Chapter 13
Standard Costing (Variance analysis)

Standard cost

A Standard cost is an estimated unit cost.
The standard cost for a product (or service) is determined in advance based on expected resource usage using expected resource prices.
Standard costing systems use these predetermined values to estimate income and expenditure under standard conditions.
The standard costs form the basis of budget totals, which can then be compared to actuals as part of the performance management process

Advantages of standard costing

- ✓ Inventory valuation (for internal and/or external use)
- ✓ As a basis for pricing decisions
- ✓ For budget preparation
- ✓ For budgetary control
- ✓ For performance measurement
- ✓ For motivating staff using standards as targets

Limitations of Standard Costing

- × The setting of standards is time consuming/costly e.g. needs a specialist
- × Standards need to be updated regularly as business conditions change rapidly
- × Standards based on estimates
- × Unrealistic standard can demotivate staff
- × Setting standards involves prediction which has an element of uncertainty/inaccurate

Types of variances

1. Sales variances
2. Material variances
3. Labour variances
4. Fixed overhead variances

1. Sales variances

There are two causes of sales variances.

Difference in the selling price
Difference in the sales volume, giving

- Sales price variance
- Sales volume variance

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Sales price variance

Sales Price Variance is the measure of change in sales revenue as a result of variance between actual and standard selling
It is calculated as

SPV	Au **X** Ap	X (F)
	Au **X** Sp	(X) (A)
	Favourable/ (Adverse)	X/(X)

Analysis

Favourable sales price variance

- Decrease in the number of competitors in the market
- Improved product differentiation and market segmentation
- Better promotion and aggressive sales campaign

Adverse sales price variance

- Increase in competition in the market
- Decrease in demand for the products
- Reduction in price enforced by regulatory authorities

Sales volume variance

Sales Volume Variance is the measure of change in profit or contribution as a result of the difference between actual and budgeted sales quantity
It is calculated as

SVV	Au **X** Ap	X (F)
	Su **X** Sp	(X) (A)
	Favourable/ (Adverse)	X/(X)

Possible Causes

- Unexpected fall in demand due to recession
- Additional demand attracted by reduced price
- Failure to satisfy demand due to production difficulties

Total Sales Variance

Total Sales Variance	Sales price variance	X
	Sales volume variance	(X)
	Favourable/ (Adverse)	X/(X)

Or

Total Sales Variance	Au **X** Ap	X
	Su **X** Sp	(X)
	Favourable/ (Adverse)	X/(X)

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2. Material variances

There are two causes of material variances.

Difference in the purchase price
Difference in the quantity used, giving

- Material price Variance
- Material Usage Variance

Material price variance

Raw Material Price Variance is the difference between the actual cost of raw material and the standard cost of quantity purchased or consumed.

It is calculated as:

MPV	Aq **x** Ap	X (A)
	Aq **x** Sp	(X) (F)
	(Favourable)/ Adverse	X/(X)

Material usage variance

It is calculated as

MUV	Aq **x** Sp	X (A)
	Sq **x** Sp	(X) (F)
	(Favourable)/ Adverse	X/(X)

Standard quantity allowed for actual production = Actual production X Standard usage

Total material variance

Total Material Variance	Material price variance	X
	Material usage variance	(X)
	Favourable/ (Adverse)	X/(X)

Or

TMV	Aq **X** Ap	X
	Sq **X** Sp	(X)
		X/(X)

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Possible Causes

Variance	Favourable	Adverse
Material Price	❖ Purchase discount on large orders ❖ Better price negotiation ❖ Change in material standard ❖ An overall decrease in market price level	❖ Unexpected Price increase ❖ Loss of previous discount from supplier ❖ Purchase order placed in uneconomic sizes
Material Usage	❖ Material used of higher quality than standard ❖ More effective use made of material ❖ Errors in allocating materials to jobs ❖ Efficiency of workers ❖ Changes in manufacturing methods ❖ Changes in product specification	❖ Defective material ❖ Excessive waste ❖ Theft ❖ Stricter quality control ❖ Errors in allocating materials to jobs ❖ Inefficiency of workers ❖ Changes in manufacturing methods ❖ Changes in product specification

3. Labour Variances

There are two causes of labour variances.

Difference in the price paid with standard
Difference in the standard time with actual time, given

- Labour rate Variance
- Labour efficiency Variance

Labour rate variance

It is calculated as

LRV	Ah **X** Ar	X (A)
	Ah **X** Sr	(X) (F)
	(Favourable)/ Adverse	X/(X)

Labour efficiency variance

It is calculated as

LEV	Ah **X** Sr	X (A)
	Sh **X** Sr	(X) (F)
	(Favourable)/ Adverse	X/(X)

Standard hours allowed for actual production = Actual production X Standard time

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Total labour variance

Total Labour Variance	Labour rate variance	X
	Labour efficiency variance	(X)
	Favourable/ (Adverse)	X/(X)

Or

Total Labour Variance	Ah **X** Ar	X
	Sh **X** Sr	(X)
	(Favourable)/ Adverse	X/(X)

Possible Causes

Variance	Favourable	Adverse
Labour rate	❖ Use of apprentices or other workers at a rate of pay lower than standard ❖ Pay scale revision due to an agreement with employees unions or award	❖ Wage rate increases ❖ Use of high grade labour ❖ Pay scale revision due to an agreement with employees unions or award ❖ Employees apprentices or trainees instead of regular workers ❖ Overtime working
Labour efficiency	❖ Output produced more quickly than expected because of work motivation, better quality of equipment or materials, or better methods. ❖ Errors in allocating time to jobs	❖ Lost time in excess of standard allowed ❖ Errors in allocating time to jobs ❖ Labour agitation, strike, go slow, work to rule etc. ❖ Lack of proper planning & scheduling ❖ Increase in labour turnover ❖ Plant & machinery not maintained properly ❖ Poor material quality ❖ Lack of proper supervision

4. Factory overhead variance

Fixed overhead expenditure variance

FOH expenditure variance	Actual FOH – Budgeted FOH	X **A/F**

Fixed overhead volume variance

FOH Volume Variance	Budgeted hours X OAR (Budgeted overhead)	X (A)
	Standard hours X OAR	(X) (F)
	(Favourable)/ Adverse	X/(X)

Standard hours allowed = Actual output x standard time
OAR = Budgeted Overhead / Budgeted hours
Budgeted Hours = Budgeted units x budgeted time

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The fixed overhead volume variance is the difference between the actual and budgeted production and can be broken down further (to show what caused this difference) into the fixed overhead efficiency and fixed overhead capacity.

Fixed Overhead Capacity Variance

The variance can be calculated as follows:

FOH Capacity Variance	Budgeted hours X OAR	X (A)
	Actual hours X OAR	(X) (F)
	(Favourable)/ Adverse	X/(X)

Budgeted hours = Budgeted production x budgeted hour per unit

Fixed Overhead Efficiency Variance

The variance can be calculated as follows:

FOH Capacity Variance	Actual hours X OAR	X (A)
	Standard hours allowed X OAR	(X) (F)
	(Favourable)/ Adverse	X/(X)

Standard hours allowed = Actual output x standard hour per unit

Reconciliation of standard cost into actual cost

Standard Cost	**xxx**
Add: All Cost Variances (Adverse)	xxx
Deduct: All Cost Variance (Favourable)	(xxx)
Actual Cost	**xxx**

Reconciliation of standard profit into actual profit

Standard profit	**xxx**
Add: All Cost Variance (Favourable)	xxx
Deduct: All Cost Variance (Adverse)	(xxx)
Add: All sales variance (Favourable)	xxx
Deduct: All sales variance (Adverse)	**(xxx)**
Actual profit	**xxx**

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Past Paper Questions

Q # 1 The managers of Namllih Ltd planned to produce and sell 1500 briefcases in August 2008. They actually produced and sold 1125 briefcases.
The following information is available.
The standard costs for producing 1500 briefcases were:

Direct materials	1400 m2 at a cost of $2.10 per m2
Direct labour	2460 hours at $4.20 per hour

The actual costs were:

Direct materials	1210 m2 at $2.05 per m2
Direct labour	1800 hours at $4.10 per hour

REQUIRED

(a) Calculate:
(i) Material price variance
(ii) Material usage variance
(iii) Total materials variance
(iv) labour rate variance
(v) labour efficiency variance
(vi) Total labour variance [12]

(b) Explain how any two of the variances calculated in (a) may be connected. [2]

November 2008

Q # 2 Lim Ltd manufactures plastic storage boxes. The materials are purchased as large sheets of plastic ready for pressing into shape.
Actual results for the year ended 31 March 2009 were as follows:

	$	$
Sales		190 000
Less variable cost		
Raw materials	89 100	
Direct labour	33 000	122 100
Contribution		67 900

Additional information

1 There were no opening or closing stocks of boxes.

2 The budget and standard cost details for the year ended 31 March 2009 were:
(i) Budgeted sales of boxes would be: 24 000 at $10 each;
(ii) Each box would require 1.4 m2 of plastic at $3.20 per m2;
(iii) Each box would require 10 minutes of direct labour time paid at $8.40 per hour.

3 The actual results for the year ended 31 March 2009 showed:
(i) 20 000 boxes were made and sold;
(ii) 27 000 m2 of plastic was used;

(iii) 4000 hours of direct labour time were used.

REQUIRED

(a) Calculate the:

(i) Sales volume variance;
(ii) Sales price variance;
(iii) Total sales variance;
(iv) Raw materials usage variance;
(v) Raw materials price variance;
(vi) Total raw materials variance;
(vii) Direct labour efficiency variance;
(viii) Direct labour rate variance;
(ix) Total direct labour variance. [18]

(b) Using the original budgeted figures, prepare a statement showing the budgeted contribution. [10]

(c) Explain one reason why the following variances calculated in (a) might have arisen:
(i) Sales volume variance;
(ii) Raw materials price variance;
(iii) Direct labour rate variance. [6]

(d) Explain how a raw materials usage variance might be connected to a direct labour efficiency variance. [6]

June 2009

Q # 3 Ridgeway Ltd manufactures two products, Product A and Product B. The following information is available:

1 Ridgeway Ltd employs 26 production staff who usually work 150 hours a month each at a rate of $10 an hour.
14 work on the production of Product A.
12 work on the production of Product B.

2 In a normal month production of
Product A requires 4200 kg of raw material at $8.20 per kg.
Product B requires 3500 kg of raw material at $8.80 per kg.

3 An average unit of Product A uses 3 kg of raw material and 2 machine hours.
An average unit of Product B uses 3.5 kg of raw material and 3 machine hours.

4 Monthly fixed overheads total $42 760.

REQUIRED

(a) Calculate the overhead absorption rate on the basis of:
(i) Machine hours
(ii) labour hours

(iii) Total direct material cost. [8]

(b) Using the overhead absorption rate on the basis of machine hours, calculate the selling price of one unit of Product B which gives a profit of 50% on cost. [5]

(c) Explain what is meant by the under-absorption and over-absorption of overheads [4]

In March 2010 Ridgeway Ltd produced and sold 1600 units of Product A at a total sales value of $125760.

It bought and used 4600 kg of raw material at a cost of $40 480 and it employed production staff for 2200 hours at a cost of $22 440.

The sales price variance for the month was $4672 adverse.

REQUIRED

(d) Calculate the following for Product A, for March 2010:
(i) Materials price variance
(ii) Materials usage variance
(iii) Total materials variance
(iv) Labour rate variance
(v) Labour efficiency variance
(vi) Total labour variance. [12]

(e) Calculate the standard selling price per unit of product A. [3]

(f) State four advantages of using a standard costing system. [8]

June 2010

Q # 4 Ella manufactures garden ornaments.

Budgeted revenue and costs for 10 000 units of a garden ornament are as follows:

	$
Revenue	300000
Costs	
Direct materials (10 000 kilos)	60000
Direct labour (at $11 per hour)	132000
Fixed overheads	70000

The actual revenue and costs for 18 000 units were as follows:

	$
Revenue	504000
Costs	
Direct materials (17 560 kilos)	119408
Direct labour (23 000 hours)	233450
Fixed overheads	70000

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REQUIRED

(a) Prepare a flexed budget to show the difference between the budgeted profit and the actual profit for 18000 units. [12]
(b) Prepare a standard cost statement to reconcile the budgeted profit and the actual profit. It should clearly show the following variances:

- sales volume
- sales price
- direct material usage and price
- direct labour efficiency and rate. [16]

(c) Prepare a report for Ella which explains the possible relationship between the variances identified in (b). [12]

Specimen Paper 2010

Q # 5 Aston Manufacturing Company has recently implemented a new standard costing system.

(a) Explain the purpose of standard costing. [4]

Budgeted data for the month of April 2012 was:

Sales and production	5000 units
Materials per unit	8 kilograms
Materials cost per kilogram	$6
Labour per unit	3 hours
Labour cost per hour	$7.50
Overheads per unit	3 hours at $3.50 per hour

The standard selling price gives a standard profit margin of 19%.

REQUIRED

(b) Calculate the standard selling price per unit. [7]

Additional information:

The actual results for April 2012 were:

Production	5300 units
Sales	5100 units
Sales revenue	$522 750
Materials used	43 460 kilograms
Materials cost	$271 625
Labour hours	15 500 hours
Labour cost	$120 125

REQUIRED

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(c) Calculate the following variances, stating clearly whether the variance is adverse or favourable
(i) Sales price [4]
(ii) Sales volume [2]
(iii) Material price [2]
(iv) Material usage [2]
(v) Labour rate [2]
(vi) Labour efficiency [2]

(d) Suggest a possible reason for each of the variances. [6]

June 2012

Q # 6 Lourien Ltd operates a standard costing system. Its budget for the month was

	$	$
Sales (22 000 units at $21)		462 000
Direct materials (28 600 kilos at $2)	57 200	
Direct labour (48 400 hours at $6)	290 400	347 600
Contribution		114 400

Actual results for the month were	$	$
Sales (21 400 units at $20.80)		445 120
Direct materials (28 400 kilos at $2.05)	58 220	
Direct labour (47 200 hours at $5.90)	278 480	336 700
Contribution		108 420

REQUIRED

(a) Calculate the following variances
(i) Sales volume [2]
(ii) Sales price [2]
(iii) Total sales [2]
(iv) Direct materials usage [2]
(v) Direct materials price [2]
(vi) Total direct materials [2]
(vii) Labour efficiency [2]
(viii) Labour rate [2]
(ix) Total labour [2]

(b) A company operates a standard costing system. State with reasons what effects might be observed if:
(i) Raw material is of a higher quality than usual. [6]
(ii) Direct labour has a lower skill level than usual. [6]

REQUIRED

(c) State which costing method is best suited to the following situations:
(i) A company wishes to calculate a break even point. [2]
(ii) A customer requires a quote for the manufacture of a large, one-off item. [2]
(iii) Goods are produced in a sequence of continuous manufacturing operations. [2]
(iv) Production costs need to contain an element of the costs of support or service departments. [2]

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(v) A price is needed for one item out of a set of identical items. [2]

November 2012

Q # 7 Gladwall Ltd makes one product. Budgeted information is as follows:

	Per unit
Selling price	$55
Direct materials 4 kilos at	$5 per kilo
Direct labour 2 hours at	$9 per hour

During April 10 000 units were produced and sold. The following variances arose from the production and sales:

	$
Sales price variance	20 000 favourable
Materials price variance	8 400 favourable
Materials usage variance	10 000 adverse
Labour rate variance	2 050 adverse
Labour efficiency variance	4 500 adverse

REQUIRED

(a) State the formula used to calculate each of these five variances. [5]

(b) Calculate, for April, the actual:
(i) Selling price per unit [2]
(ii) Quantity of materials used in total [2]
(iii) Material price per kilo [3]
(iv) Number of labour hours worked in total [2]
(v) labour rate paid per hour. [3]

(c) Starting with the original total budgeted contribution, calculates the actual total contribution for the month. [7]

(d) For each event listed below identify which variance would be affected and give one example of a variance which might arise. State whether the effect would be favourable or adverse.

(i) Theft of raw materials
(ii) Changing suppliers making raw materials more expensive
(iii) Giving sales discounts for bulk buying
(iv) Investment in more reliable machinery
(v) Use of higher grade raw materials
(vi) Decrease in overtime hours. [12]

IAS 2 defines cost as cost of purchase or cost of conversion.

REQUIRED

(e) Give two examples of cost of purchase and two examples of cost of conversion. [4]

June 2013

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Q # 8 Honeybush Limited operates a standard costing system. Monthly standard data is as follows

Sales are 6000 units with a selling price of $26 per unit
Each unit requires 2.4 kilos of raw material costing $3 per kilo
Each unit requires 1.5 hours of direct labour time costing $7 an hour

REQUIRED

(a) Calculate the expected monthly contribution per unit and in total. [8]

(b) Calculate the quantity of raw materials in kilos normally purchased each month. Assume inventory levels remain constant. [2]

Early in 2013 a new supplier entered the market, selling the required raw material at $1.80 per kilo. In April Honeybush Limited bought all its raw material from this new supplier.

This raw material was more difficult to work with. Therefore each unit required 2.6 kilos and labour took 40% longer than usual to produce each unit. Overtime premiums caused the average wage rate to rise to $7.80 an hour.

Honeybush Limited managed to produce and sell the usual 6000 units. The selling price had risen by $0.50 per unit.

REQUIRED

(c) Calculate the following variances for April 2013:

(i) Sales price
(ii) Direct materials usage
(iii) Direct materials price
(iv) Total direct materials
(v) Direct labour efficiency
(vi) Direct labour rate
(vii) Total direct labour [14]

(d) Starting with the original expected total contribution from (a)use these variances to calculate the actual total contribution. [7]
(e) Calculate the change in contribution for Honeybush Limited arising from its decision to change supplier. [5]
(f) Explain what is meant by the expression 'flexing a budget'. [4]

November 2013

Q # 9 In April Amit introduced a new standard costing system.
He produces and sells one item. The standard production is 5000 units. Amit does not have any opening inventory. Closing inventory is valued at full standard cost.
The standard costs per unit were as follows:

Direct materials	3 kilos at $5 per kilo
Direct labour	4 hours at $8 per hour
Overheads	2 hours at $3.50 per hour

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The selling price will allow Amit a profit on the full standard cost of 17.5%.

REQUIRED

(a) Calculate the standard selling price per unit. [3]

Additional information

The actual results for April were:

Production	5100 units
Sales	5040 units $65.25 each
Direct materials used	15 450 kilos
Direct material cost	$78 795
Direct labour hours	20 250
Direct labour cost	$172 125
Overhead variance	$300 adverse

REQUIRED

(b) Calculate the following variances for April, clearly identifying which variance you have calculated.

(i) Sales price
(ii) Sales volume
(iii) Total sales
(iv) Direct material price
(v) Direct material usage
(vi) Total material
(vii) Direct labour rate
(viii) Direct labour efficiency
(ix) Total labour [18]

(c) Explain how the direct labour variances may have arisen during April. [5]
(d) Calculate the actual profit for April. [4]
(e) Calculate the budgeted profit for the actual units sold for April. [3]
(f) Prepare a statement reconciling the budgeted profit with actual profit. Start your statement with your answer is part (e). [7]

Nov 2015

Q # 10 Peter Parfitt produces a single product and operates a standard costing system.

REQUIRED

(a) Explain what is meant by a standard costing system. [4]

Additional information

The standard selling price per unit is $52.

Budgeted monthly production and sales for October were 800 units.

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The standard costs per unit were as follows:

Direct materials	2 kilos at $7 per kilo
Direct labour	3.5 hours at $6 per hour
Overheads	2 hours at $4.50 per hour

The actual results for October were as follows:

Inventory No opening or closing inventory

Sales	815 units at $51 each
Direct materials used	1580 kilos
Direct material cost	$12 000
Direct labour hours	2900
Direct labour cost	$18 100
Overheads	$200 greater than standard

REQUIRED

(b) Prepare the income statement for Peter Parfitt for the month of October. [3]

(c) Calculate the following variances for October clearly identifying which variance you have calculated.
(i) Sales price
(ii) Sales volume
(iii) Total sales
(iv) Material price
(v) Material usage
(vi) Total material
(vii) Labour rate
(viii) Labour efficiency
(ix) Total labour [18]

(d) Calculate the total budgeted gross profit for October. [3]

(e) Prepare a statement reconciling the total budgeted gross profit with the actual profit. [8]

(f) Describe how standard costing would be useful to Peter Parfitt. [4]

Nov 2015

Q # 11 Ayanda Limited manufactures one product. The company keeps no inventory of raw materials or finished goods.
The following budgeted information for a standard month is provided.

Sales	1000 units at $130 each
Raw materials	600 kilos at $18 per kilo
Production labour	1500 hours at $7.50 per hour
Variable overheads	$28 000
Fixed overheads	$34 000

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Variable overheads arise from selling and distribution activities. Fixed overheads include both production and other overheads.

REQUIRED

(a) Prepare the budget for a standard month, showing total contribution and profit. [4]

Additional information

Actual results for March were as follows.

Sales	1200 units at $132 each
Raw materials	780 kilos at $14 per kilo
Production labour	2050 hours at $8.50 per hour
Variable overheads	$35 100
Fixed overheads	$34 100

(b) Prepare the flexed budget for March, showing total contribution and profit. [6]

(c) Calculate the actual total contribution and profit for March. [4]

(d) Prepare a statement reconciling the total of actual direct production costs in (c) with the total of direct production costs from the flexed budget in (b). Start your answer with the actual costs. Your answer should involve four relevant variances. [12]

Additional information

In March the company bought raw materials which were of a lower quality than usual.

REQUIRED

(e) Explain how the purchase of lower quality raw materials had affected the variances in your reconciliation in (d). [8]

(f) Advise the directors whether this purchase of lower quality materials has benefitted the business. [6]

Nov 2015

Q # 12 Aziz Manufacturing Limited produces one product.
The budgeted costs and revenues are as follows.

Units produced and sold	800 per month
Standard selling price	$100 per unit
Standard direct materials	4 kilos at $6 per kilo
Standard direct labour	3 hours at $12 per hour

All overheads are fixed.

In April 850 units were produced and sold. Selling price was maintained at $100 per unit. Actual costs were as follows.

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Direct materials	3485 kilos costing $19 516 in total
Direct labour	2720 hours costing $35 360 in total

REQUIRED

(a) Prepare the original budget and the flexed budget for April to show total budgeted contribution. [8]

(b) Calculate the actual total contribution achieved in April. [1]

(c) Prepare a statement to reconcile the contribution from the flexed budget in **(a)** with the actual contribution from **(b)**. [10]

(d) Suggest **one** reason why each of the following variances had arisen.
(i) Material usage variance [2]
(ii) Labour rate variance [2]

(e) State **two** similarities in use between standard costing and activity based costing. [2]

SP 2016

Q # 13 Alfa manufactures a single product. Its budgeted production and sales in March was 8000 units.
The budgeted data per unit is as follows:

Direct materials	3 kilos at $12 per kilo
Direct labour	4 hours at $20 per hour
Fixed production overhead	$8 per direct labour hour

The product will be sold at full production cost plus 75%.

REQUIRED

(a) Prepare the trading section of the budgeted income statement for March. [5]

Additional information

The actual results for March were:

Actual production (units)	7 500
22 850 kilos direct materials	$269 000
30 800 direct labour hours	$631 000
Fixed production overhead	$250 000

REQUIRED

(b) State **two** reasons why a business will prepare a flexed budget. [2]

(c) Calculate the following variances for March:
(i) Direct materials price
(ii) Direct materials usage

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(iii) Fixed overhead expenditure
(iv) Fixed overhead volume. [8]

Additional information

The accountant has also calculated the direct labour variances. They are as follows:

Direct labour rate	$15 000 (A)
Direct labour efficiency	$16 000 (A)

REQUIRED

(d) (i) Explain the possible reasons why the direct labour adverse variances may have arisen. [6]
(ii) Explain the possible reasons why fixed overhead variances may arise. [2]

(e) Explain how the adverse direct labour efficiency variance can be improved. [2]

March 2016

Q # 14 Khalid owns a business making blankets. He currently uses a standard costing system.

REQUIRED

(a) Explain the term standard costing. [2]

Additional information

For the year ending 31 August 2015 Khalid budgeted to sell 2700 blankets at $40 each.
Each blanket requires 1.5 metres of material at $10 per metre and 30 minutes of labour. All of his workforce are employed full time and paid $14 per hour.
For the year ended 31 August 2015 his actual sales were 2700 blankets. He used 4320 metres of material at a cost of $34 560 and 2025 hours of labour were required at a cost of $24 300.

REQUIRED

(b) Calculate the following variances for the year ended 31 August 2015:
(i) The material price and material usage variances
(ii) The labour rate and labour efficiency variances. [8]

(c) Prepare a statement reconciling the budgeted costs with the actual costs for the year ended 31 August 2015. [4]

(d) Discuss possible reasons why Khalid's actual costs are different to the budgeted costs. [6]

Additional information

In an attempt to control costs, Khalid is considering to:
1 Stop the quality assurance checks usually made during the production process.
2 Find a cheaper supplier for materials to make the blankets.
3 Keep the selling price at $40 per blanket.

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REQUIRED

(e) Recommend to Khalid which option or options he should choose. Justify your anwer. [5]

June 2016

Q # 15 Billyjo makes a single product. His business operates a standard costing system. All goods produced in the month are sold and no inventories are held.

REQUIRED

(a) Explain what is meant by 'standard costing'. [2]

Additional information

1 Budgeted monthly production and sales for April 2016 were 3500 units.

2 The standard costs per unit were as follows:

Direct material	3 kilos at $1.40 per kilo
Direct labour	0.5 hours at $4.60 per hour
Overheads	1 hour at $2.80 per hour

3 The actual results for April were as follows:

Production and Sales	3750 units
Materials used	10 950 kilo
Materials cost	$15 768
Labour hours	1930
Labour cost	$8492

REQUIRED

(b) Calculate the following variances:
(i) Material price variance
(ii) Material usage variance
(iii) Labour rate variance
(iv) Labour efficiency variance [8]

(c) Analyse possible reasons for the variances calculated in **(b)**. [8]

Additional information

The standard selling price per unit is $12. A 2% discount was given to all customers in April. Actual overhead rate was 10% above standard.

REQUIRED

(d) Calculate the actual profit made by Billyjo for April. [4]
(e) Recommend how Billyjo can improve the performance of his business. [3]

Nov 2016

Make Accounting easy with Sir Muzammil
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Q # 16 Joshua makes a single product and uses standard costing.

REQUIRED

(a) State one reason why each of the following variances may arise for a business.
(i) favourable material usage [1]
(ii) adverse labour efficiency [1]

Additional information

The standard costs for the month of June were:

		Per unit
		$
Direct material	5 kilos at $2 per kilo	10
Direct labour	2 hours at $8 per hour	16
Fixed production overhead	2 hours at $4 per hour	8
		34

Budgeted production for June was 19 000 units.
Actual data for the month of June was:

		$
Direct material	83 100 kilos	182 820
Direct labour	37 500 hours	281 250
Fixed production overheads		115 000

Actual production for the month of June was 17 500 units. There were no opening or closing inventories.

REQUIRED

(b) Calculate the following variances for the month of June:
(i) Material price [2]
(ii) Material usage [2]
(iii) Labour rate [2]
(iv) Labour efficiency [2]
(v) Fixed overhead efficiency [3]
(vi) Fixed overhead capacity [3]

Additional information

There was a favourable fixed overhead expenditure variance of $37000.

REQUIRED

(c) Prepare a statement reconciling the standard cost of production with the actual cost of production [4]

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Additional information

Jenny, Joshua's sister, has told Joshua that it is not necessary to continue operating a standard costing system.

REQUIRED

(d) Advise Joshua whether or not he should continue to use standard costing. Justify your answer [5]

March 2017

Q # 17 EF plc manufactures a single product. No inventories of materials or finished goods are maintained.
The following budgeted information is available for March:

Production and sales	1000 units
Unit revenue and costs	
Selling price	$150
Direct material	4 kilos at $6 per kilo
Direct labour	6 hours at $10 per hour
Variable overhead	$2 per direct labour hour
Fixed overhead	$14 per unit

In March the company actually made and sold 800 units.

REQUIRED

(a) State two reasons why a business prepares a flexed budget. [2]

(b) Prepare a statement to show the budgeted profit for the month of March. [6]

Additional information

The actual cost of direct labour in March was $50 176. Staff had been paid at the rate of $9.80 per hour.

REQUIRED

(c) Calculate the following variances for March:

(i) direct labour rate [2]

(ii) direct labour efficiency [2]

(iii) total direct labour [1]

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Additional information

In April the staff continued to be paid at $9.80 per hour. The variances for April were calculated as follows:

direct labour rate	$1620 favourable
direct labour efficiency	$18 000 adverse

REQUIRED

(d) Calculate
(i) the number of hours actually worked in April [2]
(ii) the number of units actually made and sold in April. [5]

(e) Suggest two possible reasons why the efficiency variance was adverse in April. [2]

Additional information

The management of the company is evaluating a plan to retrain the existing workers to improve their efficiency.

REQUIRED

(f) Discuss the disadvantages to EF plc if they proceed with this plan. [3]

June 2017

Q # 18 SM Limited makes a single product. In a normal month 1000 units are made and sold for $150 each. Standard costs are as follows:

	$
Direct labour (4000 hours at $10.50)	42 000
Direct materials (3000 kilos at $12.20)	36 600
Variable overheads	10 000
Fixed overheads	19 300

In April the company received an order for the supply of 800 units in addition to the usual production and sales.

REQUIRED

(a) Prepare the flexed budget for April showing total budgeted profit. [6]

Additional information

During April the employees were required to work extra hours to meet increased production. The inclusion of overtime rates caused the average wage to rise to $13.10 per hour.
Staff worked 7300 hours in total and used 5500 kilos of raw material which had been purchased for $11.50 per kilo. The raw materials were of the usual quality.

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REQUIRED

(b) Calculate the following variances for the month of April.
(i) labour efficiency [2]
(ii) labour rate [2]
(iii) materials usage [2]
(iv) materials price [2]

(c) Suggest one cause for each of the materials usage and materials price variances. [2]

Additional information

One of the directors stated that new staff should have been employed. This would have resulted in fewer overtime payments although extra training costs would have been incurred.
The director believed that 7800 hours would have been worked at a cost of $10.80 per hour.

REQUIRED

(d) Advise the directors whether or not they should have taken this action. Support your answer with calculations where appropriate. [6]

(e) State three advantages to the company of operating a standard costing system. [3]

June 2017

Q # 19 WT Limited manufactures a single product. The following information is available from its master budget for the month of December:

Monthly sales	1000 units
Selling price per unit	$90
Direct materials per unit	4 kilos costing $5.10 per kilo
Direct labour per unit	3 hours costing $10 per hour
Total monthly fixed costs	$33 000

Competing businesses charge a selling price between $85 and $90 for the same product.
The directors are proposing to reduce the selling price to $80 per unit. They believe that monthly sales would increase to 1500 units. The change in demand would cause material costs to fall to $5.02 per kilo and labour costs to rise to $12 per hour. Total monthly fixed costs would remain unchanged.

REQUIRED

(a) Suggest reasons why the cost per unit could change with the increase in sales for:
(i) Direct material
(ii) Direct labour. [4]

(b) Calculate:
(i) The total budgeted profit and budgeted profit per unit for December [3]
(ii) The total profit and profit per unit if the directors' proposal is adopted for December [3]
(iii) The increase or decrease in profit which would arise if the directors' proposal is adopted. [1]

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(c) Calculate the following variances which would arise if the directors' proposal is adopted:
(i) Sales price
(ii) Sales volume
(iii) Materials price
(iv) Labour rate. [8]

(d) Explain why the total of variances calculated in part (c) does not equal the change in the profit in part (b)(iii). [3]
(e) Advise the directors whether or not they should go ahead with the proposal. Justify your answer. [3]

Nov 2017

Q # 20 S Limited makes perfume. Budgeted data for the month of July is as follows:

Units produced and sold	15 000 bottles
Standard direct materials (liquids)	0.25 litres at $15 per litre
Standard direct materials (packaging)	1 bottle at $0.80 per bottle
Standard direct labour	6 minutes at $9 per hour

Fixed production overheads for July were budgeted to be $26 250 and are absorbed on a direct labour hour basis.

In July 16 000 bottles were produced and sold. Actual costs were as follows:

Direct materials (liquids)	3725 litres costing $62875
Direct materials (packaging)	16 000 bottles costing $12 800
Direct labour	1700 hours costing $16320
Fixed production overheads	$31 375

REQUIRED

(a) Calculate the total standard cost of the actual production for July. [6]

(b) Calculate the total actual cost of production for July. [3]

(c) Calculate the following variances.
(i) Direct labour rate
(ii) Direct labour efficiency
(iii) Fixed overhead expenditure
(iv) Fixed overhead volume [8]

Additional information

The direct materials (liquids) price variance for the month has been calculated as $7000 adverse.

The direct materials (liquids) usage variance was $4125 favourable.

There was no direct materials (packaging) price or usage variance.

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REQUIRED

(d) Prepare a statement to reconcile the total standard cost of actual production for July with the total actual cost of production. (Your statement should start with the total standard cost of actual production.) [4]

Additional information

The directors of S Limited are considering using production units rather than direct labour hours as the basis of absorbing fixed overheads.

REQUIRED

(e) Advise the directors whether or not they are correct to absorb fixed overheads on the basis of direct labour hours. Justify your answer. [4]

Nov 2017

Q # 21 Hyung Min manufactures glass vases.
Each vase passes through three production departments: casting, polishing and finishing.
Hyung Min had the following budgeted information for the year ending 31 January 2018.

1 All vases produced were expected to be sold. The selling price would be $60.25 each.
2 The fixed overheads were expected to be $240000 per annum and are absorbed on the basis of production labour hours.
3 The business is open for 50 weeks a year and each employee works for 40 hours a week.
4 The production costs per vase were expected to be:

	Casting department	Polishing department	Finishing department
Materials	25 grams at $8 per 100 grams	0	25 grams at $16 per 100 grams
Labour	40 minutes at $12 per hour	15 minutes at $8 per hour	2 hours at $14 per hour

5 A total of 24 000 vases were budgeted to be produced and sold for the year ending 31 January 2018.

Required

(a) Explain what is meant by the term ‘budgetary control’. [2]

(b) Prepare the labour budget for the year ending 31 January 2018.
Clearly show the number of labour hours, the number of employees and the annual labour cost for each department. [9]

(c) Analyse the benefits to Hyung Min of using budgetary control in order to achieve his target profit. [6]

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Additional information

On 31 January 2018 the following information was available.
1 The actual production and sales during the year were 28500 vases.
2 The labour variances were calculated as:

	Casting department	Polishing department	Finishing department
Rate	$28 750 favourable	$9500 adverse	$52 250 adverse
Efficiency	$57 000 adverse	$21 000 favourable	$70 500 favourable

Required

(d) Discuss the possible causes of the adverse variances. [4]

(e) Advise Hyung Min whether or not he should be concerned about labour variances. Justify your answer. [4]

March 2018

Q # 22 C Limited produces tables. Each table requires the following:

raw materials	3 metres of wood at $80 per metre
direct labour	12 hours at $30 per hour
fixed production	overhead $10 per direct labour hour

Budgeted production is 5000 tables.

Actual production was 4800.

Actual production costs were:

		$
direct materials	15 360 metres	1 190 400
direct labour	55 200 hours	1 766 400
fixed production overhead		579 600

All tables produced were sold.

Required

(a) State two limitations of a standard costing system. [2]

(b) Calculate the following variances:
(i) direct materials price
(ii) direct materials usage
(iii) direct labour rate
(iv) direct labour efficiency
(v) fixed overhead expenditure

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(vi) fixed overhead volume [12]

(c) Prepare a statement reconciling the budgeted cost of producing 4800 tables with the actual cost. [8]

Additional information

The directors are considering using higher quality wood and increasing the selling price.

(d) Advise the directors whether or not they should make these changes. Justify your answer. [3]

June 2018

Q # 23 Tareq makes a single product and uses a standard costing system.
The budget for the month of July is based on the following standard information.

		Per unit $
Direct material	2.75 kilos at $3 per kilo	8.25
Direct labour	1.5 hours at $5 per hour	7.50
Fixed production overhead		3.75
Standard cost		19.50

Budgeted selling price is $27 per unit.
Budgeted production and sales for July were 10 000 units.
All units produced are sold.
The actual data for the month of July was:

Direct material	26 190 kilos which cost $75 951
Direct labour	12 610 hours which cost $65 572
Fixed production overhead	$39 750
Sales revenue	$258 375

Actual production and sales for July were 9700 units.

Required

(a) Calculate the following variances for the month of July:

(i) Material price [2]
(ii) Material usage [2]
(iii) Labour rate [2]
(iv) Labour efficiency [2]
(v) Fixed production overhead expenditure [2]
(vi) Sales price [2]
(vii) Sales volume [2]

(b) Prepare a statement reconciling the budgeted profit for 10 000 units with the actual profit for the month of July. [5]

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Additional information

The supplier of direct materials has announced that he will change his price to $3.10 per kilo with immediate effect.

(c) Assess the implications of this change in material cost based on the actual material used for the month of July. Support your answer with relevant calculations. [6]

Nov 2018

Q # 24 Jack makes a single product and uses a standard costing system. The budget for each month is based on the following standard data per unit.

Direct material	0.5 kilos at $6 per kilo
Direct labour	1.5 hours at $4.50 per hour
Fixed production overhead	1.5 hours at $5 per hour

Budgeted production and sales for each month are 6500 units.
The actual data for the month of September was:

Direct material	2800 kilos cost $17 350
Direct labour	9500 hours cost $42 275
Total fixed production overheads	$52 100

Actual production and sales for September were 5900 units

Required

(a) Calculate the following variances for the month of September.
(i) Material price [2]
(ii) Material usage [2]
(iii) Labour rate [2]
(iv) Labour efficiency [2]

(b) Suggest one possible cause for each of the variances calculated in (a). [4]

(c) Calculate the following variances for the month of September.
(i) Fixed overhead expenditure [2]
(ii) Fixed overhead volume [2]

Additional information

For the month of October, Jack has calculated an adverse fixed overhead volume variance.

(d) Explain how October's fixed overhead volume variance can be further analysed to provide Jack with more information about the performance of the business. [5]

(e) State two advantages and two disadvantages to Jack of using standard costing system. [4]

March 2019

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Q # 25 G Limited manufactures a single product. The budgeted information for March 2019 is as follows:

Sales and production	8000 units
Direct materials (per unit)	3 kilos at $5 per kilo
Direct labour (per unit)	2 hours at $20 per hour

The total fixed overheads absorbed on the basis of direct labour hours were $128 000.

The actual sales and production for March 2019 was 7800 units.

(a) Prepare a statement to show the total flexed budgeted production costs for March 2019. [4]

Additional information

The actual production costs for March 2019 were:

	$
Direct materials (21 840 kilos)	117 936
Direct labour (16 380 hours)	335 790
Fixed overheads	131 040
Total production costs	584 766

(b) Calculate the following variances.
(i) Material price
(ii) Material usage
(iii) Labour rate
(iv) Labour efficiency
(v) Fixed overhead expenditure
(vi) Fixed overhead volume [12]

(c) Explain how a fixed overhead capacity variance may arise. [2]

(d) Prepare a statement reconciling the budgeted production costs at 7800 units with the actual production costs. [5]

Additional information

The directors of G Limited expect that labour costs will increase by 10%. The effect of this will be to reduce budgeted profit.

(e) Explain to the directors one way in which they could minimise the effect of the increase in labour costs

May 2019

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Q # 26 (a) Ella uses flexible budgets as part of her budgetary control system. The following information is available for the year ended 31 March 2019

	Fixed budget activity level		Actual activity level
Units	1000	3000	2500
	$	$	$
Sales	25 000	75 000	63 000
Direct labour	5000	15 000	12 800
Direct material	6000	18 000	14 500
Semi-variable overheads	4000	7500	7250
Fixed costs	5000	5000	5200
Profit	5000	29 500	23 250

(a) State two advantages to a business of using a budgetary control system. [2]

(b) Calculate the flexed budgeted profit for the year ended 31 March 2019. [8]

(c) Prepare a statement, showing the relevant variances, to reconcile the flexed budget profit with the actual profit. [6]

Additional information

For the month of April 2019, Ella's business showed a favourable total direct material variance and an adverse total direct labour variance

(d) Suggest what may have caused the:
(i) Favourable total direct material variance [2]
(ii) Adverse total direct labour variance. [2]

(e) Advise Ella whether or not she should continue to flex the budgeted data. Justify your answer. [5]

May 2019

Q # 27 Oscar runs a manufacturing business and operates a standard costing system.
The following information relates to the year ended 31 March 2019

	Budgeted	Actual
Production (units)	7500	7300
Material usage	6 kilos per unit	42 500 kilos
Material cost	$5 per kilo	$230 000
Labour usage	4 hours per unit	32 000 hours
Labour cost	$8 per hour	$236 000

(a) State two disadvantages of operating a standard costing system. [2]

(b) Calculate the following variances:
(i) Material price [2]
(ii) Material usage [2]
(iii) Labour rate [2]

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(iv) Labour efficiency [2]
(v) Total labour. [1]

(c) Identify one possible reason for each of the following variances calculated in part (b):
(i) Material price variance
(ii) Material usage variance
(iii) Labour rate variance
(iv) Labour efficiency variance. [4]

(d) Prepare a statement to reconcile for actual production the standard labour and material costs with the actual costs. [8]

Additional information

Oscar has not changed his standard costs for three years.

(e) Advise Oscar whether or not he should change his standard costs. Justify your answer. [2]

Nov 2019

Q # 28 (a) Mohindra operates a standard costing system. The budgeted data for October was

Total production and sales	4000 units
Per unit	
Direct materials	3 kilos at $6 per kilo
Direct labour	9 hours at $10 per hour
Fixed overheads	$1 per direct labour hour

The actual results for October were:

Output	4500 units
Direct materials	14 000 kilos at $5.75 per kilo
Direct labour	37 000 hours at $10.50 per hour
Total fixed overheads	$40 000

All units produced were sold.

(a) Calculate the following variances for October:
(i) Material price [2]
(ii) Material usage [2]
(iii) Labour rate [2]
(iv) Labour efficiency. [2]

(b) Analyse, using your answer from part (a), the relationship between:
(i) The material price variance and material usage variance [4]
(ii) The labour rate variance and labour efficiency variance. [4]

Additional information

The fixed overhead volume variance for October was $4500 favourable.

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(c) Explain to Mohindra how this variance can be further analysed to provide him with more information about the performance of his business. [4]

Additional information

Mohindra intends to stop using the standard costing system.

(d) Advise Mohindra whether or not he should take this course of action. Justify your answer. [5]

Nov 2019

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