BUS 201W (Chap 11)

Standard Costs and Operating Performance Measures

Variance = Actual cost ~ Standard cost

* Favourable variance : Actual cost কম
* Adverse variance : Actual cost বেশি

Types of variance (6)

1) **Material's price variance:**

formula : $(AQ \times AP) - (AQ \times SP)$

$= AQ(AP - SP)$

Here, AQ → Actual quantity

AP → Actual Price

SP → Standard price

2) **Material's quantity variance:**

formula : $SP(AQ - SQ)$

SQ → Standard quantity allowed for actual output

3) Labour Rate Variance:

Formula: AH (AR - SR)

Here, AH → Actual hours

AR → Actual rate

SR → Standard rate

4) Labor efficiency variance:

formula: SR (AH - SH)

Here, SH → standard hours allowed for actual output

5) Variable overhead rate variance:

Formula: AH (AR - SR)

6) Variable overhead efficiency variance:

formula: SR (AH - SH)

PDF

Theory: (Page - 509)

11.1) What is quantity standard? What is a price standard?

→ A quantity standard indicates how much of an input should be used to make a unit of output.

A price standard indicates how much the input should cost.

11.2) Distinguish between ideal and practical standards?

→ Ideal standards assume perfection and do not allow for any inefficiency. Ideal standards are rarely, if ever, attained. Practical standards can be attained by employees working at a reasonable, though efficient pace and allow for normal breaks and work interruptions.

11.3) What is meant by the term "management by exception"?

→ Under management by exception, managers focus their attention on results that deviate from expectations. It's assumed that results that meet expectations do not require investigation.

11.4) ~~what~~ Why are separate price and quantity variances computed?

→ Separating an overall variance into a price variance and a quantity variance provides more information. Moreover, price and quantity variances are usually the responsibilities of different managers.

11.5) Who is generally responsible for the materials price variance? The materials quantity variance? The labor efficiency variance?

→ The materials price variance is usually the responsibility of the purchasing manager. The materials quantity and labor efficiency variances are usually the responsibility of production managers and supervisors.

11.6) The materials price variance can be computed at what two different points in time? Which point is better? Why?

→ The materials price variance can be computed either when materials are purchased on when they're placed into production. It's usually better to compute the variance when materials are

purchased because that is when the purchasing managen, who has responsibility for this variance, has completed his on her work. In addition, recognizing the price variance when materials are purchased allows the company to carry its raw materials in the inventory accounts at standard cost, which greatly simplifies bookkeeping.

11.7) If the materials price variance is favorable but the materials quantity variance is unfavorable, what might this indicate?

→ This combination of variances may indicate that inferior quality materials were purchased at a discounted price, but the low-quality materials created production problems.

11.8) Should standards be used to identify who to blame for problems?

→ If standards are used to find who to blame for problems, they can breed resentment and undermine morale. Standards should not be used to find someone to blame for problems.

11.9) "Our workers are all under labor contracts; therefore, our labor rate variance is bound to be zero." Discuss.

→ Several factors other than the contracted rate paid to workers can cause a labor rate variance. For example, skilled workers with high hourly rates of pay can be given duties that require little skill and that call for low hourly rates of pay, resulting in an unfavorable rate variance. Or unskilled/untrained workers can be assigned to tasks that should be filled by more

skilled workers with higher rates of pay, resulting in a favorable rate variance. Unfavorable rate variances can also arise from overtime work at premium rates.

Math

Review problem : Standard Costs

Solution :

① Direct Materials variance:

a) * Material's price variance :

$= AQ\ (AP - SP)$

$= 18,000\ (0.60 - 0.50)$

$= \$1800$

For price variance (input cost)

AQ = 18,000 ounces

AP = $0.60/ounce

SQ = (2000 × 6) ounces = 12000 ounces

SP = $0.50/ounce

b) material quantity variance :

$= SP\ (AQ - SQ)$

$= 0.50\ (14000 - 12000)$

$= \$1000$

AQ = 14000 ounces

For quantity variance (used input)

② Direct labor variances:

a) Labor rate variance

= AH (AR − SR)

= 4000 (9.75 − 10)

= $1000

AH = 4000 hours
AR = $9.75/hour
SR = $10/hour
SH = 2000 × 1.8
= 3600 hours

b) Labor efficiency variance

= SR (AH − SH)

= 10 (4000 − 3600) = $4000

③ Variable manufacturing overhead variances:

a) variable overhead rate variance

= AH (AR − SR)

= AH × AR − AH × SR

= 20,800 − (4000 × 5) = $800

Actual variable overhead cost = $20,800
AH = 4000 hours
SR = $5/hour

b) variable overhead efficiency variance

= SR (AH − SH)

= 5 (4000 − 3600)

= $2000

SH = 2000 × 1.8
= 3600 hours

Exercise

11.2) ① Actual cost RM 171,000

Total standard cost
= (35000 × 0.6 × RM 8) = RM 168,000

∴ Total variance RM 3,000
materials (adverse)

∴ The cost is RM 168,000 and it is RM 3000 less that the cost that was incurred.

② i) Material's price variance:

= AQ(AP − SP) = AQ × AP − AQ × SP (AQ × AP: Actual cost)

= 1,71000 − (22,500 × 8)

= RM 9000

AQ = 22,500 kg
SP = RM 8/kg

ii) Material's quantity variance:

= SP(AQ − SQ)

= 8 (22,500 − 21,000)

= 12,000 (RM)

SQ = 35000 × 0.6
= 21,000 kg

first check if 8 items are available (AH, AR, AQ, AP, SH, SR, SQ, SP)

11.3) (1) Actual direct labon cost $9,600

Standard direct labon cost
$= \$(4000 \times 0.25 \times 9.75)$ $= \$9,750$

Total direct labon variance (favourable) $= \$150$

∴ The direct labon cost should have been $9750.
And it differs $150 from the actual DLC.

(2) Labon rate variance:
$= AH(AR - SR)$
$= 960(10 - 9.75)$
$= \$240$

AH = 960 hours
AR = $10/hour
SR = $9.75/hour

Labon efficiency variance:
$= SR(AH - SH)$
$= 9.75(960 - 1000)$
$= \$390$

SH = 4000 × 0.25
= 1000 hours

কিনেছি – price variance
use করেছি – quantity variance

11.7) (1)

a) Direct materials price variance

= AQ (AP − SP)

= 25000 (0.48 − 0.5)

= $500

AQ = 25000 microns
AP = $0.48 / micron
SP = $0.5 / micron

Direct materials quantity variance

= SP (AQ − SQ)

= 0.5 (25000 − 18000)

= $3500

SQ = 3000 × 6
= 18000 microns

b) Direct Labor rate variance

= AH (AR − SR) = AH × AR − AH × SR

= 36000 − (4000 × 8)

= $4000

Actual DLC = $36000
AH = 4000 hours
SR = $8 / hour

Direct labor efficiency variance

= SR (AH − SH)

= 8 (4000 − 3900)

= $800

SH = 3000 × 1.3
= 3900 hours

11.8) 1) Direct materials price variance

$= AQ\ (AP - SP)$

$= 20,000\ (2.35 - 2.50)$

$= \$3000$

AQ = 20,000 pounds
AP = $2.35/pound
SP = $2.5/pound

Direct materials quantity variance

$= SP\ (AQ - SQ)$

$= 2.5\ (20000 - 18400)$

$= \$4000$

SQ = 4,000 × 4.6 = 18400 pounds

2) Direct labor rate variance

$= AH\ (AR - SR)$

~~$= 750($~~

$= 10,425 - (750 \times 12)$

$= \$1,425$

AH = 750 hours
AH*AR = $10,425 → Actual DLC
SR = $12/hour

Direct labor efficiency variance

$= SR\ (AH - SH)$

$= 12\ (750 - 800)$

$= \$600$

SH = 4000 × 0.2 = 800 hours

11.10) ① Actual DLC $73,600

Standard DLC = $(20000 \times \frac{18}{60} \times 12)$

= $72,000

∴ Total DL variance (adverse) → $1,600

∴ The DLC should have been $72,000 and it diffens $1,600 from the incurred cost.

② i) Labon rate variance

= AH (AR − SR)

= 73600 − (5750 × 12)

= $4600

AH = 5750 hours
SR = $12/hour

ii) Labon efficiency variance

= SR (AH − SH)

= 12 (5750 − 6000)

= $3000

SH = 20000 units
$\frac{18}{60}$ hours
= 6000 hours

(3) variable overhead rate variance:

$= AH(AR - SR)$

$= 21850 - (5750 \times 4)$

$= \$ 1150$

Actual variable overhead cost

AH x AR = $ 21850

SR = $ 4 / dollar

AH = 5750 dollars

variable overhead efficiency variance $= SR(AH - SH)$

$= 4(5750 - 6000)$

$= \$ 1000$

SH = 6000 hours

11.7)

② Possible causes of each variance:

A variance usually has many possible explanations. In particular, we should always keep in mind that the standards themselves may be incorrect. Some of the other possible explanations for the variances observed at Dawson Toys appear below:

① Materials price variance: Since this variance is favorable, the actual price paid per unit for the material was less than the standard price. This occurs for many reasons like- the purchase of a lower grade materials at a discount, buying in an unusually large quantity to take advantage of quantity discounts.

② Materials Quantity Variance: Since this variance is unfavorable, more materials were used to produce the actual output than were called for by the standard. This happens due to poorly trained workers, improperly adjusted machines and defective materials.

③ Labor Rate Variance: Since this variance is unfavorable, the actual average labor rate is higher than the standard labor rate. This happens due to an increase in wages that has not been reflected in the standards, unanticipated overtime and a shift toward more highly paid workers.

ADLC (effort)

④ Labor efficiency variance: Since the variance is unfavorable, the actual number of labor hours was greater than the standard labor hours allowed for the actual output. This variance occurs due to poor supervision, poorly trained workers, low-quality material requiring more labor time to process. Again if the direct labor force is fixed, an unfavorable labor efficiency variance causes by a reduction in output due to decreased demand for the company's products.

AH (effort)

All of these variance could have been caused by the purchase of low quality materials at a cut-rate price → discount