MANAGEMENT ADVISORY SERVICES

Standard Costing and Variance Analysis

QUIZZER

Materials

The Handkerchief Company has a signature scarf for ladies that are very popular. Certain production and marketing data are indicated below:

Cost per yard of cloth	P40.00
Allowance for rejected scarf	5% of production
Yards of cloth needed per scarf	0.475 yard
Airfreight from supplier	P1.00/yard
Motor freight to customers	P0.90 /scarf
Purchase discounts from supplier	3%
Sales discount to customers	2%

The allowance for rejected scarf is not part of the 0.475 yard of cloth per scarf. Rejects have no market value. Materials are used at the start of production.

Calculate the standard cost of cloth per scarf that Handkerchief Company should use in its cost sheets.

A. P19.85
B. P20.00
C. P19.40
D. P19.90

SOLUTION:

Answer: D

Net price per yard:		
Purchase price		40.00
Freight		1.00
Purchase discount	0.03 x 40	(1.20)
Standard cost per yard		39.80
Standard quantity per scarf	0.475/0.95	0.50
Standard cost per scarf:	0.50 x 39.80	19.90

Direct Labor

The following direct labor information pertains to the manufacture of Part R78:

Number of hours required to make a part	2.5 DLH
Number of Direct workers	75
Number of total productive hours per week	3000
Weekly wages per worker	P1,000
Laborers' fringe benefits treated as direct labor costs of wages	25%

What is the standard direct labor cost per unit of Part R78?

A. P62.500
B. P78.125
C. P41.670
D. P84.125

SOLUTION:

Answer: B

Weekly wages per worker	1,000
Fringe benefits (1,000 x 0.25)	250
Total weekly direct labor cost per worker	1,250
Labor cost per hour (1,250 ÷ 40 hrs)	31.25
Labor cost per unit (31.25 x 2.50 hrs)	P78.125

MATERIALS VARIANCE

Actual Quantity(AQ) X Actual price(AP)	Actual Quantity(AQ) X Standard Price(SP)	Standard Quantity(SQ) X Standard Price(SP)

Material Price Variance (MPV) = AQ (AP – SP)
Material Quantity Variance (MQV) = SP(AQ – SQ)

DIRECT LABOR VARIANCE

Actual Hours(AH) X Actual Rate(AR)	Actual Hours(AH) X Standard Rate (SR)	Standard Hours(SH) X Standard Rate (SR)
RATE VARIANCE	**EFFICIENCY VARIANCE**	

Labor Rate Variance (LRV) = AH (AR – SR)
Labor Efficiency Variance (LEV) = SR (AH – SH)

The following July information is for Marley Company:

Standards:

Material	3.0 feet per unit @ P4.20 per foot
Labor	2.5 hours per unit @ P7.50 per hour

Actual:

Production	2,750 units produced during the month
Material	8,700 feet used; 9,000 feet purchased @ P4.50 per foot
Labor	7,000 direct labor hours @ P7.90 per hour

1) Refer to Marley Company. What is the material price variance (calculated at point of purchase)?
a. P2,700 U
b. P2,700 F
c. P2,610 F
d. P2,610 U

ANS: A

Material Price Variance = (AP - SP) * AQ
= (P4.50 - P4.20) * 9,000 feet purchased
= P2,700 U

2) Refer to Marley Company. What is the material quantity variance?
a. P3,105 F
b. P1,050 F
c. P3,105 U
d. P1,890 U

ANS: D

Material Quantity Variance = (AQ - SQ) * SP
= (8,700 - (2,750 * 3)) * P4.20
= P1,890 U

3) Refer to Marley Company. What is the labor rate variance?
a. P3,480 U
b. P3,480 F
c. P2,800 U

d. P2,800 F

ANS: C

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Labor Rate Variance = (AP - SP) * AQ
   = (P7.90 - P7.50) * 7,000 hr used
   = P2,800 U
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4) Refer to Marley Company. What is the labor efficiency variance?
a. P1,875 U
b. P938 U
c. P1,875 U
d. P1,125 U

ANS: B

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Labor Efficiency Variance = (AQ - SQ) * SR
 = (7,000 hr - (2.5 hr/unit * 2,750 units)) * P7.50
 = P938 U (rounded)
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OVERHEAD VARIANCE

4-WAY APPROACH
- Variable OH Spending Variance
- Variable OH Efficiency Variance
- Fixed OH Spending Variance
- Fixed OH efficiency Variance

3-WAY APPROACH
- Spending Variance
- Efficiency Variance
- Volume/Capacity Variance

2-WAY APPROACH
- Controllable Variance
- Volume Variance

1-WAY APPROACH
- Total Variance

ONE VARIANCE APPROACH:
AFOH – SFOH

TWO-WAY VARIANCE APPROACH:
CONTROLLABLE VARIANCE = AFOH – BASH
VOLUME/CAPACITY/NONCONTROLLABLE VARIANCE = BASH – SFOH

THREE-WAY VARIANCE APPROACH:

SPENDING VARIANCE = AFOH - BAAH

EFFICIENCY VARIANCE = BAAH - BASH

VOLUME VARIANCE = BASH – SFOH

FOUR-WAY VARIANCE APPROACH:
VARIANCE SPENDING VARIANCE = AVOH - BVOH

VARIABLE EFFICIENCY VARIANCE = BVOH - SVOH

FIXED SPENDING VARIANCE = AfOH - BfOH

FIXED VOLUME/CAPACITY VARIANCE = BfOH – SfOH

LEGEND:
AFOH = Actual Factory Overhead
SFOH = Standard Factory Overhead
BAAH = Budget Allowed on Actual Hours
BASH = Budget Allowed on Standard Hours

AfOH = Actual fixed Overhead
SfOH = Standard fixed Overhead
BfOH = Budgeted fixed Overhead (this is a constant amount)
AVOH = Actual Variable Overhead
BVOH = Budgeted Variable Overhead
SVOH = Standard Variable Overhead

COMPUTATIONS:

AFOH = Actual variable OH Cost **+** Actual Fixed OH Cost
SFOH = AQ X SH X SR -> standard rate for both var. plus fixed

BAAH =
For variable = AH x SR -> this is also your budgeted variable overhead
For fixed = Budg Fxd OH

BASH =
For variable = AQ x SH x SR -> this is also your standard variable OH
For fixed = Budg Fxd OH

BVOH = AH x SR
SVOH or SfOH = AQ x SH x SR

Actual Var OH (AVOH)			Budg Var OH(BVOH)			Standard Var OH (SVOH)		
Act VOH Rate (AR)	X	Act Hour(AH)	Std VOH Rate (SR)	X	Act Hour (AH)	Std VOH Rate (SR)	X	Std Hour (SH)
		AH(SR-AR)			SR(AH-SH)			
		Var OH Spending Variance			Var. OH Efficiency Variance			

Actual Fxd OH (AFOH)			Budg Fxd OH(BFOH)			Standard Fxd OH (SFOH)		
Act FOH Rate (AR)	X	Act Hour(AH)	Std FOH Rate (SR)	X	Act Hour (AH)	Std FOH Rate (SR)	X	Std Hour (SH)
		AH(SR-AR)			SR(AH-SH)			
		Fxd. OH Spending Variance			Fxd Volume Variance			

Intel Company uses a standard cost system for its production process and applies overhead based on direct labor hours. The following information is available for August when Intel made 4,500 units:

Standard:	
DLH per unit	2.50
Variable overhead per DLH	P1.75
Fixed overhead per DLH	P3.10
Budgeted variable overhead	P21,875
Budgeted fixed overhead	P38,750

Actual:	
Direct labor hours	10,000
Variable overhead	P26,250
Fixed overhead	P38,000

1) Refer to Intel Company. Using the one-variance approach, what is the total overhead variance?

a. P6,062.50 U
b. P3,625.00 U
c. P9,687.50 U
d. P6,562.50 U

ANS: C

Total Variance = Actual Overhead - Applied Overhead
= P(26,250 + 38,000) - (P(1.75 + 3.10) * 2.50 hrs/unit * 4,500 units)
= P64,250.00 - P54,462.50
= P9,687.50U

Q1:

ONE VARIANCE APPROACH

AFOH-SFOH		
AFOH=	26,250 + 38,000	64,250.00
SFOH=	4500 X 2.5 HR X (1.75+3.1)	54,462.50
		9,787.50

2) Refer to Intel Company. Using the two-variance approach, what is the controllable variance?
a. P5,812.50 U
b. P5,812.50 F
c. P4,375.00 U
d. P4,375.00 F

ANS: A

Controllable Variance = Actual Overhead - Budgeted Overhead Based on Standard Quantity

= P64,250.00 - P((4,500 units * 2.5 DLH/unit * P1.75) + 38,750)
= P(64,250 - P58,437.50)
= P5,812.50 U

Q2:

CONTROLLABLE VARIANCE

AFOH-BASH

AFOH=	26,250+38,000	64,250.00
BASH=	4500u X 2.5Hr X 1.75=19,687.5 38,750	58,437.50
		5,812.50

3) Refer to Intel Company. Using the two-variance approach, what is the noncontrollable variance?
a. P3,125.00 F
b. P3,875.00 U
c. P3,875.00 F
d. P6,062.50 U

ANS: B

Uncontrollable Variance = Budgeted Overhead Based on SQ - Applied Overhead

= P(58,437.50 - 54,562.50)
= P3,875.00 U

Q3:

VOLUME/CAPACITY/NONCONTROLLABLE VARIANCE

BASH-SFOH

BASH=	4500u X 2.5Hr X 1.75=19,687.5 38,750	58,437.50
SFOH=	4500u X 2.5Hr X (1.75+3.1)	54,562.50
		3,875.00

4) Refer to Intel Company. Using the three-variance approach, what is the spending variance?

a. P4,375 U
b. P3,625 F
c. P8,000 U
d. P15,750 U

ANS: C

OH Spending Variance = Actual OH - Budgeted OH based upon Inputs Used

= P64,250 - ((10,000 hrs * P1.75) + P38,750)
= P(64,250 - 56,250)
= P8,000.00 U

Q4:

SPENDNG VARIANCE

AFOH-BAAH

AFOH=	26,250+38,000	64,250.00
BAAH=	10,000Hr X 1.75 = 17,500 38,750	56,250.00
		8,000.00

5) Refer to Intel Company. Using the three-variance approach, what is the efficiency variance?

a. P9,937.50 F
b. P2,187.50 F
c. P2,187.50 U
d. P2,937.50 F

ANS: B

OH Efficiency Variance = Budgeted OH based on Actual - Budgeted OH based on Standard

= ((10,000 * P1.75)+ P38,750) - ((4,500 * 2.50 * P1.75) + P38,750)
= P(56,250.00 - 58,437.50)
= P2,187.50 F

Q5:

EFFICIENCY VARIANCE (3-WAY APPROACH)

BAAH-BASH

BAAH=	10,000Hr X 1.75 = 17,500 38,750	56,250.00

BASH= 4500u X 2.5Hr X 1.75=19,687.5
38,750 58,437.50

2,187.50

6) Refer to Intel Company. Using the three-variance approach, what is the volume variance?
a. P3,125.00 F
b. P3,875.00 F
c. P3,875.00 U
d. P6,062.50 U

ANS: C

Volume Variance = Budget Based on Standard Quantity - Overhead Applied

= P(58,437.50 - 54,562.00)
= P3,875.00 U

Q6:

VOLUME/CAPACITY/NONCONTROLLABLE VARIANCE

BASH-SFOH

BASH= 4500u X 2.5Hr X 1.75=19,687.5
38,750 58,437.50

SFOH= 4500u X 2.5Hr X (1.75+3.1) 54,562.50

3,875.00

7) Refer to Intel Company. Using the four-variance approach, what is the variable overhead spending variance?
a. P4,375.00 U
b. P4,375.00 F
c. P8,750.00 U
d. P6,562.50 U

ANS: C

Variable Overhead Spending Variance = Actual VOH - Budgeted VOH/Actual Quantity

= P26,250.00 - (10,000 * P1.75/VOH hr)
= P(26,250.00 - 17,500.00)
= P8,750.00 U

Q7:

VAR OH SPENDING VARIANCE

AVOH-SVOH

AVOH=	ACTUAL COST INCURRED	26,250.00
SVOH=	4500u X 2.5Hr X 1.75	19,687.50
		6,562.50

8) Refer to Intel Company. Using the four-variance approach, what is the variable overhead efficiency variance?
a. P2,187.50 U
b. P9,937.50 F
c. P2,187.50 F
d. P2,937.50 F

ANS: C

VOH Efficiency Variance = Budgeted VOH based on Actual - Budgeted VOH/Standard Qty

= ((10,000 * P1.75/hr) - ((4,500 * 2.50hrs/unit * P1.75/hr))
= P(17,500.00 - 19,687.50)
= P2,187.50 F

Q8:

VARIABLE EFFICIENCY VARIANCE (4-WAY APPROACH)

BVOH-SVOH

BVOH=	10,000Hr X 1.75	17,500.00
SVOH=	4500u X 2.5Hr X 1.75	19,687.50
		2,187.50

9) Refer to Intel Company. Using the four-variance approach, what is the fixed overhead spending variance?
a. P7,000 U
b. P3,125 F
c. P750 U
d. P750 F

ANS: D

Fixed OH Spending Variance = Actual Fixed OH - Applied Fixed OH
= P(38,000 - 38,750)
= P750 F

Q9:

FIXED OH SPENDING VARIANCE (4-WAY APPROACH)

AfOH-BfOH

AfOH=	ACTUAL COST INCURRED	38,000.00
BfOH=	AS BUDGETED	38,750.00
		750.00

10) Refer to Intel Company. Using the four-variance approach, what is the volume variance?

a. P3,125 F
b. P3,875 F
c. P6,063 U
d. P3,875 U

ANS: D

Volume Variance = Budget Based on Standard Quantity - Overhead Applied
= P(58,437.50 - 54,562.00)
= P3,875.00 U

Q10:

VOLUME VARIANCE (4-WAY APPROACH)

BfOH=	AS BUDGETED	38,750.00
SfOH=	4500u X 2.5Hr X 3.1	34,875.00
		3,875.00