Garden Supplies Company pertains to the production of 2,500 garden spades during March. The spade consists of a wooden handle and a metal forged tool that comes in contact with the ground.

Direct Materials (all materials purchased were used):

Standard cost: \$1.00 per handle and \$3.50 per metal tool.

Total actual cost: \$11,350.

Materials flexible-budget efficiency variance was \$650 unfavourable.

Direct Manufacturing Labour:

Standard cost is 5 garden spades per hour at \$20.00 per hour.

Actual cost per hour was \$21.00.

Labour efficiency variance was \$400 favourable.

Required:

- What is the standard direct material amount per garden spade?
- What is the standard cost allowed for all units produced?
- What is the total direct materials flexible-budget variance?
- What is the direct material flexible-budget rate variance?
- What is the total actual cost of direct manufacturing labour?
- What is the labour rate variance for direct manufacturing labour?

Answer:

- Standard cost per garden spade = \$1.00 (handle) + \$3.50 (tool)
= \$4.50 per garden spade
- Standard cost allowed for all units = $2500 \times \$4.50$
= \$11,250 per garden spade
- Total materials variance = \$11,250 - \$11,350
= \$100 unfavourable
- Materials rate variance = Total variance - efficiency variance
= (\$11,350 - \$11,250) - \$650 unfavourable
= \$550 favourable
- Total standard labour cost of actual hours = $((2500/5) \times \$20) - \400 favourable
= \$9,600
Actual hours = $\$9600/20 = 480$ hours
Total actual costs = $480 \times \$21 = \$10,080$
- Labour rate variance = \$9,600 - \$10,080
= \$480 unfavourable

Diff: 3 Type: ES

Skill: Apply

Objective: LO 7-3

57) The following data for the telephone company pertain to the production of 450 rolls of telephone wire during June. Selected items are omitted because the costing records were lost in a windstorm.

Direct Materials (all materials purchased were used.)

Standard cost per roll: a kilograms at \$4.00 per kilogram.

Total actual cost: b kilograms costing \$9,600.

Standard cost allowed for units produced was \$9,000.

Materials rate variance: c.

Materials efficiency variance was \$80 unfavourable.

Direct Manufacturing Labour

Standard cost is 3 hours per roll at \$8.00 per hour.

Actual cost per hour was \$8.25.

Total actual cost: d.

Labour rate variance: e.

Labour efficiency variance was \$400 unfavourable.

Required:

Compute the missing elements in the report represented by the lettered items.

Answer:

a.

Standard cost per roll $= \$9,000/450 = \20.00

Standard number of kilograms per roll $= \$20/\$4 = 5 \text{ kilograms per roll}$

b.

Actual kilograms $= (\$9,000 + \$80)/\$4 = 2,270 \text{ kilograms}$

c.

Materials rate variance $= \$9,600 - (\$9,000 + \$80)$
 $= \$520 \text{ unfavourable}$

d.

Total standard labour cost of actual hours $= (450 \times 3 \times \$8) + \$400 = \$11,200$

Actual hours $= \$11,200/\$8 = 1,400$

Total actual cost $= 1,400 \times \$8.25 = \$11,550$

e.

Labour rate variance $= \$11,550 - \$11,200 = \$350 \text{ unfavourable}$

Diff: 3 Type: ES

Skill: Analyze

Objective: LO 7-3

58) Give at least three good reasons why a favourable rate variance for direct materials might be reported.

Answer: Any three of the following:

- a. The purchasing manager skillfully negotiated a better purchase price.
- b. The purchasing manager changed to a lower-priced supplier.
- c. The purchasing manager purchased in larger quantities resulting in quantity discounts.
- d. The purchasing manager changed to lower-quality materials.
- e. An unexpected industry oversupply resulted in decreased prices for materials.
- f. Budgeted purchase prices were not carefully set.

Diff: 2 Type: ES

Skill: Understand

Objective: LO 7-3

59) Give at least three good reasons why an unfavourable efficiency variance for direct manufacturing labour might be reported.

Answer: Any three of the following:

- a. More lower-skilled workers were scheduled than planned.
- b. Work was inefficiently scheduled.
- c. Machines were not properly maintained.
- d. Budgeted time standards were too tight.

Diff: 2 Type: ES

Skill: Understand

Objective: LO 7-3

7.4 Undertake variance analysis in activity-based costing systems.

1) Flexible budget quantity computations should be focused at the appropriate level of the cost hierarchy.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-4

2) Rate variances can be calculated for batch-level costs as well as for output unit-level costs.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-4

3) Performance variance analysis can be used in activity-based costing systems.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-4

4) Tyson's Hardware, a retailing company with several locations, anticipated that it would have 96,000 sales units for 664 customer shipments. Average storage bin usage for various inventories was estimated to be 200 storage bins per day. The costs and cost drivers were determined to be as follows:

<u>Cost Item</u>	<u>Fixed Portion</u>	<u>Variable Cost/Driver</u>
Product handling	\$10,000	\$1.25 per 100 units
Storage		3.00 per storage bin
Utilities	1,000	1.50 per 100 units
Shipping clerks	1,000	1.00 per shipment
Supplies		0.50 per shipment

During the year the warehouse processed 90,000 units for 600 customer shipments. The workers used 225 storage bins on average each day to sort, store, and process goods for shipment. The actual costs for were:

<u>Cost Item</u>	<u>Actual costs</u>
Product handling	\$10,900
Storage	465
Utilities	2,020
Shipping clerks	1,400
Supplies	340

Required:

- Prepare a static-budget and show the static-budget variances for each cost item and the total static-budget variance.
- Prepare a flexible-budget and show the flexible-budget variances for each cost item and the total flexible-budget variance.

Answer:

a.

Static Budget with Variances

	<u>Actual</u>	<u>Budget</u>	<u>Variances</u>
Product handling	\$10,900	\$11,200	\$300F
Storage	465	600	135F
Utilities	2,020	2,440	420F
Shipping clerks	1,400	1,664	264F
Supplies	<u>340</u>	<u>332</u>	<u>8U</u>
Total	<u>\$15,125</u>	<u>\$16,236</u>	<u>\$1,111F</u>

b.

Flexible Budget with Variances

	<u>Actual</u>	<u>Budget</u>	<u>Variances</u>
Product handling	\$10,900	\$11,125	\$225F
Storage	465	675	210F
Utilities	2,020	2,350	330F
Shipping clerks	1,400	1,600	200F
Supplies	<u>340</u>	<u>300</u>	<u>40U</u>
Total	<u>15,125</u>	<u>\$16,050</u>	<u>\$925F</u>

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-4

5) Jackson a is a company that delivers automobile repair parts to service garages. The following information is for three of the company's activities in 2015:

<u>Activity</u>	<u>Activity Level</u>	<u>Rate per Output unit/Batch</u>		
		Static <u>Cost Driver</u>	<u>Budget</u>	Actual <u>Cost</u>
Receivables	Output unit	Sales invoices	\$0.70	\$0.75
Payables	Batch	Purchase invoices	\$25.00	\$23.00
Travel expenses	Batch	Travel claims	\$55.00	\$52.50

The output measure is the number of deliveries.

	<u>Static Budget</u>	<u>Actual Amount</u>
Number of deliveries	20,000	22,200
Number of sales invoices	4,000	3,700
Batch size in terms of deliveries:		
Purchase invoices	10	8
Travel expense claims	20	25

Required:

- Calculate the flexible-budget variance for each activity in 2015.
- Calculate the price and efficiency variances for each activity in 2015.

Answer:

a.

Flexible-budget variances

Receivables: $[(22,200 \times (4,000/20,000)) \times \$0.70] - (3,700 \text{ invoices} \times \$0.75) = \$333 \text{ F}$

Payables: $((22,200/10) \times \$25.00) - ((22,200/8) \times \$23.00) = \$8,325 \text{ U}$

Travel: $((22,200/20) \times \$55.00) - ((22,200/25) \times \$52.50) = \$14,430 \text{ F}$

b.

Price and efficiency variances

Receivables:

Price: $(\$0.70 - \$0.75) \times 3,700 = \$185.00 \text{ U}$

Efficiency: $((22,200/(20,000/4,000)) - 3,700) \times \$0.70 = \$518.00 \text{ F}$

Payables:

Price: $(\$25.00 - \$23.00) \times (22,200/8) = \$5,550 \text{ F}$

Efficiency: $((22,200/10) - (22,200/8)) \times \$25.00 = \$13,875 \text{ U}$

Travel:

Price: $(\$55.00 - \$52.50) \times (22,200/25) = \$2,220 \text{ F}$

Efficiency: $((22,200/20) - (22,200/25)) \times \$55.00 = \$12,210 \text{ F}$

Diff: 3 Type: ES

Skill: Apply

Objective: LO 7-4

6) Samson Equipment Ltd. is a company that manufactures an abdominal exerciser called The Ab Rippler. The following information is for three of the company's activities in 2015:

<u>Activity</u>	<u>Activity Level</u>	<u>Rate per Output unit/Batch</u>		
		Static <u>Cost Driver</u>	<u>Budget</u>	Actual <u>Cost</u>
Manufacturing	Output unit	Machine hours	\$0.90	\$1.05
Inspecting	Batch	Inspection hours	\$15.00	12.50
Packaging	Batch	Packaging hours	\$5.50	\$5.25

The output measure is the number of units produced.

	<u>Static Budget</u>	<u>Actual Amount</u>
Number of units produced	40,000	44,400
Number of machine hours	16,000	14,800
Batch size in terms of units produced:		
Inspection	5	4
Packaging	20	25

Required:

- Calculate the flexible-budget variance for each activity in 2015.
- Calculate the price and efficiency variances for each activity in 2015.

Answer:

a.

Flexible-budget variances

Manufacturing: $[(44,400 \times (16,000/40,000)) \times \$0.90] - (14,800 \times 1.05) = \444 F

Inspecting: $((44,400/5) \times \$15.00) - ((44,400/4) \times \$12.50) = \$5,550 \text{ U}$

Packaging: $((44,400/20) \times \$5.50) - ((44,400/25) \times \$5.25) = \$2,886 \text{ F}$

b.

Price and efficiency variances

Manufacturing:

Price: $(\$0.90 - \$1.05) \times 14,800 = \$2,220 \text{ U}$

Efficiency: $((44,400/(40,000/16,000)) - 14,800) \times \$0.90 = \$2,664 \text{ F}$

Inspecting:

Price: $(\$15.00 - \$12.50) \times (44,400/4) = \$27,750 \text{ F}$

Efficiency: $((44,400/5) - (44,400/4)) \times \$15.00 = \$3,300 \text{ U}$

Packaging:

Price: $(\$5.50 - \$5.25) \times (44,400/25) = \444 F

Efficiency: $((44,400/20) - (44,400/25)) \times \$5.50 = \$2,442 \text{ F}$

Diff: 3 Type: ES

Skill: Apply

Objective: LO 7-4

7) Delila Equipment Ltd. is a company that manufactures an abdominal exerciser called The Tummy Toner. The following information is for three of the company's activities in 2015:

<u>Activity</u>	<u>Activity Level</u>	<u>Rate per Output unit/Batch</u>		
		Static <u>Cost Driver</u>	<u>Budget</u>	Actual <u>Cost</u>
Manufacturing	Output unit	Machine hours	\$1.10	\$1.20
Inspecting	Batch	Inspection hours	\$14.00	12.50
Packaging	Batch	Packaging hours	\$5.75	\$5.40

The output measure is the number of units produced.

	Static <u>Budget</u>	Actual <u>Amount</u>
Number of units produced	48,000	49,200
Number of machine hours	12,000	12,300
Batch size in terms of units produced:		
Inspection	4	3
Packaging	15	16

Required:

- Calculate the flexible-budget variance for each activity in 2015.
- Calculate the price and efficiency variances for each activity in 2015.

Answer:

a.

Flexible-budget variances

Manufacturing: $[(49,200 \times (12,000/48,000)) \times \$1.10] - (12,300 \times \$1.20) = 1,230 \text{ U}$

Inspecting: $((49,200/4) \times \$14.00) - ((49,200/3) \times \$12.50) = \$32,800 \text{ U}$

Packaging: $((49,200/15) \times \$5.75) - ((49,200/16) \times \$5.40) = \$2,255 \text{ F}$

b.

Price and efficiency variances

Manufacturing:

Price: $(\$1.10 - \$1.20) \times 12,300 = \$1,230 \text{ U}$

Efficiency: $((49,200 \times (16,000/40,000)) - 12,300) \times \$1.10 = \$0 \text{ (no variance)}$

Inspecting:

Price: $(\$14.00 - \$12.50) \times (49,200/3) = \$24,600 \text{ F}$

Efficiency: $((49,200/4) - (49,200/3)) \times \$14.00 = \$57,400 \text{ U}$

Packaging:

Price: $(\$5.75 - \$5.40) \times (49,200/16) = \$1,076.25 \text{ F}$

Efficiency: $((49,200/15) - (49,200/16)) \times \$5.75 = \$1,178.75 \text{ F}$

Diff: 3 Type: ES

Skill: Apply

Objective: LO 7-4

8) Explain how variance analysis is used in conjunction with activity-based costing.

Answer: Activity-based costing systems focus on individual activities as the fundamental cost objects. As a result, the cost hierarchy of output unit-level costs, batch-level costs, product-sustaining costs, and facility-sustaining costs can benefit from variance analysis.. When an ABC costing system is in place and there is a focus on the detailed level of cost hierarchy, obtaining flexible budgeting information to compare the actual to the flexible budgeted amount can provide information to assist in the decision-making process.

Diff: 2 Type: ES

Skill: Understand

Objective: LO 7-4

7.5 Describe how managers use variance analysis.

1) The most important task in variance analysis is to understand why variances occur, and then to use that knowledge to promote learning and continual improvement.

Answer: TRUE

Diff: 3 Type: TF

Skill: Remember

Objective: LO 7-5

2) A cost of a given activity decreases over continuous time periods. This is considered to be a continuous improvement variable cost.

Answer: FALSE

Explanation: Continuous improvement is a budgeted cost that is successively reduced over succeeding time periods.

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-5

3) A favourable variance can be automatically interpreted as "good news."

Answer: FALSE

Explanation: A favourable variance in one value chain function may lead to an unfavourable variance in another.

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-5

4) Managers generally have more control over efficiency variances than rate variances.

Answer: TRUE

Explanation: Efficiency variances are primarily affected by internal factors, whereas price changes may be influenced by market factors.

Diff: 3 Type: TF

Skill: Understand

Objective: LO 7-5

5) To prepare budgets based on actual data from past periods is preferred since past inefficiencies are excluded.

Answer: FALSE

Explanation: A deficiency of using budgeted input quantity information based on actual quantity data from past periods is that past inefficiencies are included.

Diff: 2 Type: TF

Skill: Understand

Objective: LO 7-5

6) The use of high-quality raw materials is likely to result in a favourable efficiency variance and an unfavourable rate variance.

Answer: TRUE

Diff: 2 Type: TF

Skill: Understand

Objective: LO 7-5

7) The direct manufacturing labour rate variance is likely to be favourable if higher-skilled workers are put on a job.

Answer: FALSE

Explanation: The direct manufacturing labour variance is likely to be unfavourable if higher-skilled workers are put on a job since they are usually also higher paid.

Diff: 2 Type: TF

Skill: Understand

Objective: LO 7-5

8) If variance analysis is used for performance evaluation, managers are encouraged to meet targets using creativity and resourcefulness.

Answer: FALSE

Explanation: The most common outcome when variance analysis is used for performance evaluation is that managers seek targets that are easily attainable and avoid targets that require creativity and resourcefulness.

Diff: 2 Type: TF

Skill: Understand

Objective: LO 7-5

9) Depending on the level of the cost hierarchy of an activity, cutting a volume of input to the benefit of one

business function may increase costs throughout the entire value chain.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-5

10) Which of the following is likely to be related to an unfavourable direct materials rate variance?

A) Standard costs were determined correctly.

B) the negotiating skills of the marketing manager

C) unexpected price decreases in direct materials

D) Actual direct material purchases were in larger quantities than normal, resulting in receiving volume discounts.

E) Materials were purchased based on a competitive bid.

Answer: B

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-5

11) If a purchasing agent is able to negotiate a price lower than that set by the current budget by purchasing direct materials of similar quality

- A) a reduction in customer service costs will result.
- B) the effect on the direct materials efficiency variance will be favourable.
- C) the effect on the direct labour efficiency variance will be favourable.
- D) the effect on the purchase rate variance will be favourable.
- E) the effect on the direct materials efficiency variance will be unfavourable.

Answer: D

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-5

12) Which of the following reasons is unlikely to be related to an unfavourable variance for labour costs?

- A) Labour used was less skilled than usual.
- B) poor work scheduling
- C) excessive equipment downtime
- D) inappropriate standards
- E) rate variance in direct materials purchased at the standard quality

Answer: E

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-5

13) In a manufacturing area of an organization; poor product design, problems with the quality of materials, and scheduling conflicts could result in

- A) a favourable materials efficiency variance.
- B) a favourable labour efficiency variance.
- C) a favourable materials effectiveness variance.
- D) an unfavourable materials effectiveness variance.
- E) an unfavourable materials efficiency variance.

Answer: E

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-5

14) If a company only reached 85% of their production goal, the 85% may be called the company's

- A) effectiveness rate.
- B) efficiency rate.
- C) goal achievement rate.
- D) standard production rate.
- E) variance rate.

Answer: A

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-5

15) The relative amount of inputs used to reach a given level output is a measure of which of the following?

- A) effectiveness
- B) selling price
- C) purchase price
- D) marketing efforts
- E) efficiency

Answer: E

Diff: 1 Type: MC

Skill: Understand

Objective: LO 7-5

16) Which of the following statements is TRUE?

- A) A favourable variance always benefits a company.
- B) Managers attempt to maintain unfavourable variances.
- C) Favourable variances are typically not preferred by management.
- D) Only a flexible budget can be used to determine a variance.
- E) A favourable variance is not always beneficial for an organization.

Answer: E

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-5

17) Cost variances should be investigated when

- A) the results are favourable but within acceptable limits.
- B) costs incurred must be reduced.
- C) expected costs of investigation exceed expected benefits.
- D) the results are unfavourable but within acceptable limits.
- E) the amounts are immaterial.

Answer: B

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-5

18) A continuous improvement budgeted cost, in terms of variances and standard costs

- A) is held constant regardless of external factors, thus enabling management to isolate internal variance factors.
- B) is successively reduced over succeeding time periods.
- C) ensures that managers will avoid unfavourable materials (or labour) variances that are due to external factors.
- D) is easier to achieve for older, more established production runs, than for new products.
- E) is achieved as easily for older, more established production runs, as for for new products.

Answer: B

Diff: 2 Type: MC

Skill: Remember

Objective: LO 7-5

19) During February the Lungren Manufacturing Company's costing system reported several variances that the production manager was surprised to see. The following information is for the manufacture of garden gates, its only product:

1. Direct materials rate variance, \$800 unfavourable.
2. Direct materials efficiency variance, \$1,800 favourable.
3. Direct manufacturing labour rate variance, \$4,000 favourable.
4. Direct manufacturing labour efficiency variance, \$600 unfavourable.

Required:

- a. Provide the manager with some ideas as to what may have caused the rate variances.
- b. What may have caused the efficiency variances?

Answer: Direct materials unfavourable rate variance may have been caused by: (1) paying a higher price than the standard for the period, (2) changing to a new vendor, or (3) buying higher-quality materials.

a. Direct manufacturing labour favourable rate variance may have been caused by: (1) changing the work force by hiring lower-paid employees, (2) changing the mix of skilled and unskilled workers, or (3) not giving pay raises as high as anticipated when the standards were set for the year.

b. Direct materials favourable efficiency variance may have been caused by: (1) employees/machinery working more efficiently and having less scrap and waste materials, (2) buying better-quality materials, or (3) changing the production process.

Direct manufacturing labour unfavourable efficiency variance may have been caused by: (1) poor working conditions, (2) changes in the production process (learning something new initially takes longer), (3) different types of direct materials to work with, or (4) poor attitudes on behalf of the workers.

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-5

20) Your company hired a summer student as an accounting intern to prepare variance analysis for the plant manager (the student's father), so that the entire organization could become more effective and efficient. Up to this time, the company used a budget but only one that specified sales and production in units, and each department gauged and reported on its own performance based on historical rules of thumb developed over the years. The plant manager instructed every department manager to assist the new accountant as achieving favourable results would ensure he got a good bonus. For the month of May, the student met with the department heads of each functional area, obtaining from them the data and estimates to come up with: standard costs and prices; and, standard direct material usage and standard direct labour usage. Then in June, July and August the student collected; and, analyzed the variance results, and prepared a report for the plant manager. The report indicated favourable variances in virtually every functional area, allowing the plant manager to receive a larger bonus than usual.

Required:

Comment on the above process, in terms of variance analysis.

Answer: This may be a case of "garbage-in, garbage-out." First of all, the department heads were told up front that a favourable variance was expected, secondly, they provided the standards in conjunction with an inexperienced accountant. Standards require objective data, such as engineering time-motion studies. If historical data is going to be used, then you must decide at the outset if you want to budget for continuous improvement, or if just meeting the past results will be sufficient. One has to assume that these standards were padded, so that the resulting targets would be easily attained. In short, it appears that these variances were developed not for cost management, but to support a predetermined result, linked to financial reward not linked to performance.

Diff: 2 Type: ES

Skill: Understand

Objective: LO 7-5

21) You have been promoted to management accountant at a hospital. One of the things you noted from reviewing past internal reports is that the quality of the data is poor at times, and there is no objective standard for evaluating performance. When you asked about this at a board of directors meeting, the consensus reply was that the hospital's operations were too subjective and service orientated, and that it was a non-profit organization, so setting profit goals was of no value.

Required:

Comment on a possible approach that could be taken to provide objective criteria for performance evaluation in this situation.

Answer: The lack of revenue or profit does not mean that management cannot evaluate its performance or the performance of subunits of the organization. The obvious place to start is the focus on cost control, but there are other areas as well. Analysis requires reliable data. The lack of reliable data in this case is likely due to the low priority placed on using the data. In any event, the organization should implement an accounting system that collects sufficient and reliable data for management purposes. In addition, poor data indicates that there will not be sufficient historical information to use in building a cost control system, therefore, the organization should seek external benchmarks. In this particular industry, the types of services are likely to be very comparable among other hospitals of comparable size, if unusual factors such as whether it is a teaching hospital, are controlled for. After obtaining external benchmarks, the organization can begin to see how it compares on various criteria, such as cost for each type of service, eg cost to treat a stroke patient, cost of specific types of emergency procedures etc), and also on non-financial criteria, such as perceived satisfaction of patients, hours of service, staff morale and any other factor felt to be part of the organization's mission.

Diff: 2 Type: ES

Skill: Understand

Objective: LO 7-5

22) Coffey Company maintains a very large direct materials inventory because of critical demands placed upon it for rush orders from large hospitals. Item A contains hard-to-get material Y. Currently, the standard cost of material Y is \$2.00 per gram. During February, 22,000 grams were purchased for \$2.10 per gram, while only 20,000 grams were used in production. There was no beginning inventory of material Y.

Required:

- a. Determine the direct materials rate variance, assuming that all materials costs are the responsibility of the materials purchasing manager so rate variances are based on purchase quantities.
- b. Determine the direct materials rate variance, assuming that all materials costs are the responsibility of the production manager so rate variances are determined as quantities are placed into production.
- c. Discuss the issues involved in determining the rate variance at the point of purchase versus the point of consumption.

Answer:

a. Material rate variance $= 22,000 \times (\$2.10 - \$2.00)$
= \$2,200 unfavourable

b. Material rate variance $= 20,000 \times (\$2.10 - \$2.00)$
= \$2,000 unfavourable

- c. Measuring the rate variance at the time of materials purchased is desirable in situations where the amount of materials purchased varies substantially from the amount used during the period. Failure to measure the rate variance based on materials purchased could result in a substantial delay in determining that a price change occurred.

Also, if the purchasing manager is to be held accountable for his/her purchasing activities, it is appropriate to have the materials rate variances computed at the time of purchase so the manager can include the variances on his/her monthly report. This encourages the purchasing manager to be more responsible for the activities under his/her control. It provides a closer relationship between responsibility and authority and becomes a relevant performance measure.

Diff: 3 Type: ES

Skill: Understand

Objective: LO 7-5

Match the department that is most likely responsible for the listed variance.

- A) Production department
- B) Personnel department
- C) Purchasing department
- D) Marketing department

23) Direct material rate variance

Diff: 1 Type: MA

Skill: Understand

Objective: LO 7-5

24) Direct labour rate variance

Diff: 1 Type: MA

Skill: Understand

Objective: LO 7-5

25) Direct labour efficiency variance

Diff: 1 Type: MA

Skill: Understand

Objective: LO 7-5

26) Sales volume variance

Diff: 1 Type: MA

Skill: Understand

Objective: LO 7-5

27) Direct material efficiency variance

Diff: 1 Type: MA

Skill: Understand

Objective: LO 7-5

Answers: 23) C 24) B 25) A 26) D 27) A

7.6 Appendix 7A: Distinguish among standards, budgets, benchmarks.

1) Benchmarking is the continuous process of measuring products, services, and activities against the best possible levels of performance.

Answer: TRUE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-6

2) When benchmarking, the best levels of performance are typically found in companies that are totally different.

Answer: FALSE

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-6

3) Benchmarking key activities can be even more important in not-for-profit/non-profit (NFP) organizations than it is for businesses seeking to make a profit.

Answer: TRUE

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-6

4) A standard is usually expressed on a per-unit basis and communicates an average amount indicating what should be achieved by any similar process each time period that performance measures are taken.

Answer: TRUE

Explanation: A standard is usually expressed on a per-unit basis and communicates an average amount indicating what *should* be achieved by any similar process each time period that performance measures are taken.

Diff: 1 Type: TF

Skill: Remember

Objective: LO 7-6

5) Standards differ from budget amounts because standards change from onetime period to the next.

Answer: FALSE

Explanation: Standards differ from budget amounts because budget amounts change from onetime period to the next.

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-6

6) When benchmarking

A) the best levels of performance are usually found in companies that are within different industries.

B) finding appropriate benchmarks is a minor issue.

C) it is important to set standards at industry averages.

D) comparisons can highlight areas for improved cost management.

E) a broader scope allows for easier comparison.

Answer: D

Diff: 1 Type: MC

Skill: Remember

Objective: LO 7-6

7) Which of the following is part of the benchmarking process?

- A) standard setting against industry averages
- B) assess external and internal conditions and match with those of the benchmarked company
- C) sharing information with other companies
- D) obtaining a benchmarking license
- E) setting up bench mark variances

Answer: B

Diff: 2 Type: MC

Skill: Apply

Objective: LO 7-6

8) The process in which a company's products or services are measured relative to the best possible levels of performance is known as

- A) benchmarking.
- B) measuring the performance gap.
- C) standard measurement.
- D) variance measurement.
- E) budgeting.

Answer: A

Diff: 1 Type: MC

Skill: Remember

Objective: LO 7-6

9) Which of the following statements about benchmarks is TRUE?

- A) They may be financial or nonfinancial.
- B) They are used to compute variances.
- C) Broad benchmarks have more relevance.
- D) Obtaining benchmarks has no legal or ethical issues.
- E) Benchmarks are the main driver of strategic planning.

Answer: A

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-6

10) In a journal entry for a standard costing system that records favourable variances, to increase the relevant variance account

- A) causes a credit to Cost of Goods Sold.
- B) decreases the Operating Income Account.
- C) the variance account must be debited.
- D) the variance account must be credited.
- E) reduces the contra account.

Answer: D

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-6

11) When a journal entry is made in a standard cost system to record the liability for direct manufacturing labour costs, the difference between the debit to the work-in-process control account and the credit to the payroll payables is

- A) only the efficiency variance.
- B) only the rate variance.
- C) the difference between the actual wage rate and the budgeted rate, times the actual hours.
- D) the difference between the actual wage rate and the budgeted rate, times the budget hours.
- E) the total of the price and efficiency labour variances.

Answer: E

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-6

12) When a journal entry is made to record the direct materials used, a debit to the Direct Materials Efficiency Variance

- A) indicates the variance is unfavourable.
- B) indicates the variance is favourable.
- C) is the difference between the actual Costs of Goods Sold and the budgeted Materials Control accounts.
- D) is the difference between the debits and credits of all materials related entries.
- E) also requires a debit to the materials control account.

Answer: A

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-6

13) The input standard cost per completed unit may be calculated by

- A) multiplying the budgeted number of outputs for one input by the budgeted price per output unit.
- B) multiplying the budgeted price per input by the budgeted number of inputs for one unit of output.
- C) dividing the variable price per input by the budgeted number of inputs for one unit of output.
- D) dividing the budgeted number of outputs for one input by the budgeted price per output unit.
- E) dividing the budgeted price per input by the budgeted number of inputs for one unit of output.

Answer: B

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-6

14) Compute the total standard cost per book for Publisher's Company using the following information:

1. Direct Materials: 1 ream of paper allowed per output unit manufactured, at \$5.00 per ream.
2. Direct Mfg. Labour: 0.35 labour-hours of input allowed per output unit finished, at \$17.50 standard cost per hour.
3. Variable Manufacturing Overhead: assigned on the basis of 0.25 per hour at \$25 standard cost per hour per output unit finished.

- A) \$11.13 per output unit
- B) \$14.63 per output unit
- C) \$17.38 per output unit.
- D) \$47.50 per output unit
- E) \$48.60 per output unit

Answer: C

Explanation: C) Materials: 1 unit \times \$5.00 = \$5.00

Labour: 0.35 unit \times \$17.50 = 6.13

Overhead: 0.25 unit \times \$25.00 = 6.25
17.38

Diff: 1 Type: MC

Skill: Apply

Objective: LO 7-6

15) A standard is

- A) usually expressed on a per unit basis.
- B) consistently calculated in manufacturing companies.
- C) always the same as a budgeted amount.
- D) only set within the company.
- E) never expressed on a per unit basis.

Answer: A

Diff: 1 Type: MC

Skill: Remember

Objective: LO 7-6

16) _____ is a carefully predetermined amount usually expressed on a per-unit basis.

- A) Variable marketing overhead
- B) A flexible budget
- C) A standard
- D) Fixed factory overhead
- E) A static budget

Answer: C

Diff: 1 Type: MC

Skill: Remember

Objective: LO 7-6

17) A standard cost method is based on

A) variable costs only.

B) a predetermined average cost per input.

C) a predetermined average total input cost per unit of output.

D) either a predetermined average cost per input or a predetermined average total input cost per unit of output.

E) historical costs.

Answer: A

Diff: 2 Type: MC

Skill: Remember

Objective: LO 7-6

18) It's year-end and you have the task of clearing up the final accounting entries for management accounting. There is an unfavourable direct materials rate variance of \$25,000 which needs to be closed. The company uses the proration approach in this situation, and it has been determined that half of the variance should be charged to finished goods and half to cost of goods sold.

Required:

Prepare the necessary entry for the end of period adjustment.

Answer: Cost of Goods Sold 12,500

Finished Goods Inventory 12,500

 Direct Materials Rate Variance 25,000

Diff: 2 Type: ES

Skill: Apply

Objective: LO 7-6

19) Waddell Productions uses a standard cost system for all manufacturing transactions. For the month of June the following activities have taken place:

Direct manufacturing materials purchased	\$310,000
Direct manufacturing materials used	\$250,000
Direct materials rate variance	\$10,000 unfavourable
Direct materials efficiency variance	\$15,000 favourable
Direct manufacturing labour rate variance	\$6,000 favourable
Direct manufacturing labour efficiency variance	\$4,000 favourable
Direct manufacturing labour payable	\$170,000

Required:

Record the necessary journal entries to:

1. Record the materials purchases assuming that materials rate variances are recorded at the time of purchase.
2. Record the materials placed into production.
3. Record the direct labour used in production.

Answer: Materials Control	300,000	
Direct Manufacturing Materials Rate Variance	10,000	
Accounts Payable Control		310,000
Work-in-Process Control	265,000	
Direct Materials Efficiency Variance		15,000
Materials Control		250,000
Work-in-Process Control	180,000	
Direct Manufacturing Labour Rate Variance		6,000
Direct Manufacturing Labour Efficiency Variance		4,000
Wages Payable Control		170,000

Diff: 3 Type: ES

Skill: Apply

Objective: LO 7-6

20) Signet Engineering uses a standard cost system for all manufacturing transactions. For the month of April the following activities have taken place:

Direct manufacturing materials purchased	\$270,000
Direct manufacturing materials used	\$360,000
Direct materials rate variance	\$3,000 unfavourable
Direct materials efficiency variance	\$4,000 favourable
Direct manufacturing labour rate variance	\$5,000 favourable
Direct manufacturing labour efficiency variance	\$7,000 favourable
Direct manufacturing labour payable	\$280,000

Required:

Record the necessary journal entries to:

1. Record the materials purchases assuming that materials rate variances are recorded at the time of purchase.
2. Record the materials placed into production.
3. Record the direct labour used in production.

Answer: Materials Control 267,000

Direct Manufacturing Materials Rate Variance	3,000
Accounts Payable Control	270,000

Work-in-Process Control	364,000
Direct Materials Efficiency Variance	4,000
Materials Control	360,000

Work-in-Process Control	292,000
Direct Manufacturing Labour Rate Variance	5,000
Direct Manufacturing Labour Efficiency Variance	7,000
Wages Payable Control	280,000

Diff: 3 Type: ES

Skill: Apply

Objective: LO 7-6

21) Mayberry Company had the following journal entries recorded for the end of June. Unfortunately, the company's only accountant quit on July 10 and the president is at a loss as to the company's performance for the month of June.

Materials Control	150,000	
Direct Materials Rate Variance		5,000
Accounts Payable Control		145,000
Work-in-Process Control	60,000	
Direct Materials Efficiency Variance	4,000	
Materials Control		64,000
Work-in-Process Control	425,000	
Direct Manufacturing Labour rate Variance	7,500	
Direct Manufacturing Labour Efficiency Variance		9,000
Wages Payable Control		423,500

Required:

- What kind of performance did the company have for June? Explain each variance.
- Why is Direct Materials given in two entries?

Answer:

- The first entry is for materials purchases. The credit entry indicates a favourable variance. This could be an indicator that the purchasing agent did a good job or he/she bought inferior goods.

Production was not as lucky in June. The debit entry for materials efficiency indicates that more materials were used than should have been under the operating plans for the month.

For labour, the price was unfavourable, while the efficiency was favourable. This could have been caused by using higher-priced workers who were, in fact, better workers. Of course, there are many other possible causes.

- Recording variances for direct materials is completed with two separate entries since the rate variance is isolated at the point of purchase, while the efficiency variance is isolated at the point of use.

Diff: 2 Type: ES

Skill: Understand

Objective: LO 7-6

22) What is benchmarking, and how is it useful to a company?

Answer: Benchmarking is the continuous process of comparing the levels of performance in producing products and services and executing activities against the best levels of performance in competing companies or in companies having similar processes. Companies can examine aspects of their own operations in comparison to similar operations and see if they are operating at a disadvantage. Benchmarking might provide targets and opportunities to cut costs, and might even show where they have a competitive advantage over similar companies.

Diff: 2 Type: ES

Skill: Understand

Objective: LO 7-6

7.7 Appendix 7B: Distinguish between Levels 3 and 4 variance analysis for substitute inputs, and calculate Level 4 direct material mix and yield variances.

1) The direct materials yield variance is the difference between: 1) the budgeted cost for the actual mix of the total quantity of direct materials used, and 2) the budgeted cost of the budgeted mix of the actual total quantity of direct materials used.

Answer: FALSE

Explanation: The total direct materials mix variance is the difference between two amounts: (1) the budgeted cost for the actual mix of the total quantity of direct materials used, and (2) the budgeted cost of the budgeted mix of the actual total quantity of direct materials used

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-7

2) The direct materials mix variance is the difference between: 1) the actual cost of direct materials based on the actual total quantity of all direct material inputs used, and 2) the flexible-budget cost of direct materials based on the budgeted total quantity of direct material inputs for the actual output.

Answer: FALSE

Explanation: should be "the difference between: the budgeted cost..."

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-7

3) An unfavourable direct materials mix variance results when cheaper direct materials are substituted for more expensive direct materials.

Answer: FALSE

Explanation: A *favourable* direct materials mix variance results when cheaper direct materials are substituted for more expensive direct materials.

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-7

4) A favourable direct materials yield variance results when less direct materials are used than planned.

Answer: TRUE

Diff: 2 Type: TF

Skill: Remember

Objective: LO 7-7

5) More insight into the efficiency variance for direct materials can be gained by subdividing it into the direct materials

- A) mix and volume variances.
- B) market-share and market-size variances.
- C) rate and usage variances.
- D) price and efficiency variances.
- E) mix and yield variances.

Answer: E

Diff: 2 Type: MC

Skill: Remember

Objective: LO 7-7

6) The direct materials mix variance will be favourable when

- A) the flexible-budget contribution margin is greater than the actual contribution margin.
- B) the actual direct materials input mix is less expensive than the budgeted direct materials input mix.
- C) the actual quantity of total inputs used is greater than the flexible budget for total inputs.
- D) actual unit sales are less than budgeted unit sales.
- E) the input-efficiency variance is favourable.

Answer: B

Diff: 2 Type: MC

Skill: Remember

Objective: LO 7-7

7) The materials yield variance will be unfavourable when

- A) the flexible-budget contribution margin is greater than the actual contribution margin.
- B) the actual direct materials input mix is less expensive than the budgeted direct materials input mix.
- C) the input-efficiency variance is favourable.
- D) the actual quantity of total inputs used is greater than the flexible budget for total inputs.
- E) actual unit sales are less than budgeted unit sales.

Answer: D

Diff: 2 Type: MC

Skill: Remember

Objective: LO 7-7

8) The direct materials mix variance is the

- A) average of the direct materials mix variances for each input.
- B) sum of the direct materials mix variances for each input.
- C) difference between the direct materials mix variances for each input.
- D) multiple of the direct materials mix variances for each input.
- E) lesser of the direct materials yield variance and the direct materials efficiency variance.

Answer: B

Diff: 2 Type: MC

Skill: Understand

Objective: LO 7-7

Use the information below to answer the following question(s).

Jenny's Condiments makes a specialty mustard for street vendors that is composed of wet ingredients and dry ingredients. Two parts of wet ingredients at a standard cost of \$12, and three parts of dry ingredients at a standard cost of \$9, are required for every batch. In the first week of July, Jenny produced two hundred thirty batches of mustard using 450 units of wet ingredients and 750 units of dry ingredients.

9) What are the direct materials quantity variances for the wet and dry ingredients respectively?

- A) \$120 favourable/\$540 unfavourable
- B) \$90 favourable/\$720 unfavourable
- C) \$2,880 favourable/\$2,610 unfavourable
- D) \$120 unfavourable/\$540 favourable
- E) \$90 unfavourable/\$720 favourable

Answer: A

Explanation: A) Wet ingredients:

$$((230 \text{ batches} \times 2 \text{ units/batch}) \times \$12) - (450 \text{ units} \times \$12) = \$120 \text{ favourable}$$

Dry ingredients:

$$((230 \text{ batches} \times 3 \text{ units/batch}) \times \$9) - (750 \text{ units} \times \$9) = \$540 \text{ unfavourable}$$

Diff: 3 Type: MC

Skill: Apply

Objective: LO 7-7

10) For the wet ingredients what are the material mix and yield variances respectively?

- A) \$270 favourable/\$180 unfavourable
- B) \$240 unfavourable/\$360 favourable
- C) \$240 favourable/\$360 unfavourable
- D) \$360 favourable/\$240 unfavourable
- E) \$360 unfavourable/\$240 favourable

Answer: D

Explanation: D) Wet ingredients mix variance:

$$((450 + 750) \times 0.40 \times \$12) - (((450 + 750) \times (450/1,200)) \times \$12) = \$360 \text{ favourable}$$

Wet ingredients yield variance:

$$((460 + 690) \times 0.40 \times \$12) - ((450 + 750) \times 0.40 \times \$12) = \$240 \text{ unfavourable}$$

Diff: 3 Type: MC

Skill: Apply

Objective: LO 7-7

11) For the dry ingredients what are the material mix and yield variances respectively?

- A) \$270 favourable/\$270 unfavourable
- B) \$360 unfavourable/\$360 unfavourable
- C) \$360 favourable/\$360 unfavourable
- D) \$360 favourable/\$360 favourable
- E) \$270 unfavourable/\$270 unfavourable

Answer: E

Explanation: E) Dry ingredients mix variance:

$$((450 + 750) \times 0.60 \times \$9) - (((450 + 750) \times (750/1,200)) \times \$9) = \$270 \text{ unfavourable}$$

Wet ingredients yield variance:

$$((460 + 690) \times 0.60 \times \$9) - ((450 + 750) \times 0.60 \times \$9) = \$270 \text{ unfavourable}$$

Diff: 3 Type: MC

Skill: Apply

Objective: LO 7-7

12) Jam Life Inc. manufactures jam products. It makes a mixed fruit and berry jam by blending strawberries, peaches, and apricots.

Budgeted costs to produce 100,000 kilograms of jam in September were:

Ingredient	Kilograms	Cost per Kg.	Total Cost
Strawberry	80,000 kg.	\$1.25	\$100,000
Peach	100,000 kg.	\$1.80	\$180,000
Apricot	220,000 kg.	\$2.25	\$450,000

Actual costs to produce 100,000 kilograms of jam in September were:

Ingredient	Kilograms	Cost per Kg.	Total Cost
Strawberry	105,000 kg.	\$1.15	\$120,750
Peach	105,000 kg.	\$1.80	\$189,000
Apricot	210,000 kg.	\$2.10	\$441,000

Required:

1. Calculate the total direct materials rate and efficiency variances.
2. Calculate the total direct materials mix and yield variances.
3. Jam Life's largest competitor sells a 500 gram jar of mixed fruit and berry jam for \$4.50 . If Jam Life's management wants to meet this price and cover monthly fixed costs of \$180,000 then what will be the company's margin of safety? (Assume that Jam Life will continue to use the budgeted mix of ingredients.)

Answer:

1. Direct materials rate variances:

Strawberry ($\$1.25 - \$1.15 \times 105,000 \text{ kg.} =$	\$ 10,500 F
Peach ($\$1.80 - \$1.80 \times 105,000 \text{ kg.} =$	0
Apricot ($\$2.25 - \$2.10 \times 210,000 \text{ kg.} =$	<u>31,500 F</u>
	\$ <u>42,000 F</u>

Direct materials efficiency variances:

Strawberry ($80,000 \text{ kg.} - 105,000 \text{ kg.} \times \1.25	\$ 31,250 U
Peach ($100,000 \text{ kg.} - 105,000 \text{ kg.} \times \$1.80 =$	9,000 U
Apricot ($220,000 \text{ kg.} - 210,000 \text{ kg.} \times \$2.25 =$	<u>22,500 F</u>
	\$ <u>17,750 U</u>

2.

Direct materials mix variance:

(budget mix % - actual mix %) \times actual quantity \times budget price

Strawberry ($20\% - 25\% \times 420,000 \text{ kg.} \times \$1.25 =$	\$ 26,250 U
Peach ($25\% - 25\% \times 420,000 \text{ kg.} \times \$1.80 =$	nil
Apricot ($55\% - 50\% \times 420,000 \text{ kg.} \times \$2.25 =$	<u>47,250 F</u>
	\$ <u>21,000 F</u>

Direct materials yield variance:

(budget qty. - actual qty.) \times budget mix % \times budget price

Strawberry ($400,000 \text{ kg.} - 420,000 \text{ kg.} \times 20\% \times \$1.25 =$	\$ 5,000 U
Peach ($400,000 \text{ kg.} - 420,000 \text{ kg.} \times 25\% \times \$1.80 =$	9,000 U
Apricot ($400,000 \text{ kg.} - 420,000 \text{ kg.} \times 55\% \times \$2.25 =$	<u>24,750 U</u>
	\$ <u>38,750 F</u>

3. Margin of safety = Revenue - Breakeven Revenue

Revenue = $\$4.50 \times 200,000 \text{ jars} =$	\$900,000
BE point = $\$180,000 / (\$2.35 / \$6.00) =$	<u>459,574</u>
Margin of safety	<u>\$440,426</u>

Diff: 3 Type: ES

Skill: Apply

Objective: LO 3-4 & 7-7

13) The textbook discusses five levels of variances: Level 0, Level 1, Level 2, Level 3, and Level 4. Briefly explain the meaning of each of those levels and provide an example of a variance at each of those levels.
Answer: A Level 0 variance is simply the difference between actual operating income and planned operating income in the static budget.

A Level 1 variance would be any of the differences between the static budget and the actual results that make up operating income. Examples of such differences could include the following items:

Units sold	(Static budget - actual)
Revenues	(Static budget - actual)
Material costs	(Static budget - actual)
Direct manufacturing labour	(Static budget - actual)
Variable manufacturing overhead	(Static budget - actual)
Contribution margin	(Static budget - actual)
Fixed costs	(Static budget - actual)

A Level 2 variance subdivides the level 0 variance (which is the total of the Level 1 variances) into a sales volume variance and a flexible-budget variance. The sales volume variance is the difference between the flexible budget amount and the corresponding static budget amount. The flexible budget variance is an actual result and the corresponding flexible budget amount based on the actual output level in the budget period. Specific examples of Level 2 variances could include any of the items shown in the list of Level 1 variances.

A Level 3 variance would include rate variances that reflect the difference between the actual input price and a budgeted input price, such as the direct material rate variance, the direct labour rate variance, and the variable overhead rate variance. Level 3 variances would also include efficiency variances that reflect the difference between an actual input quantity and a budgeted input quantity. Examples would include material quantity variances, labour efficiency variances, and variable overhead efficiency variances.

A Level 4 variance separates the Level 3 efficiency variance into yield and mix variances. A mix variance measures the variance of actual from expected input mix. The yield variance measures the variance of the actual from expected yield of outputs obtained from expected quantity of inputs.

Diff: 3 Type: ES

Skill: Understand

Objective: LO 7-7