

Type	Revised Standard			Actual		
	450 kgs of FG			450 kgs of FG		
	Quantity	Rate	Amount	Quantity	Rate	Amount
A	150	4	600	180	4.5	810
B	125	2.4	300	160	3	480
C	225	4	900	260	3	780
<b>Total</b>	<b>500</b>		<b>1,800</b>	<b>600</b>		<b>2,070</b>

1. **Total Material Cost Variance** =  $1800 - 2070 = 270 \text{ A}$

2. **Material Price variance**

A  $(4 - 4.5) \times 180 = 90 \text{ A}$

B  $(2.4 - 3) \times 160 = 96 \text{ A}$

C  $(4 - 3) \times 260 = 260 \text{ F}$       **74F**

3. **Material Usage Variance**

A  $(150 - 180) \times 4 = 120 \text{ A}$

B  $(125 - 160) \times 2.4 = 84 \text{ A}$

C  $(225 - 260) \times 4 = 140 \text{ A}$       **344 A**

4. **Material Mix Variance**

A  $(180 - 180) \times 4 = 0$

B  $(150 - 160) \times 2.4 = 24 \text{ A}$

C  $(270 - 260) \times 4 = 40 \text{ F}$       **16 F**

5. **Material Yield Variance**

$(500 - 600) \times 1800 / 500 = 360 \text{ A}$

Type	Revised Standard			Actual		
	5600 kgs of E72			5600 kgs of E72		
	Quantity	Rate	Amount	Quantity	Rate	Amount
I	3,500	40	140,000	4,500	42	1,89,000
II	2,100	20	42,000	1,500	16	24,000
III	1,400	10	14,000	1,500	12	18,000
<b>Total</b>	<b>7,000</b>		<b>1,96,000</b>	<b>7,500*</b>		<b>2,31,000</b>

\*60 batches x 125 per batch.

Explanation: for 1 batch, 125 units of Raw Material should have been consumed and if nothing else is told, 125 khs of Raw Material would have been used.

1. Total Material Cost Variance = 196000 - 231000 = 35,000 A

2. Material Price variance

I (40 - 42) x 4500 = 9000 A

II (20 - 16) x 1500 = 6000 F

III (10 - 12) x 1500 = 3000 A

6,000 A

3. Material Usage Variance

I (3500 - 4500) x 40 = 40000 A

II (2100 - 1500) x 20 = 12000 F

III (1400 - 1500) x 10 = 1000 A

29,000 A

4. Material Mix Variance

I (3750 - 4500) x 40 = 30000 A

II (2250 - 1500) x 20 = 15000 F

III (1500 - 1500) x 10 = 0

15,000 A

5. Material Yield Variance

(7000 - 7500) x 196000 / 7000 =

14,000 A

Type	Revised Standard			Actual		
	4,20,000 kgs			4,20,000 kgs		
	Quantity	Rate	Amount	Quantity	Rate	Amount
A	2,10,000	75	1,57,50,000	2,40,000	82	196,80,000
B	52,500	50	26,25,000	40,000	52	20,80,000
C	2,62,500	20	52,50,000	2,20,000	21	46,20,000
<b>Total</b>	<b>5,25,000</b>		<b>2,36,25,000</b>	<b>5,00,000</b>		<b>263,80,000</b>

1. Total Material Cost Variance = 23625000 - 26380000 = 27,55,000 A

2. Material Price variance

A (75 - 82) x 240000 = 1680000 A  
 B (50 - 52) x 40000 = 80000 A  
 C (20 - 21) x 220000 = 220000 A  
**19,80,000 A**

3. Material Usage Variance

A (210000 - 240000) x 75 = 2250000 A  
 B (52500 - 40000) x 50 = 625000 F  
 C (262500 - 220000) x 20 = 850000 F  
**7,75,000 A**

4. Material Mix Variance

A (200000 - 240000) x 75 = 3000000 A  
 B (50000 - 40000) x 40 = 500000 F  
 C (250000 - 220000) x 20 = 600000 F  
**19,00,000 A**

5. Material Yield Variance

(525000 - 500000) x 4500 / 100 = 11,25,000 F

Hint: 1 tonne = 1000 kgs

Type	Revised Standard			Actual		
	6.25 tonnes			6.25 tonnes		
	Quantity	Rate	Amount	Quantity	Rate	Amount
A	1,500	6	9,000	1,600	7	11,200
B	2,500	12	30,000	2,400	12.5	30,000
C	4,000	10	40,000	4,500	10.5	47,250
<b>Total</b>	<b>8,000</b>		<b>79,000</b>	<b>8,500</b>		<b>88,450</b>

1. Total Material Cost Variance =  $79000 - 88450 = 9,450$  A.

2. Material Price variance

A  $(6 - 7) \times 1600 = 1600$  A  
 B  $(12 - 12.5) \times 2400 = 1200$  A  
 C  $(10 - 10.5) \times 4500 = 2250$  A  
**5,050 A**

3. Material Usage Variance

A  $(1500 - 1600) \times 6 = 600$  A  
 B  $(2500 - 2400) \times 12 = 1200$  F  
 C  $(4000 - 4500) \times 10 = 5000$  A  
**4,400 A**

4. Material Mix Variance

A  $(1593.75 - 1600) \times 6 = 37.5$  A  
 B  $(2656.25 - 2400) \times 12 = 3075$  F  
 C  $(4250 - 4500) \times 10 = 2500$  A  
**537.5 A**

5. Material Yield Variance

$(8000 - 8500) \times 79000 / 8000 = 4,937.5$

Type	Revised Standard			Actual		
	500 kgs			500 kgs		
	Quantity	Rate	Amount	Quantity	Rate	Amount
<b>A</b>	<b>400</b>	<b>10</b>	<b>4,000</b>	<b>450</b>	<b>?</b>	<b>?</b>
<b>B</b>	<b>200</b>	<b>5</b>	<b>1,000</b>	<b>200</b>	<b>?</b>	<b>?</b>
<b>Total</b>	<b>600</b>		<b>5,000</b>	<b>650</b>		<b>?</b>

**1. Material Mix Variance**

$$\text{A} \quad (433.33 - 450) \times 10 = 166.67 \text{ A}$$

$$\text{B} \quad (216.67 - 200) \times 5 = 83.33 \text{ F} \quad 83.33 \text{ A}$$

**2. Material Yield Variance**

$$(600 - 650) \times 5000 / 600 = 416.67 \text{ A}$$

Type	Revised Standard			Actual		
	700 kgs			700 kgs		
	Quantity	Rate	Amount	Quantity	Rate	Amount
A	466.67	10	4,666.66	?	?	?
B	466.67	20	9,333.33	?	?	?
<b>Total</b>	<b>933.33</b>		<b>14,000.00</b>	<b>1,000</b>		<b>?</b>

**Material Yield Variance = (933.33 - 1000) x 14000 / 933.33 = 1000 A**

Type	Revised Standard			Actual		
	600 units			600 units		
	Hours	Rate	Amount	Hours	Rate	Amount
Skm	360	3	1080	248	4	992
Skw	144	2	288	93	1.5	139.5
Uns	216	1	216	279	1	279
<b>Total</b>	<b>720</b>		<b>1,584</b>	<b>620</b>		<b>1,410.5</b>

1. Total Labour Cost Variance =  $1584 - 1410.5 = 173.50 \text{ F}$

2. Labour Rate variance

Skm (3 - 4 ) x 248 = 248 A  
 Skw (2 - 1.5 ) x 93 = 46.5 A  
 Uns (1 - 1 ) x 279 = 0                      201.5 A

3. Labour Efficiency Variance

Skm (360 - 248 ) x 3 = 336 F  
 Skw (144 - 93 ) x 2 = 102 F  
 Uns (216 - 279 ) x 1 = 63 A                      375 F

4. Labour Mix Variance

Skm (310 - 248 ) x 3 = 186 F  
 Skw (124 - 93 ) x 2 = 62 F  
 Uns (186 - 279 ) x 1 = 93F                      155 A

5. Labour Sub - Efficiency Variance

$(720 - 620) \times 1584 / 720 = 220 \text{ F}$

Type	Revised Standard			Actual		
	1 Job			1 Job		
	Weeks	Rate / week	Amount	Weeks	Rate / week	Amount
SK	3,000	60	1,80,000	2,560	65	1,66,400
SS	1,200	36	43,200	1,600	40	64,000
<u>Unk</u>	1,800	24	43,200	2,240	20	44,800
<b>Total</b>	<b>6,000</b>		<b>2,66,400</b>	<b>6,400</b>		<b>2,75,200</b>

1. Total Labour Cost Variance =  $2,66,400 - 2,75,200 = 8,800 \text{ A}$

2. Labour Rate variance

$\text{Skm } (60 - 65) \times 2,560 = 12,800 \text{ A}$   
 $\text{Skw } (36 - 40) \times 1,600 = 6,400 \text{ A}$   
 $\text{Uns } (24 - 20) \times 2,240 = 8,960 \text{ A} \quad 10,240 \text{ A}$

3. Labour Mix Variance

$\text{Skm } (3,200 - 2,560) \times 60 = 38,400 \text{ F}$   
 $\text{Skw } (1,280 - 1,600) \times 36 = 11,520 \text{ A}$   
 $\text{Uns } (1,920 - 2,240) \times 24 = 7,680 \text{ A} \quad 19,200 \text{ F}$

4. Labour Efficiency Variance

$\text{Skm } (3,000 - 2,560) \times 60 = 26,400 \text{ F}$   
 $\text{Skw } (1,200 - 1,600) \times 36 = 14,400 \text{ A}$   
 $\text{Uns } (1,800 - 2,240) \times 24 = 10,560 \text{ A} \quad 1,440 \text{ A}$

## INTERPRETATION

### Direct Labour Rate Variance:

Adverse Labour Rate Variance indicates that the labour rate per hour paid is more than the set standard. The reason may include among other things such as:

- (1) While setting standard, the current/ future market conditions like pending labour negotiation/ cases, has not been considered (or predicted) correctly.
- (2) The labour may have been told that their wage rate will be raised or bonus will be paid if they work efficiently.

### Direct Labour Efficiency Variance:

It indicates that the workers has produced actual production quantity in less time than the time allowed. The reason for favourable labour efficiency variance may include among the other things as follows:

- (1) While setting standard, workers efficiency could not be estimated properly, this may happen due to non-observance of time and motion study.
- (2) The workers may be new in the factory, hence, efficiency could not be predicated properly.
- (3) The foreman or personnel manager responsible for labour efficiency, while providing his/ her input at the time of budget/ standard, has adopted conservative approach.
- (4) The increase in the labour rate might have encouraged the labours to do work more efficiently.

In this particular case it may have happened that since labour payment has been increased labour efficiency has also been increased. In a nutshell because of additional labour rate (Adverse), labour efficiency has gone up (Favourable)

$$\text{Labour Rate Variance} = (\text{SR} - \text{AR}) \times \text{AH} = (\text{Rs.}8.00 - \text{Rs.}8.14) \times 3,00,000 \text{ hrs} = \text{Rs.}42,000 \text{ (A)}$$

$$\text{Labour Efficiency Variance} = (\text{SH} - \text{AH}) \times \text{SR} = (3,12,000 \text{ hrs.} - 3,00,000 \text{ hrs.}) \times \text{Rs.}8.00 = \text{Rs.}96,000 \text{ (F)}$$

### Working

$$\text{Actual Labour Rate per hour} = \text{Actual Paid} / \text{Actual Hours} = \text{Rs. } 24,42,000 / 3,00,000 \text{ hrs.} = \text{Rs. } 8.14$$

$$\text{Standard Hours} = \text{Actual Production} \times \text{Std. hrs. per unit} = 52,000 \text{ units} \times 6 \text{ hrs} = 3,12,000 \text{ hrs.}$$

	Budgeted data	Actual data
	( 1 Month)	
Days	24	23
Hours paid for	25,920	20,500
Idle hours	NIL	NIL
Hours worked	25,920	20,500
Output in std hours	25,920	22,550

1. **Volume Ratio** =  $22550 / 25920$  = **87 %**
2. **Calendar Ratio** =  $23 / 24$  = **95.83%**
3. **Capacity utilisation ratio (NET)** =  $20500 / 24840$  = **82.52%**
4. **Efficiency ratio** =  $22,550 / 20500$  = **110 %**
5. **Capacity usage ratio** = normal capacity / practical capacity =  $25920 / 28800$  = **90%.**

## SALES VARIANCES

Product	Standard (1 month)			Actual (1 month)		
	Quantity	SP	Amount	Quantity	SP	Amount
B	5,000	100	5,00,000	5,750	120	6,90,000
C	4,000	200	8,00,000	4,850	180	8,73,000
S	6,000	180	10,80,000	5,000	165	8,25,000
<b>Total</b>	<b>15,000</b>		<b>23,80,000</b>	<b>15,600</b>		<b>23,88,000</b>

1. Total Sales Value Variance =  $23,80,000 - 23,88,000 = 8,000 \text{ F}$

2. Selling Price variance

B	(100 - 120)	x 5,750	=	115,000 F	
C	(200 - 180)	x 4,850	=	97,000 A	
S	(180 - 165)	x 5,000	=	75,000 A	57,000 A

3. Sales Volume Variance

B	(5000 - 5750)	x 100	=	75,000 F	
C	(4000 - 4850)	x 200	=	17,000 F	
S	(6000 - 5000)	x 180	=	1,80,000 A	65,000 F

4. Sales Mix Variance

B	(5200 - 5750)	x 100	=	55,000 F	
C	(4160 - 4850)	x 200	=	1,38,000 F	
S	(6240 - 5000)	x 180	=	2,23,200 A	30,200 A

5. Sales Quantity Variance

$(15000 - 15600) \times 23,80,000 / 15000 = 98,200 \text{ F}$

## PROFIT VARIANCES / SALES MARGIN BASED VARIANCES

### Net profit Variance due to change in Sales

1. Selling Price Variance = 57,000 A

2. Profit Volume Variance

B	(5000 - 5750)	x 10	=	7,500 F	
C	(4000 - 4850)	x 30	=	25,500 F	
S	(6000 - 5000)	x 50	=	50,000 A	<u>17,000 A</u>

Net profit Variance due to change in Sales

74,000 A

3. Profit Mix Variance

B	(5200 - 5750)	x 10	=	5500 F	
C	(4160 - 4850)	x 30	=	20700 F	
S	(6240 - 5000)	x 50	=	62000 A	35,800 A

4. Profit Quantity Variance

$(15000 - 15600) \times 470,000 / 15000 = 18,800 \text{ F}$

**SALES VARIANCES**

Standard (1 month)			Actual (1 month)		
Quantity	SP	Amount	Quantity	SP	Amount
4000	17	68000	3500	66000 / 3500	66000

- Total Sales Value Variance =  $68000 - 66000 = 2000$  A
- Selling Price variance =  $(17 - 66000 / 3500) \times 3500 = 6500$  F
- Sales Volume / Quantity Variance =  $(4000 - 3500) \times 17 = 8500$  A

**PROFIT VARIANCES**

	Selling Price	Cost / unit	Profit / unit	Quantity	Profit
Standard (1m)	17	14	3	4000	12,000
Actual (1m)	66000 / 3500	52340 / 3500	13660 / 3500	3500	13,660

TOTAL NET PROFIT VARIANCE =  $12000 - 13660 = 1660$  F

**I Net profit Variance due to change in Sales**

- Selling Price Variance = 6500 F
  - Profit Volume / Quantity Variance =  $(4000 - 3500) \times 3 = 1500$  A
- Net profit Variance due to change in Sales 5000 F

**II Net profit Variance due to change in Cost**

$(14 - 52340 / 3500) \times 3500 = 3340$  A

**A. Material Variances**

Revised Standard			Actual		
3500 units			3500 units		
Quantity	Rate	Amount	Quantity	Rate	Amount
14000	1.5	21000	15000	1.4	21000

- Total Material Cost Variance = 0
- Material Price variance =  $(1.5 - 1.4) \times 15000 = 1500$  F
- Material Usage / Yield Variance =  $(14000 - 15000) \times 1.4 = 1500$  A

**B. Labour Variances**

Revised Standard			Actual		
3500 units			3500 units		
Hours	Rate	Amount	Hours	Rate	Amount
17500	0.8	14,000	18400	0.85	15640

- Total Labour Cost Variance =  $14000 - 15640 = 1640$  A
- Labour Rate variance =  $(0.8 - 0.85) \times 18400 = 920$  A
- Labour Idle Time Variance =  $1000 \times 0.8 = 800$  A
- Labour Efficiency Variance =  $(17500 - 17400) \times 0.8 = 80$  F

**C. Variable Overhead Variances**

Revised Standard			Actual		
3500			3500		
Hours	Rate	Amount	Hours	Rate	Amount
17,500	0.3	5,250	17,400	5200 / 17400	5,200

- Total Variable Overhead Cost Variance =  $5250 - 5200 = 50$  F
- VOH Overhead Expenditure variance =  $(0.3 - 5200 / 17400) \times 17400 = 20$  F
- Variable Overhead Efficiency Variance =  $(17500 - 17400) \times 0.3 = 30$  F

**D. Fixed Overhead Variances**

	Budgeted data	Actual data	Absorption rates
	( 1 Month)		
Working Days	25	22	1 unit = ₹ 2.5
Hours paid for	20,000	18,400	1 unit = 5 hrs
Idle hours		1,000	1 day = ₹400
Hours worked	20,000	17,400	1 day = 800 hrs
Fixed Overheads	10,000	10,500	1 hour = ₹ 0.5
Output in units	4,000	3,500	

- Total Fixed overheads cost variance =  $3500 \times 2.5 - 10,500 = 1,750$  A
- Fixed Overhead Expenditure variance =  $10,000 - 10,500 = 500$  A
- Fixed Overhead Volume variance =  $(4000 - 3500) \times 2.5 = 1250$  A
- $(20000 - 18,400) \times 0.5 = 800$  A
  - Fixed Overhead Calendar variance =  $(25 - 22) \times 400 = 1200$  A
  - FOH Capacity utilisation variance =  $(22 \times 800) - 18400 = 400$  F
- Fixed Overhead Idle Time variance =  $1000 \times 0.5 = 500$  A
- Fixed Overhead Efficiency variance =  $(17500 - 17400) \times 0.5 = 50$  F

**PROFIT RECONCILIATION STATEMENT FOR THE MONTH OF MARCH**

	Adverse	Favourable	₹
<b>STANDARD PROFIT</b>			12,000
<b>I Net Profit Variance Due to change in Sales</b>			
Sales Price Variance		6,500 F	
Profit Volume Variance	1,500 A		
<b>II Net Profit Variance Due to change in Cost</b>			
Material - Price Variance		1,500 F	
- Usage Variance	1,500 A		
Labour - Rate Variance	920 A		
- Time Variance - Idle Variance	800 A		
- Efficiency Variance		80 F	
VOH - Expenditure variance		20 F	
- Efficiency variance		30 F	
FOH - Expenditure variance	500 A		
- Volume Variance - Calendar	1,200 A		
- Capacity Utilisation variance		400 F	
- Idle time variance	500 A		
- Efficiency variance		50 F	
	6,920 A	8,580 F	1,660 F
<b>ACTUAL PROFIT</b>			<b>13,660</b>

**a. Sales Variances**

Standard (1 month)			Actual (1 month)		
Quantity	SP	Amount	Quantity	SP	Amount
5100	20	102,000	4850	95600 / 4850	95,600
1. Total Sales Value Variance =				102000 - 95600 = 6,400 A	
2. Selling Price variance =				(20 - 95600 / 4850) x 4850 = 1,400 A	
3. Sales Volume / Quantity Variance =				(5100 - 4850) x 20 = 5,000 A	

**Sales Margin Based variances**

Net profit Variance due to change in Sales (ABSORPTION COSTING)		
1. Selling Price Variance =		1,400 A
2. Profit Volume / Quantity Variance = (5100 - 4850) x 6		1,500 A
Net profit Variance due to change in Sales		
		2,900 A

Net profit Variance due to change in Sales (MARGINAL COSTING)		
1. Selling Price Variance =		1,400 A
2. Profit Volume / Quantity Variance = (5100 - 4850) x 6.4		3,350 A
Net profit Variance due to change in Sales		
		4,750 A

**Material Variances**

Revised Standard			Actual		
4850 units			4850 units		
Quantity	Rate	Amount	Quantity	Rate	Amount
2425	4	9,700	2,300	9800/2300	9,800
1. Total Material Cost Variance = 11300 - 9800 =				1500 A	
2. Material Price variance = (4 - 9800/2300) x 2300 =				600 A	
3. Material Usage / Yield Variance = (2425 - 2300) x 4 =				500 F	

**Labour Variances**

Revised Standard			Actual		
4850 units			4850 units		
Hours	Rate	Amount	Hours	Rate	Amount
9700	2	19,400	8,500	16800 / 8500	16,800
1. Total Labour Cost Variance = 19400 - 16800 =				2600 F	
2. Labour Rate variance = (2 - 16800/8500) x 8500 =				200 F	
3. Labour Idle time variance = 500 x 2 =				1000 A	
4. Labour efficiency variance = (9700 - 8000) x 2 =				3400 F	

**Variable Overhead Variances**

Revised Standard			Actual		
4850 units			4850 units		
Hours	Rate	Amount	Hours	Rate	Amount
9,700	0.3	2,910	8,000	2600 / 8500	2,600
1. Total Variable Overhead Cost Variance = 2910 - 2600 =				310 F	
2. VOH Overhead Expenditure variance = (0.3 - 2600/8500) x 8000 =				200 A	
3. Variable Overhead Efficiency Variance = (9700 - 8000) x 0.3 =				510 F	

**Fixed Overhead Variances**

	Budgeted data	Actual data	Absorption rates
	(1 Month)		
Hours paid for	10,200	8,500	1 unit = Rs. 7.4 1 unit = 2 hrs 1 hour = Rs. 3.7
Idle hours	-	500	
Hours worked	10,200	8,000	
Fixed Overheads	37,740	42,300	
Output in units	5,100	4,850	

- Total Fixed overheads cost variance = 4850 x 7.4 - 42,300 = 6,410 A
- Fixed Overhead Expenditure variance = 37,740 - 42,300 = 4,560 A
- Fixed Overhead Volume variance = (5100 - 4850) x 7.4 = 1,850 A
- FOH Capacity utilisation variance = (10200 - 8500) x 3.7 = 6,290 A
- Fixed overheads idle time variance = 500 x 3.7 = 1,850 A
- Fixed Overhead Efficiency variance = (9700 - 8000) x 3.7 = 6,290 F

**(b) Operating Statement**

Sales		95,600
Less: Cost of Materials	9,800	
Labour	16,800	
Variable Overhead	2,600	
Fixed Overhead	42,300	71,500
Net Profit		24,100

**(c) Reconciliation Statement between 'Budgeted Profit & Actual Profit' under 'Absorption Costing Method'**

	Adverse	Favourable	₹
<b>BUDGETED PROFIT (5100 x 6)</b>			30,600
<b>I Net Profit Variance Due to change in Sales</b>			
Sales Price Variance	1,400 A		
Profit Volume Variance	1,500 A		
<b>II Net Profit Variance Due to change in Cost</b>			
Material - Price Variance	600 A		
- Usage Variance		500 F	
Labour - Rate Variance		200 F	
- Idle Variance	1000 A		
- Efficiency Variance		3400 F	
VOH - Expenditure variance	200 A		
- Efficiency variance		510 F	
FOH - Expenditure variance	4560 A		
- Volume Variance - Capacity Utilisation variance	6290 A		
- Idle time variance	1850 A		
- Efficiency variance		6290 F	
<b>ACTUAL PROFIT</b>	17,400 A	10,900 F	6,500 F
			24,100

**(d) Reconciliation Statement between 'Budgeted Profit & Actual Profit' under 'Marginal Costing Method'**

	Adverse	Favourable	₹
<b>BUDGETED PROFIT (5100 x 6)</b>			30,600
<b>I Net Profit Variance Due to change in Sales</b>			
Sales Price Variance	1,400 A		
Profit Volume Variance		3,350 A	
<b>II Net Profit Variance Due to change in Cost</b>			
Material - Price Variance	600 A		
- Usage Variance		500 F	
Labour - Rate Variance		200 F	
- Idle Variance	1000 A		
- Efficiency Variance		3400 F	
VOH - Expenditure variance	200 A		
- Efficiency variance		510 F	
FOH - Expenditure variance	4560 A		
	11,110 A	4610 F	6,500 F
<b>ACTUAL PROFIT</b>			24,100

**(e) Reconciliation Statement between 'Standard Profit & Actual Profit' under 'Absorption Costing Method'**

	Adverse	Favourable	₹
<b>STANDARD PROFIT (4850 x 6)</b>			29,100
<b>I Net Profit Variance Due to change in Sales</b>			
Sales Price Variance	1,400 A		
<b>II Net Profit Variance Due to change in Cost</b>			
Material - Price Variance	600 A		
- Usage Variance		500 F	
Labour - Rate Variance		200 F	
- Idle Time Variance	1000 A		
- Efficiency Variance		3400 F	
VOH - Expenditure variance	200 A		
- Efficiency variance		510 F	
FOH - Expenditure variance	4560 A		
- Volume Variance - Capacity Utilisation variance	6290 A		
- Idle time variance	1850 A		
- Efficiency variance		6290 F	
<b>ACTUAL PROFIT</b>	15,900 A	10,900 F	5,000 F
			24,100

## Material Variances

Revised Standard			Actual		
50,000 units			50,000 units		
Quantity	Rate	Amount	Quantity	Rate	Amount
65000	4	260,000	78000	4.2	327,600

1. Total Material Cost Variance =  $260,000 - 327,600 = 67,600$  A
2. Material Price variance =  $(4 - 4.2) \times 78000 = 15600$  A
3. Material Usage / Yield Variance =  $(65,000 - 78000) \times 4 = 52000$  A

## Labour Variances

Revised Standard			Actual		
50,000 units			50,000 units		
Hours	Rate	Amount	Hours	Rate	Amount
1,45,000	2.3	3,33,500	1,50,000	2.5	3,75,000

1. Total Labour Cost Variance =  $333,500 - 375000 = 41500$  A
2. Labour Rate variance =  $(2.3 - 2.5) \times 150000 = 30000$  A
3. Labour Efficiency Variance =  $(145,000 - 150,000) \times 2.3 = 11500$  A

## Variable Overhead Variances

Revised Standard			Actual		
50,000 units			50,000 units		
Hours	Rate	Amount	Hours	Rate	Amount
1,45,000	1.5	217,500	150,000		2,38,000

1. Total Variable Overhead Cost Var =  $217500 - 238000 = 20500$  A
2. VOH Expenditure variance =  $(1.5 - 238000 / 150000) \times 150000 = 13000$  A
3. Variable Overhead Efficiency Variance =  $(145000 - 150000) \times 1.5 = 7500$  A

## Fixed Overhead Variances

	Budgeted data	Actual data
	( 1 Month)	
Hours paid for	2,00,000	15,0,000
Idle hours	-	-
Hours worked	2,00,000	1,50,000
Fixed Overheads	100,000	1,02,000
Output in units	68965.51	50,000

Absorption rates
1 unit = Rs. 1.45
1 unit = 2.9 hrs
1 hour = Rs. 0.5

1. Total Fixed overheads cost variance =  $50000 \times 1.45 - 102000 = 29500$  A
2. Fixed Overhead Expenditure variance =  $100000 - 102000 = 2000$  A
3. Fixed Overhead Volume variance =  $(68965.51 - 50000) \times 1.45 = 27500$  A
4. FOH Capacity utilisation variance =  $(200000 - 150000) \times 0.5 = 25000$  A
5. Fixed Overhead Efficiency variance =  $(145000 - 150000) \times 1.5 = 2500$  A

## IDENTIFICATION OF DEPARTMENT(S)

Name of Variance	Name of the Department
Material Price Variance	Purchase Department
Material Usage Variance	Production Department / Factory Foreman
Labour Rate Variance	Personnel Department / Manager Policy
Labour Efficiency Variance	Production Department / Factory Foreman
Overhead Variances	Production Department / Factory Foreman

**Ans. STATEMENT TO SHOW INCREASE IN PROFIT**

**(NOTE: This is the correct answer. Ignore the answer in the TEXT BOOK.)**

	Adv	Fav
SP Variance		93,456
Contribution Volume - Mix Variance		31,152
Contribution Volume - Quantity Variance		
Contribution Volume - Quantity Variance - Market Size Variance		1,94,400
Contribution Volume - Quantity Variance - Market Share Variance		1,27,440
Sales Promotion Expenses	78,000	
Interest		9,000
	<b>78,000</b>	<b>4,55,448</b>

Net Increase = 4,55,448 - 78,000 = Rs. 3,77,448

**WORKING NOTES**

**1. Calculation of Original Contribution for 1 Year**

	SP	VC p.u.	Contribution p.u.	Number of units	Contribution
Large			8	60,000	4,80,000
Medium			10	60,000	6,00,000
				<b>1,20,000</b>	<b>10,80,000</b>

**Calculation of Revised Contribution**

	SP	VC p.u.	Contribution p.u.	Number of units	Contribution
Large			8.6	62,304	5,35,814.40
Medium			10.6	93,456	9,90,633.60
				<b>1,55,760</b>	<b>15,26,448</b>

**2. Calculation of Variances**

**a. Selling Price Variance**

Large = 0.6 \* 62,304 = 37,382.4 F

Medium = 0.6 \* 93,456 = 56,073.6 F

93456 F

**b. Contribution Volume Variances**

Large = (60,000 - 62,304) x 8 = 18,432 F

Medium = (60,000 - 93,456) x 10 = 3,34,560 F

3,52,920 F

**c. Contribution Mix Variance**

Large = (77880 - 62304) x 8 = 1,24,608 A

Medium = (77880 - 93456) x 10 = 1,55,760 F

31,152 F

**d. Contribution Quantity Variance**

(120,000 - 1,55,760) x 1080,000 / 120000 = 3,21,840 F

**e. Contribution Market Size Variance**

Standard Market Size	12,00,000
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(-) Actual Market Size	14,16,000
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Increase in market size	2,16,000
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x Standard Market share	10%
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21,600

x Standard Weighted Average Contribution per unit (1080,000 / 120000)	9
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1,94,400 F

**f. Contribution Market Size Variance**

Standard Market share in Actual Market Size	= 1416000 x 10% =	1,41,600
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(-) Actual Market Share		1,55,760
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Decrease in Market Share		14,160
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x Standard Weighted Average Contribution per unit		9
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1,27,440 F