Standard Costing and Variance Analysis

1. **Standard Cost** → Standard Cost is a predetermined Cost which show in advance what each product should Cost under the given situation.

2. **Standard Costing** → Standard Costing is a technique which use standard for Cost and Revenue for the purpose of Control through Variance Analysis

3. **Variance** → The deviation of Actual from Standard is Called Variance. When Actual Cost is less than the Standard Cost its known as Favourable Variance. When Actual Cost is move than standard Cost it is known as Adverse (or) unfavourable Variance.

Example

ABC Ltd → (manf^{n})

T-shirt → (1000 unit) → Manf^{n} – start & Finished

Pre-determined Cost

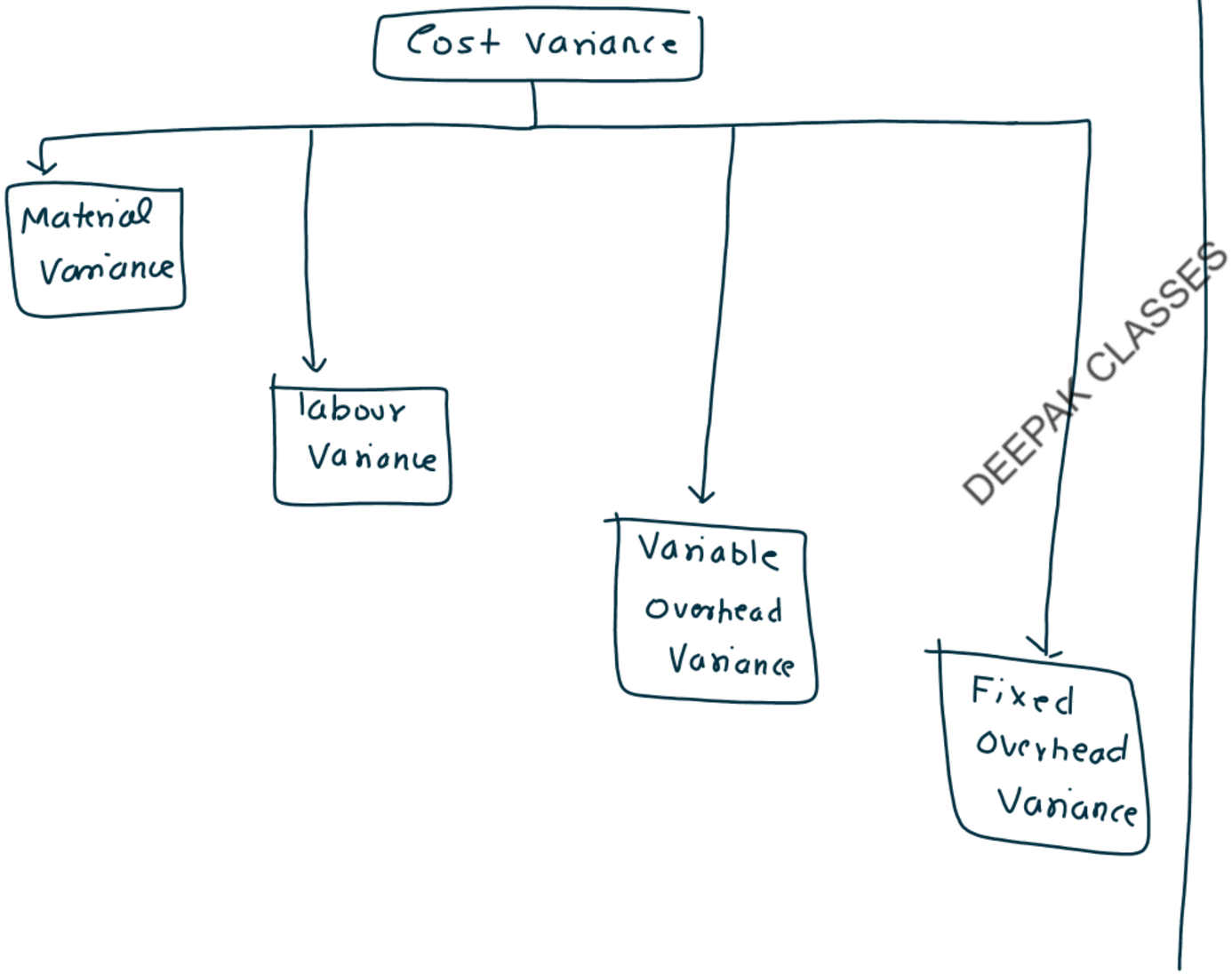
		Standard Cost
Material	=	100,000
labour	=	50,000
overheads	=	40,000

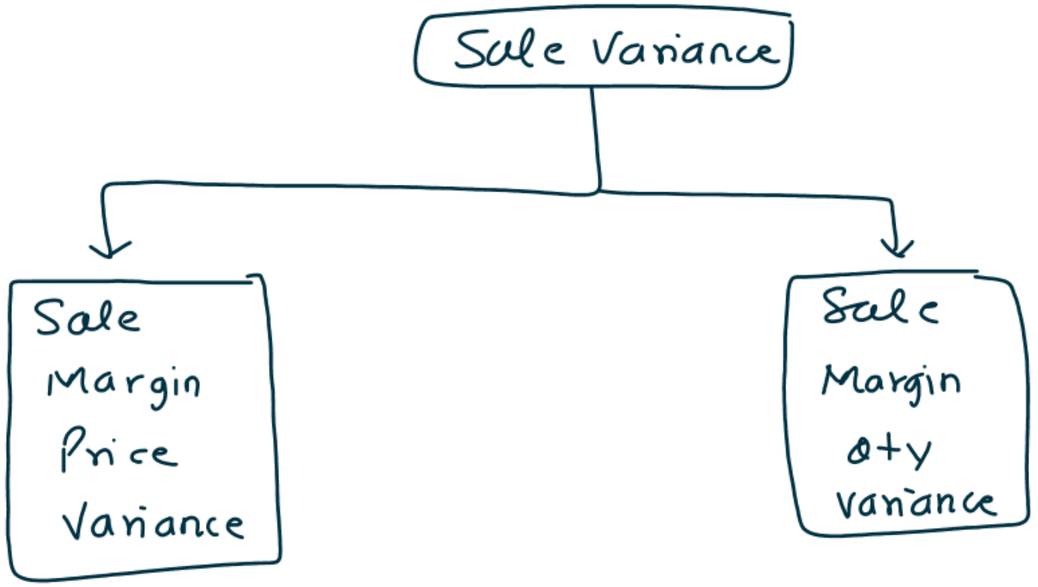
Actual Cost			deviation | Variance	
120,000	→	Material Variance	20,000	(unfavourable / Adverse)
40,000	→	labour Variance	10,000	(Favourable)
35000	→	Overhead Variance	5000	(Favourable)

Variance = Standard Cost − Actual Cost

= Ans → Adverse / Favourable

Profit Variance	=	Sale Variance	—	Cost Variance





Material Cost Variance

Direct Material Cost Variance is the difference between the Actual direct Material Cost incurred and the Standard direct Material Cost Specified for the production Achived.

Ex ABC Ltd → (T-shirt Manfl") — 1000 unit

		£	
Standard Direct Material Cost	=	100,000 →	[Std Qty x Std Price]
Actual Direct Material Cost	=	120,000 →	[Actual Qty x Actual price]
Variance →		20,000 (A)	

Material Cost Variance = Standart Material Cost — Actual Material Cost

= (SQ x SP) — (AQ x AP)

Ex

SQ = 2000 unit

SP = ₹100

AQ = 2000 unit

AP = ₹90

Standard Cost = SQ x SP

= 2000 unit x ₹100

= 200,000

Actual Cost = AQ x AP

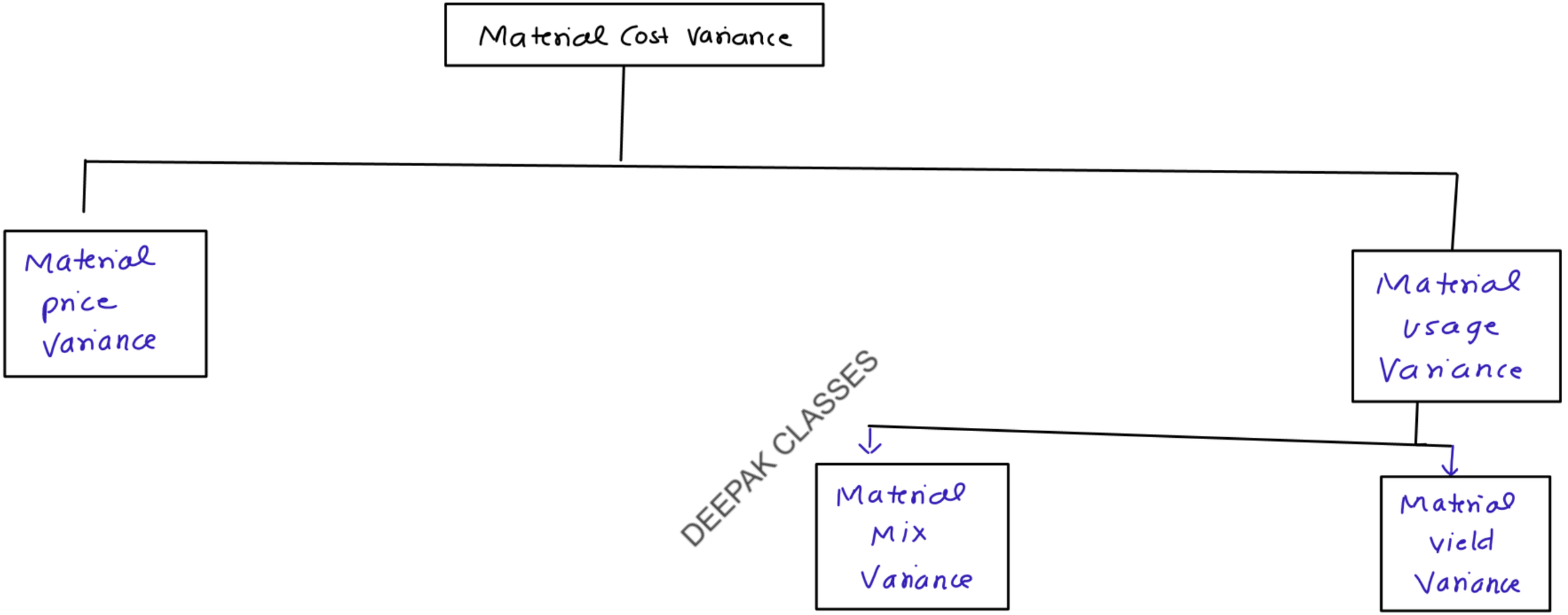
= 2000 unit x 90

= 180,000

Material Cost variance = Std Cost - Actual Cost

= 200,000 - 180,000

= 20,000 (F)



Basic Example :-

Std Qty = 1000 unit

Std price = 100/unit

Actual Qty = 1000 unit

Actual price = 95/unit

Variance aane ki vajah PRICE hai

Material Cost Variance = (SQ x SP) − (AQ x AP)

= (1000 x 100) − (1000 x 95)

= 100,000 − 95000

= 5000 (F)

Material price Variance

Material price Variance

1. A (MPV) Material price Variance occurs when the Actual price paid for material used in production is different from the Standard price of the material

2. MPV is favourable if Actual price is less than the standard price

3. MPV is Adverse if Actual price is more than the standard price

Material price variance = (AQ × SP) − (AQ × AP)

$$= (SP - AP) \times AQ$$

$$= (100 - 95) \times 1000$$

$$= 5 \times 1000$$

$$= 5000\ F$$

Basic Ex-2

Std Qty = 1000 unit
Std Price = ₹100/unit
Actual Qty = 970 unit
Actual Price = ₹100/unit

→ (30 unit kam Bani)

↓

3000 Variance aane ki Vajah is Baar Qty hai

↓

Material Usage Variance

Material Cost Variance = (SQ x SP) - (AQ x AP)

= (1000 x 100) - (970 x 100)

= 100,000 - 97000

= 3000 F

Material usage Variance

1. A (MUV) Material usage Variance occurs when the Actual quantity of the material used in production is different from the Standard quantity of the material

2. M U V is favourable if Actual Qty is less than the standard Qty

3. M U V is Adverse if Actual Qty is more than the standard Qty

Material usage variance = (SQ x SP) − (AQ x SP)

= (SQ − AQ) x SP

= (1000 − 970) x 100

= 30 x 100

= 3000 F

Ex=3

SQ = 1000	AQ = 950
SP = 100	AP = 95

① MCV =

= (1000 x 100) − (950 x 95)

= 100,000 − 90,250

= 9750 F

Yhe Variance **Price** ki vajah se kitna aaya hai → MPV

Yhe Variance **Qty** ki vajah se kitna aaya hai → MUV

MPV = (SP − AP) x AQ

= (100 − 95) x 950

= 5 x 950

= 4750 F

MUV = (SQ − AQ) x SP

= (1000 − 950) x 100

= 50 x 100

= 5000

Material Cost Variance	=	Material Price Variance	+	Material Usage Variance

Ex=4

SQ = 1000	AQ = 950
SP = 100	AP = 110

① MCV = (SQ × SP) − (AQ × AP)

= (1000 × 100) − (950 × 110)

= 100,000 − 104500

= 4500 A

② MPV = (100 − 110) × 950

= 9500 A

③ MUV = (1000 − 950) × 100

= 50 × 100

= 5000 F

Now,

MCV = MPV + MUV

4500 A = 9500 A + 5000 F

4500 A = 4500 A

Homework

SQ = 1000	AQ = 1100
SP = 100	AP = 95

Find :- 1) MCV
2) MPV
3) MUV
4) Proof: MCV = MPV + MUV

MCV = 100,000 − 104500

= 4500 A

MPV = (100 − 95) × 1100

= 5500 F

MUV = (1000 − 1100) × 100

= 100 × 100

= 10,000 A

MCV = MPV + MUV

4500 A = 5500 F + 10,000 A

4500 A = 4500 A

HP

Advance Ex

	Standard			Actual			RSQ
	Qty	Rate	Amount	Qty	Rate	Amount	Qty
Kismis -	600	1·5	900	640	1·75	1120	615
Kaaju -	800	2·0	1600	950	1·8	1710	820
Badaam -	1000	2·5	2500	870	2·75	2393	1025
	2400		5000	2460		5223	2460

Standard Ratio = 600 : 800 : 1000

= 6 : 8 : 10

Jab Hum Actual Qty ko Mix krte hai std Ratio ke hisab se isi ko

Revised Standard Qty

① Material Cost Variance = Standard Cost − Actual Cost

= 5000 − 5223

= 223 A

② MPV = (SP − AP) × AQ

Kismis = (1.5 − 1.75) × 640 = 160 A

Kaaju = (2 − 1.8) × 950 = 190 F

Badaam = (2.5 − 2.75) × 870 = 218 A

188 A

③ MUV = (SQ − AQ) × SP

Kismis − (600 − 640) × 1.5 = 60 A

Kaaju − (800 − 950) × 2 = 300 A

Badaam − (1000 − 870) × 2.5 = 325 F

35 A

Material Mix as per std Ratio

Kismis − 2460 × 6/24 = 615

Kaaju − 2460 × 8/24 = 820

Badaam − 2460 × 10/24 = 1025

Material Mix Variance → Actual Qty ko standard Ratio ke hisab se mix Nhi Kia hua is liye galt material mix hone ke vajah se Material Mix Variance

$$\text{Material Mix Variance} = (RSQ \times SP) - (AQ \times SP)$$

$$= (RSQ - AQ) \times SP$$

Kismis = $(615 - 640) \times 1.5 = 37.5\ A$

Kaaju = $(820 - 950) \times 2 = 260\ A$

Badaam = $(1025 - 870) \times 2.5 = 387.5\ F$

$90\ F$

Material yield Variance →

Jab Actual output Jayada ho (Ya) kam ho Standard output ke hisab se toh ashe mai Variance aajata hai. Aur Ashe variance ko Material yield Variance

SQ = 2400 | AQ = 2460

60 (Extra) ⟶ yield

Material yield Variance = (SQ x SP) − (RSQ x SP)

= (SQ − RSQ) x SP

Kismis = (600 − 615) X 1.5 = 22.5 A

Kaaju = (800 − 820) X 2 = 40 A

Badaam = (1000 − 1025) X 2.5 = 62.5 A

125 A

MUV = MMV + MYV

35A = 90F + 125A

35A = 35A

Formula's

① MCV = $(SQ \times SP) - (AQ \times AP)$

② MPV = $(SP - AP) \times AQ$

= $(AQ \times SP) - (AQ \times AP)$

③ MUV = $(SQ - AQ) \times SP$

= $(SQ \times SP) - (AQ \times SP)$

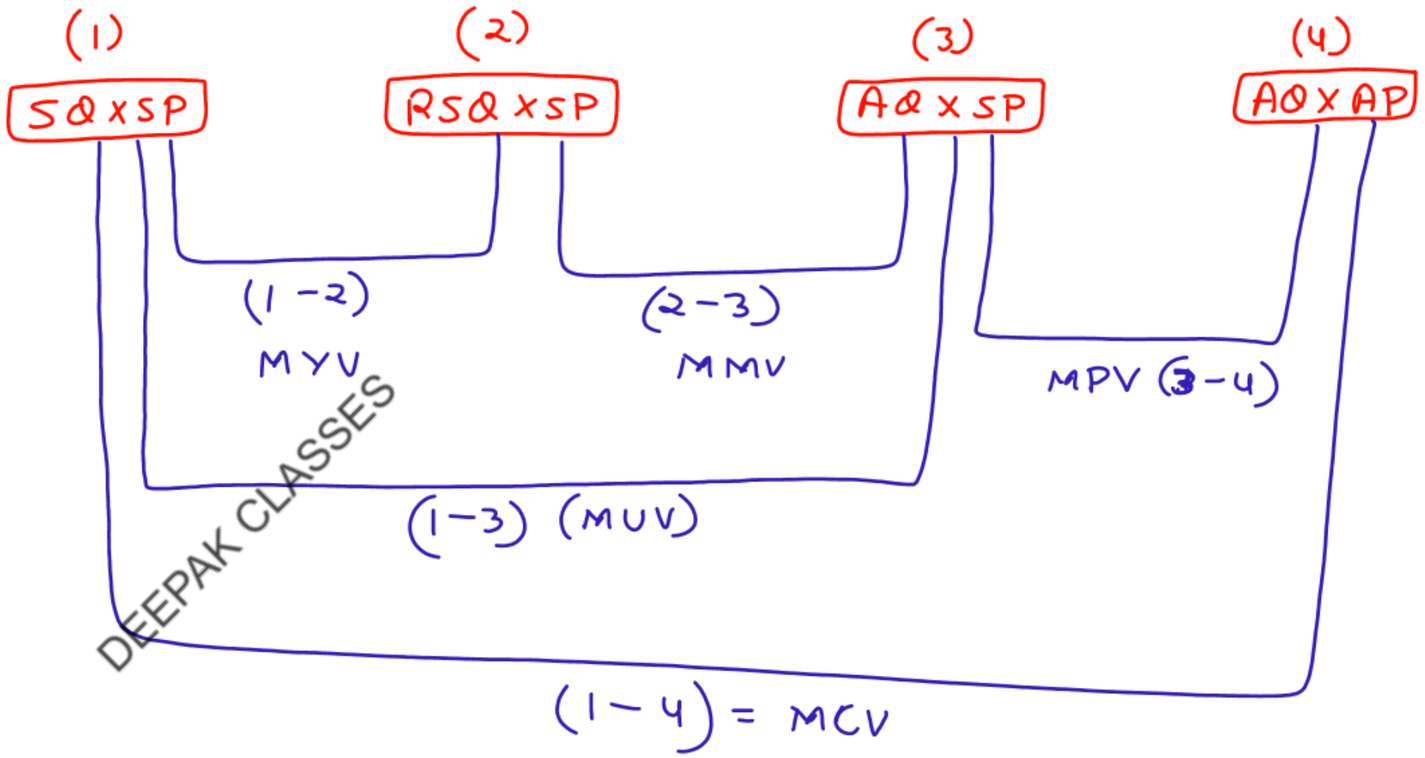
④ MMV = $(RSQ - AQ) \times SP$

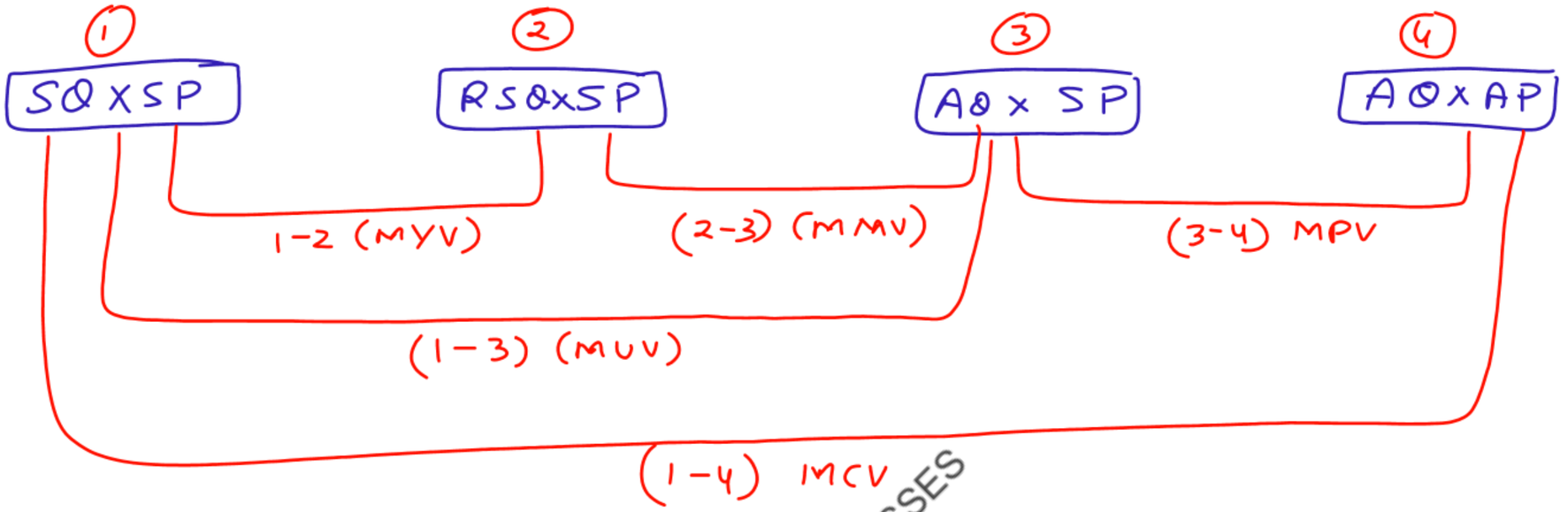
= $(RSQ \times SP) - (AQ \times SP)$

⑤ MYV = $(SQ - RSQ) \times SP$

= $(SQ \times SP) - (RSQ \times SP)$

Trick to learn All Formulas (Suggested by CM A Inst)





01 Calculating standard Cost [SC = SQ x SP]

Standard quantity for 200

Material		S. Qty		S. P		(SQ x SP) Standard Cost	(AQ x AP) Actual Cost
A	=	800kg x 200 = 160,000 kg	x	2.5/kg	=	400,000	376,800
B	=	200kg x 200 = 40,000 kg	x	4/kg	=	160,000	159,600
C	=	200kg x 200 = 40,000 kg	x	1/kg	=	40,000	39,600
						600,000	5,76,000

Material Cost Variance = Std Cost − Actual Cost

= 600,000 − 576,000

= 24000 F

Q2

Standard Cost

$\Rightarrow$ SQ x SP

$= (400\text{unit} \times 4\text{kg}) \times 2/1\text{kg}$

$= 1600\text{ kg} \times 2/1\text{kg}$

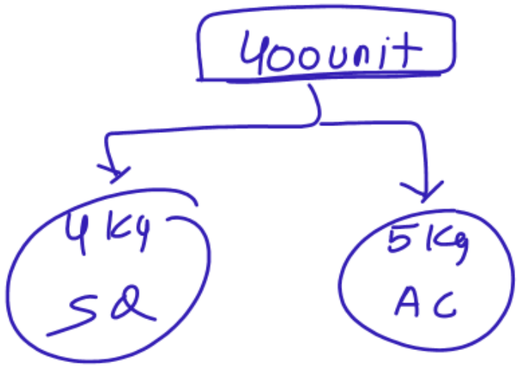
(SQ as per AO.) $\Rightarrow$ 3200

Actual Cost

$\Rightarrow$ AQ x AP

$= 2000\text{ kg} \times 3/\text{kg}$

$= 6000$



MCV = SC − AC

= 3200 − 6000

= 2800 A

Q3

Material price Variance = (SP − AP) × AQ

Material A = (1 − 1) × 2050 = Nil

Material B = (2 − 2·10) × 2980 = 298 A

M. P. V. 298 A

Q4

Material Usage Variance = (SQ − AQ) × S.P

Material A = [(1000 × 2) − 2050] × 1 = 50 A

Material B = [(1000 × 3) − 2980] × 2 = 40 F

MUV 10A

(5)

Material Mix Variance = (RSQ − AQ) × SP

Material A = (2·4kg − 8kg) × 2

= 11·2 A

Material B = (9·6 kg − 4kg) × 1

= 5·6 F

MMV = 5·6 A

R·S·Q

Material A (20%) = 2kg / 10kg × 12kg = 2·4kg

Material B (80%) = 8kg / 10kg × 12kg = 9·6kg

(7)

Standard Yield as per Actual = $\frac{90\text{ kg}}{100\text{ kg}} \times 200\text{ kg}$

= 180 kg

200 kg → 182 kg

Material Yield Variance = (Actual Yield − Standard yield as per Actual output) × SP

= (182 kg − 180 kg) × 20

= 2 kg × 20

= 40 F

Material yield Variance

Agar Hum RSQ Nikalte hai + Aur 1 se jayada Material de rakhe ho

- Ratio Can be ascertain

$$(SQ - RSQ)\ SP$$

Jab 1 hi type ka Material use hota hai product ko Banane mai toh waha par RSQ Nhi Nikal skte

$$\left(\begin{array}{c}\text{Actual} \\ \text{Yield/output}\end{array} - \begin{array}{c}\text{Standard yield} \\ \text{as per Actual}\end{array}\right) \times S.P$$

08

$SQ = 1000 \text{ unit}$

$AQ = 900 \text{ unit}$

$SP = ₹10/\text{unit} \times 100 \text{unit}$

$= \boxed{₹100}$

$MVV = (900 - 1000) \times 100$

$= 100 \times 100$

$= \boxed{10,000\ A}$

Labour Cost Variance

labour Cost Variance (Direct wages Variance) is difference between the Actual direct wages incurred and Standard direct wages set.

These are three types of labours :-

- Unskilled labour/ worker
- Semi - skilled labour/worker
- Skilled labour/worker

Example

1 unit of Finished Good

	Standard Cost	Actual Cost	Variance
Skilled labour	₹ 10	₹ 9	1 (F)
Semi - skilled labour	₹ 12	₹ 13	1 (A)
unskilled labour	₹ 15	₹ 20	5 (A)
			labour Cost Variance

labour Cost Variance	=	Standard labour Cost	−	Actual Labour Cost

Material	labour
Qty ⟶	Hour
Price ⟶	Rate / Hr

Standard labour Cost = Standard Hours × Standard Rate / Hour

= 10 Hour × 50 / Hr = ₹ 500

Actual labour Cost = Actual Hour × Actual Rate / Hour

= 15 Hour × 60 / Hr = ₹ 900

labour Cost Variance ₹ 400 A

labour Rate Variance

Ex

SH = Std Hour = 10 Hour

SR = Std Rate = 50/Hr

AH = Actual Hour = 10 Hour

AR = Actual Rate = 60/Hour

Labour Cost Variance = Std Cost − Actual Cost

= (10 Hr × 50) − (10 Hr × 60)

= 500 − 600

= 100 A

Conclusion → Jo 100 Rs ka Adverse Variance aarha hai Vo labour Rate ke Bad jane ki vajah se aarha hai. Toh Jab labour Rate ki vajah se variance aaye usko LABOUR RATE VARIANCE.

Ex If in Above question A.R will be 40/Hour then what will be your Ans.

Labour Cost Variance = (10 Hr × 50) − (10 Hr × 40/Hr)

= 500 − 400

= 100 F (labour Rate ki Vajah se variance)

labour Rate Variance = (Std Rate − Actual Rate) × Actual Hour

= (50 − 40) × 10 Hour

= 100 F

Labour efficiency/Time Variance

Ex

SH = Std Hour = 10 Hour

SR = Std Rate = 50/Hr

AH = Actual Hour = 12 Hour

AR = Actual Rate = 50 /Hour

Labour Cost Variance = Std Cost − Actual Cost

= (10 X 50) − (12 X 50)

= 500 − 600

= 100 A

Conclusion → Jo 100 Rs ka Adverse Variance aarha hai Vo labour Hour ke Bad jane ki vajah se aarha hai. Toh Jab labour Hour ki vajah se variance aaye usko LABOUR EFFICIENCY VARIANCE

Ex If in Above question AH will be 8 /Hour then what will be your Ans.

Labour Cost Variance = (10 Hr X 50) − (8 X 50)

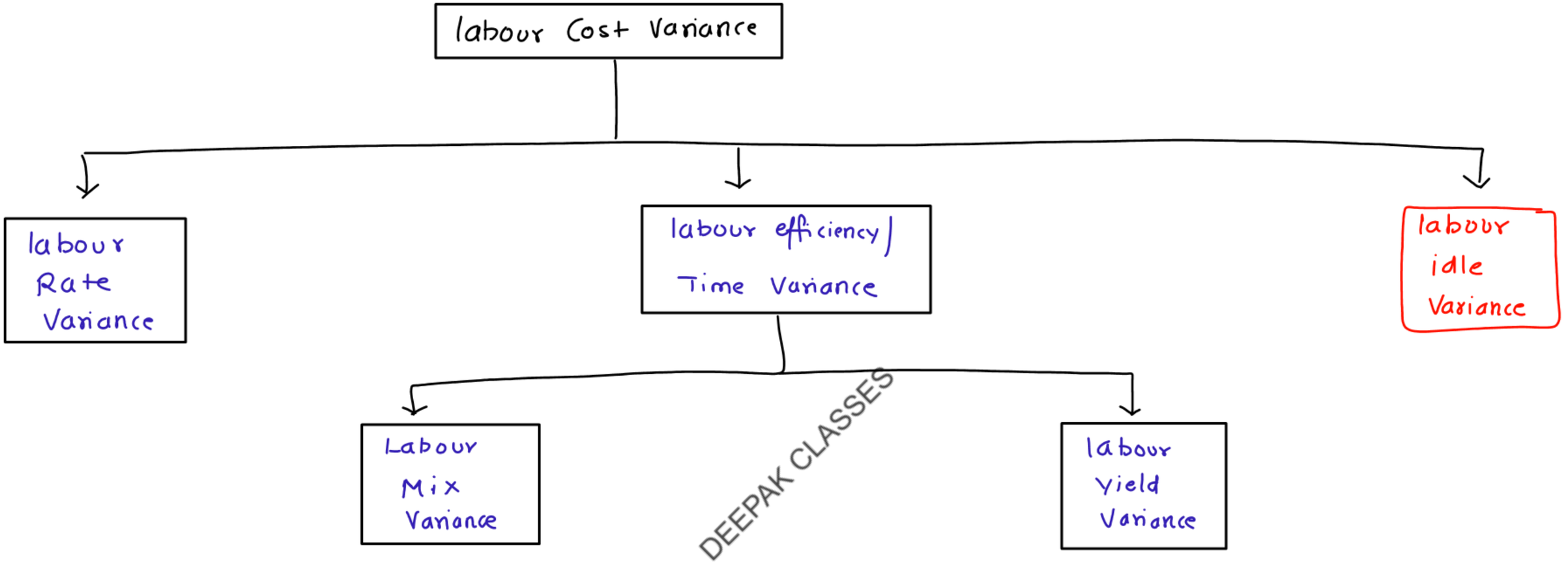
= 500 − 400

= 100 F (Labour Hour)

labour Rate Variance = (Std Hours − Actual Hours) X Std Rate

= (10 − 8) X 50/Hr

= 100 F



Ex

SH = 100 Hr	AH = 120 Hr
SR = 50/Hr	AR = 45/Hr

labour Cost Variance = (SH × SR) − (AH × AR)

= (100 × 50) − (120 × 45)

= 5000 − 5400

= 400 A

↓

The Variance Kuch

↓

labour Rate Ki Vajah se hai

labour Hour Ki Vajah Se hai

labour Rate Variance = (SR − AR) × AH

= (50 − 45) × 120

= 600 F

labour efficiency Variance = (SH − AR) × SR

= (100 − 120) × 50

= 1000 A

labour Cost Variance = labour Rate Variance + labour efficiency Variance

400 A = 600 F + 1000 A

400 A = 400 A

Ex

	Standard Data		Actual Data		R.S.H
	Std Hr	Std Rate	Actual Hr	Actual Rate	
Skilled labour	100 Hr	₹ 10	150 Hr	₹ 10	111 Hour
Semi-skilled labour	150 Hr	₹ 8	200 Hr	₹ 9	167 Hour
Unskilled labour	200 Hr	₹ 5	150 Hr	₹ 6	222 Hour
	450 Hr		500 Hr		500 Hr

Std Ratio = 100 : 150 : 200

= 10 : 15 : 20

= 2 : 3 : 4

(Jab Actual Hr Standard Ratio ke hisab se ho usko R.S.H)

① Labour Cost Variance = (SH × SR) − (AH × AR)

= 3200 − 4200

= 1000 A

② Labour Rate Variance = (SR − AR) × AH

Skilled	=	(10 − 10) × 150	=	0
Semi skilled	=	(8 − 9) × 200	=	200 A
unskilled	=	(5 − 6) × 150	=	150 A
				350 A

③ labour efficiency Variance = (SH − AR) × SR

Skilled	=	(100 − 150) × 10	=	500 A
Semi skilled	=	(150 − 200) × 8	=	400 A
unskilled	=	(200 − 150) × 5	=	250 F
				650 A

→ 350 A + 650 A

⇒ 1000 A → labour Cost Variance

labour Mix Variance

Jab Hum Actual Hour ko Standard Ratio ke hisab se Mix Nhi karte then labour Mix variance aata hai

labour Mix Variance = (RSH − AH) × SR

skilled	= (111 − 150) × 10	=	390 A
Semi skilled	= (167 − 200) × 8	=	264 A
unskilled	= (222 − 150) × 5	=	360 F
			294 A

labour yield Variance | labour Sub-efficiency Variance

Std Hour jo set kia hai utne mai product Ban jana chaiye tha (450 Hour) but Actual mai product Banane ke lie jayada Hour lag gye (500 Hour). Toh jitne jayada Hours lage std se (50 Hour) isi ko **labour yield Variance** khete hai. and vice versa

labour yield Variance = (SH - RSH) x SR

Skilled = (100 - 111) x 10 = 110 A

Semi-skilled = (150 - 167) x 8 = 136 A

Unskilled = (200 - 222) x 5 = 110 A

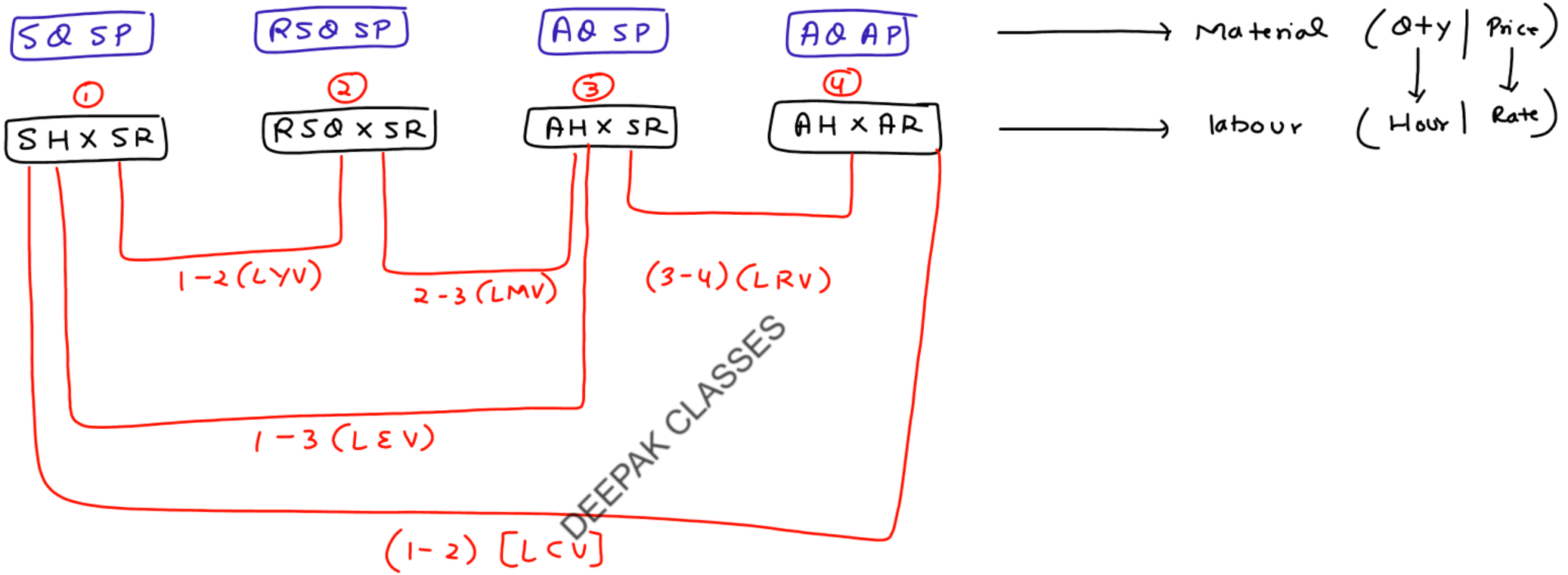
356 A

LEV = LMV + LYV

650A = 294A + 356 A

650A = 650A

Trick to learn formula's



Idle time Variance

idle time Variance = (Actual Hour × Std Rate) − (Actual Hour Worked × Std Rate)

Worker A

SH = 100 Hour

SR = ₹10/Hr

AH = 120 Hr → (10 Hr idle time)

SR = 10/Hr

Wage paid = 120 × 10

= 1200

idle time Wages = 10 × 10

= 100

= (120 × 10) − (110 × 10)

= 1200 − 1100

= 100

ill-9

labour Cost Variance = Standard labour Cost − Actual labour Cost

= (SH × SR) − 1800

= (6000 × 0.35) − 1800

= 2100 − 1800

= 300 F

ill-10

labour Cost Variance = (SH × SR) − (AH × AR)

= [(5Hr × 400) × 20] − [2200 × 25]

= (2000 × 20) − (2200 × 25)

= 40,000 − 55000

= 15000 A

Std Hours as per Actual output

ill-11

labour Rate = (SR − AR) × AH

Hours

= (0·35 − 0·31) × 5800

= 0·04 × 5800

= **232 F**

Working

Actual labour Cost = AH × AR

1800 = 5800 × A·Rate.

Actual Rate = $\frac{1800}{5800}$ = **0·31**

ill-12

labour Efficiency Variance = (SH − AH) × S·R

= (6000 − 5800) × 0·35

= 200 × 0·35

= **70 F**

ll-13

	S.Q = 200 meter of cloth		A Q = 300 meter of cloth		
	SH	SR	AH	AR	RSH
Skilled	20	15/Hr	30	17/Hr	24 Hr
unskilled	30	10/Hr	30	12/Hr	36 Hr
	50 Hr		60 Hr		60 Hr

Std Ratio = 20 : 30
= 2 : 3

labour mix Variance = (RSH − AH) × S.R

Skilled = (24 − 30) × 15 = 90 A

Unskilled = (36 − 30) × 10 = 60 F

30 A

ill-14 (b) labour yield Variance = $(AQ - SQ) \times S.R$ → (output ke hisab se chaiye)

$= (950 - 1000) \times 100$

$= (50) \times 100$

$= \boxed{5000\ A}$

Std Rate per unit = 4 Hr/unit × ₹25/Hr

= ₹100

Note → Jab labour ek se Jayada No no toh ashe case R.S.H Nhi Nikala jaa skta kyuki us case mai standard Ratio Nhi Calculate ho skti. Std Ratio ko Calculate krne ke lie ek se Jayda type labour chaiye jaise ki (Skilled, Semi-skilled, unskilled) toh ashe case mai formula alag hoga :-

labour yield Variance = (Actual output − Standard output) × S.R

M-15 Calculate labour yield variance

Labour Yield Variance = $(SH - RSH) \times S.R$

Skilled = $(30 - 33) \times 60$ = 180 A

Unskilled = $(90 - 99) \times 20$ = 180 A

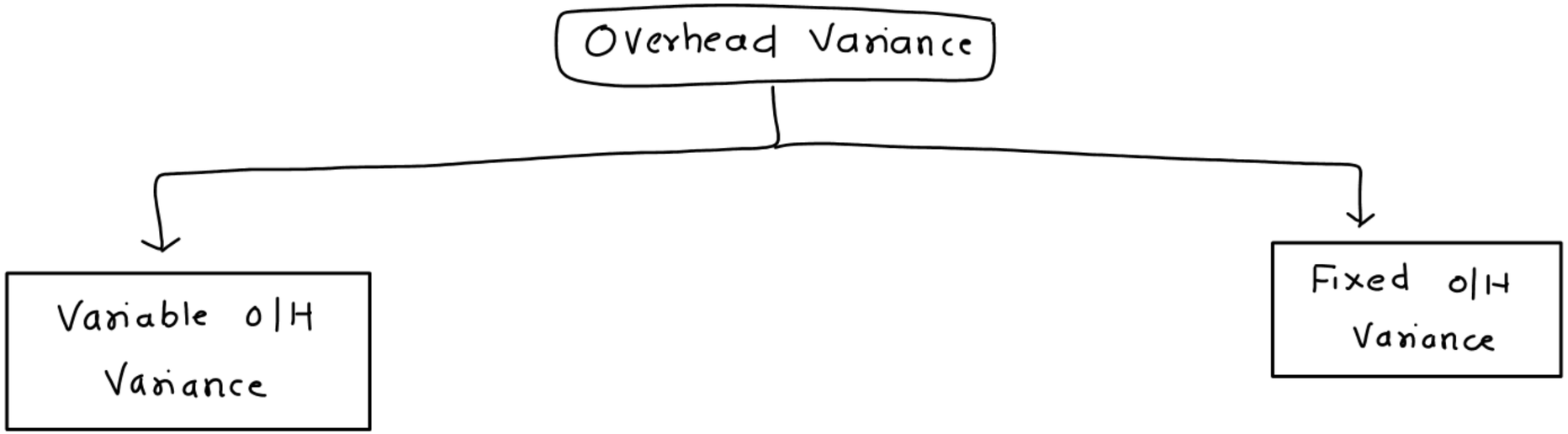
360 A

Calculating R.S.H

Standard Ratio = 30 : 90 ⇒ 1 : 3

Skilled = $132 \times \frac{1}{4}$ = 33

Unskilled = $132 \times \frac{3}{4}$ = 99



Variable O/H Cost Variance →

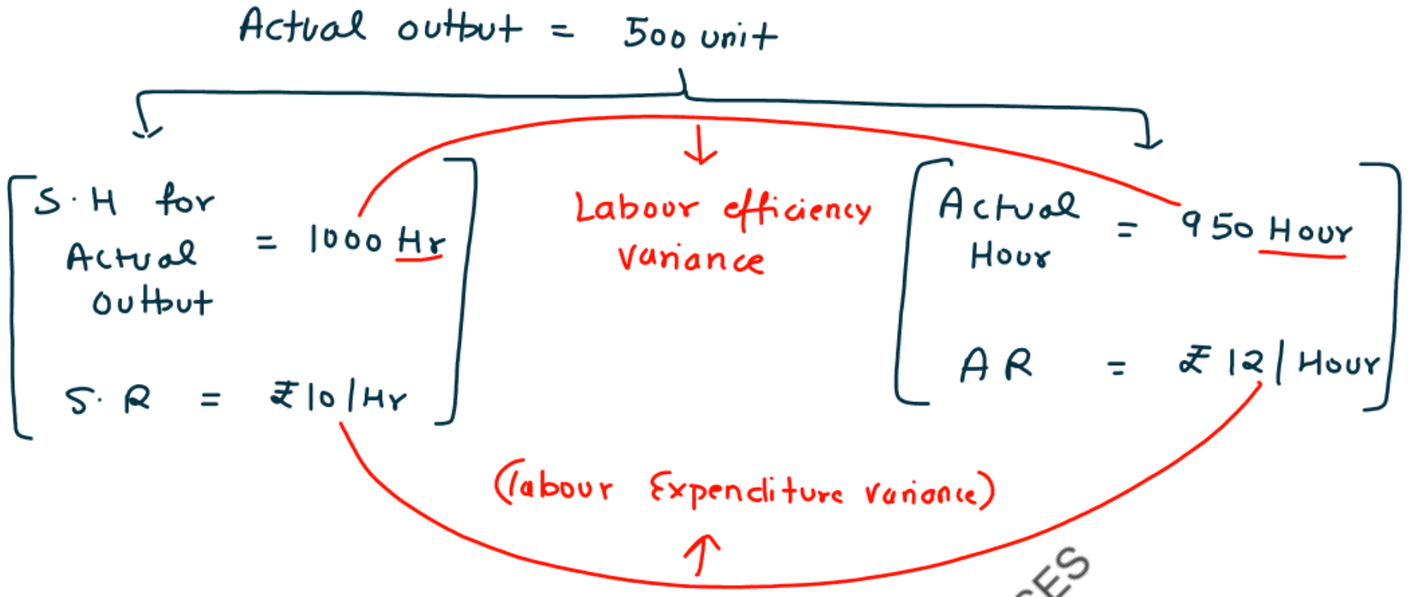
This is the difference between Standard Variable O/H for Actual production and Actual Variable overhed incurred.

Variable O/H Cost Variance = Std Variable O/H Cost for Actual output − Actual Variable O/H Cost

↓ ↓

$$\left(\begin{array}{l}\text{Std Hour for}\\ \text{Actual output}\end{array} \times \begin{array}{l}\text{std}\\ \text{Rate}\end{array}\right) - \left(\begin{array}{l}\text{Actual}\\ \text{Hour}\end{array} \times \begin{array}{l}\text{Actual}\\ \text{Rate}\end{array}\right)$$

Ex



Variable O/H Cost Variance = Std Cost − Actual Cost

= (SH × SR) − (AH × AR)

= (1000 × 10) − (950 × 12)

= 10,000 − 11400

= 1400 A

ill-16

Variable O/H Variance = (SH for Actual output × Std Rate) − (Actual Variable O/H Cost)

= (500 unit × 26/unit) − 14000

= 13000 − 14000

= 1000 A

WN-1

Std Rate/unit (OR) Std Variable Cost Per unit = Budgeted Variable O/H / Budgeted Production

= 15600 / 600 = 26/unit

Variable O/H Cost Variance

Variable O/H Expenditure Variance → Variable O/H Rate Variance

Agar Variance, Rate (SR & AR) ki vajah se aarha hai toh usko Hum Variable O/H Expenditure Variance kehte hai

Variable O/H efficiency Variance

Agar Variance, OUTPUT ya HOURS ki vajah se aarha hai toh usko Hum Variable O/H efficiency Variance kehenge

Important Note

① Agar question mai HOURS ki Baat ho rhi hai it means Indirect LABOUR jude hue hai Variable O/H mai then is Case mai formula HOURS vala lagya jayega.

① Agar question mai OUTPUT ki Baat ho rhi hai it means Indirect MATERIAL jude hue hai Variable O/H mai then is Case mai formula OUTPUT vala lagya jayega.

Variable O/H Expenditure / Rate Variable

In Case of output

Variable O/H Expenditure Variance	=	(Standard Rate	−	Actual Rate)	× Actual output

(AO × SR) − (AO × AR)

In Case of Hour

Variable O/H Expenditure Variance	=	(Standard Rate	−	Actual Rate)	× Actual Hours

(AH × SR) − (AH × AR)

Ill-17

Variable O/H Expenditure Variance = (SR − AR) × Actual Hour

= (SR × AH) − (AR × AH)

= (2/Hr × 1800) − 2500

= 3600 − 2500

= 1100A

(SR − AR) × Actual Hour

(2/Hr − 1.388) × 1800

0.6111/Hr × 1800

1100A

WN-1

Std Rate / Hour = Budget Variable O/H Cost / Budgeted Hour

= 4000 / 2000 Hr

= 2/Hr

WN-2

AR / Hour = Actual Variable O/H / Actual Hr

= 2500 / 1800

= (1.3888/Hr)

Variable O/H Efficiency Variance

In Case of output

$$\text{Variable efficiency Variance} = \left(\text{Std output} - \text{Actual output}\right) \times \text{Std Rate}$$

$$(SO \times SR) - (AO \times SR)$$

In Case of Hour

$$\text{Variable efficiency Variance} = \left(\text{Std Hour as per Actual output} - \text{Actual Hour}\right) \times \text{Std Rate}$$

$$(SH \times SR) - (AH \times SR)$$

Q 18

Variable o/H efficiency Variance = (Std Hour as per Actual output − Actual Hour) × SR/Hour

= (1500 Hr* − 1800 Hr) 2/Hr

= 300 × 2/Hr

= 600 A

[* Std Hr as per Actual = Std Hr/unit × Actual output
= 1 × 1500
= 1500 Hr]

WN-1

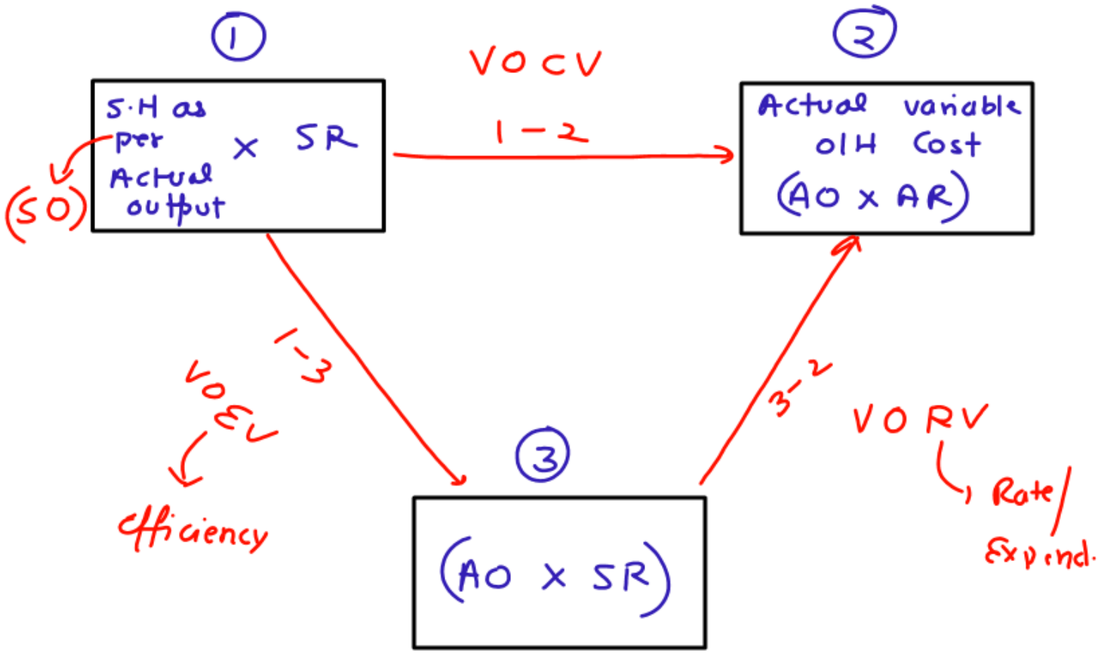
Std Rate/Hour = Budget Variable o/H Cost / Budgeted Hour

= 4000 / 2000 Hr

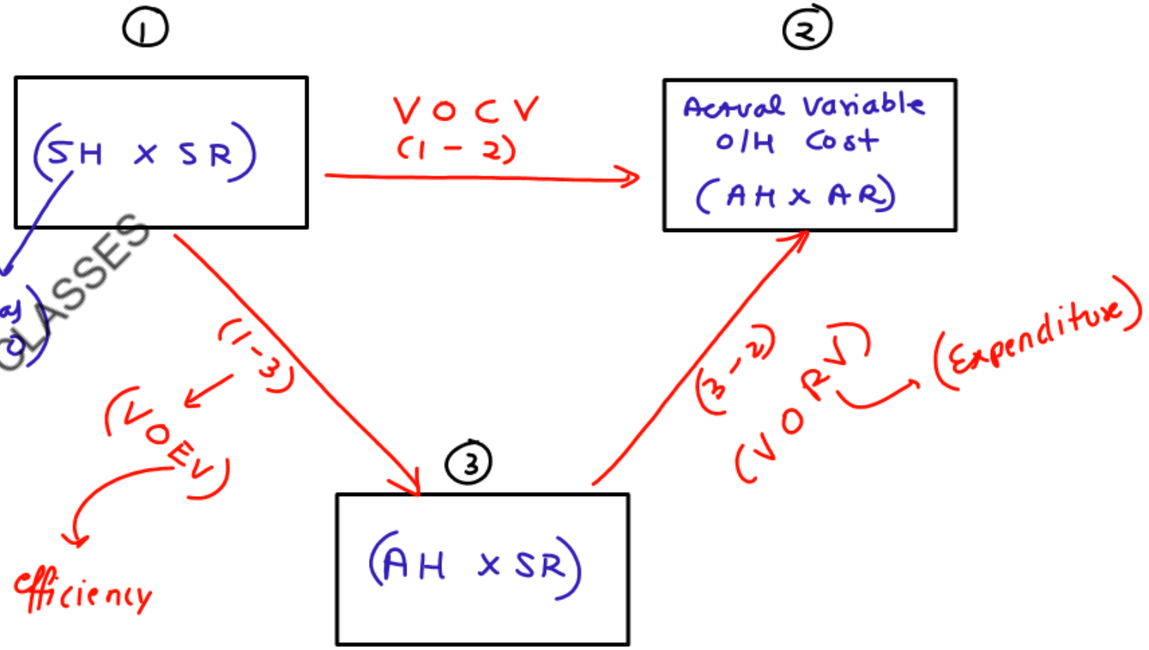
= 2/Hr

Trick to lear Formula

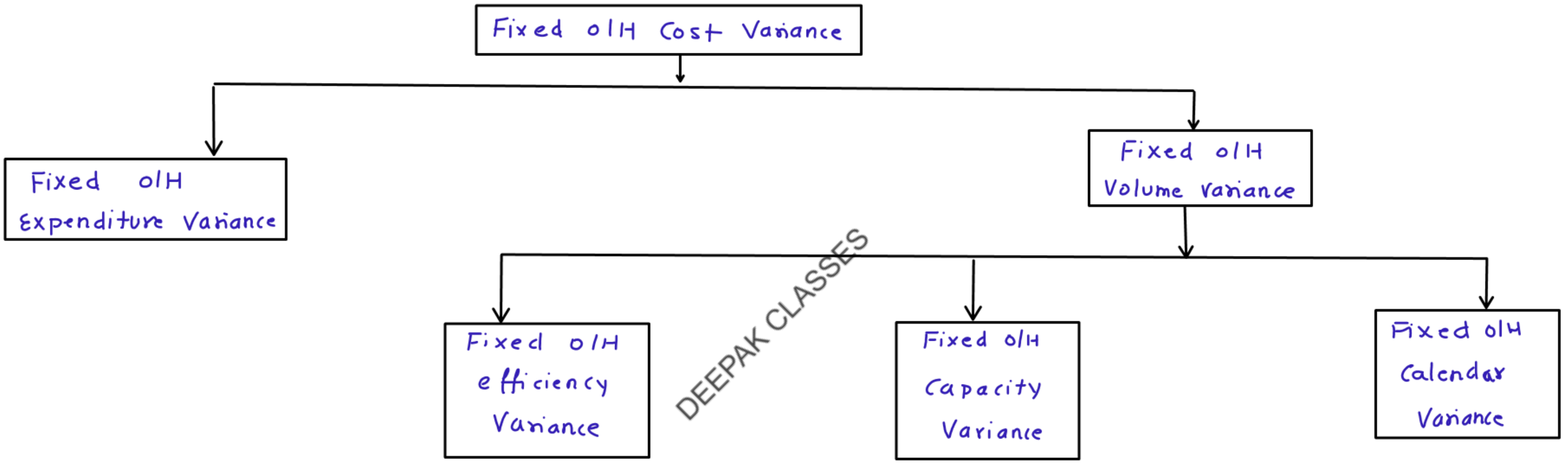
In Case of output



In Case of Hours



Fixed o/H Variance



Ex

Budget o/H = ₹ 200,000

Budgeted output = 50,000 unit → (Agar 50K unit Banate hai toh 2L kharch hojayenge)

Budgeted o/H per unit = $\frac{200,000}{50,000}$ = 4 unit → (Recovery Rate)

Actual Data

Actual output = 45000 unit

Recovery o/H = 45000 × 4 = 180,000

Actual o/H paid = 2,50,000

Fixed o/H Cost Variance	=	Recovery o/H	−	Actual o/H

= 180,000 − 250000

= 70,000 A

Fixed o/H Volume Variance	=	Recovery o/H	−	Budgeted OH

= 180,000 − 200,000

= 20,000 A

Fixed o/H Expenditure Variance	=	Budgeted o/H	−	Actual o/H

= 200,000 − 250,000

= 50,000 A

Note Agar question mai standard data dia hua hai toh hum usko Budgeted Data Assume karenge kyuki Hum standard data Answer mai Calculate krenge.

How to Calculate Recovery OIH & Budgeted OIH

Budgeted OIH = Budgeted Hours × Budgeted OIH per Hour

Budgeted OIH → Standard

Recovery OIH = Actual output × Budgeted OIH per unit

Budgeted OIH per unit → Budgeted OIH per unit

Budgeted OIH per unit = Budgeted OIH / Budgeted output

↓

Har ek unit ko Sell krne par customer se kitne Rupee charge krenge:

Q19, 20, 21

① Actual o/H = ₹94000

② Budgeted o/H = Budgeted Hour × Budgeted o/H per Hour

= 10,000 × 10

= ₹100,000

③ Recovery o/H = Actual output × Budget o/H per unit (WN-2)

= 1920 × 50/unit

= ₹96000

WN

Budgeted o/H per unit = Budgeted o/H / Budgeted output = 100,000 / 2000

= 50/unit

Budgeted output = Budgeted Hr / Budgeted Hr/unit

= 10,000 Hr / 5 Hr/unit = 2000 unit

① FOCV = Recovery o/H − Actual o/H

= 96000 − 94000 = 2000F

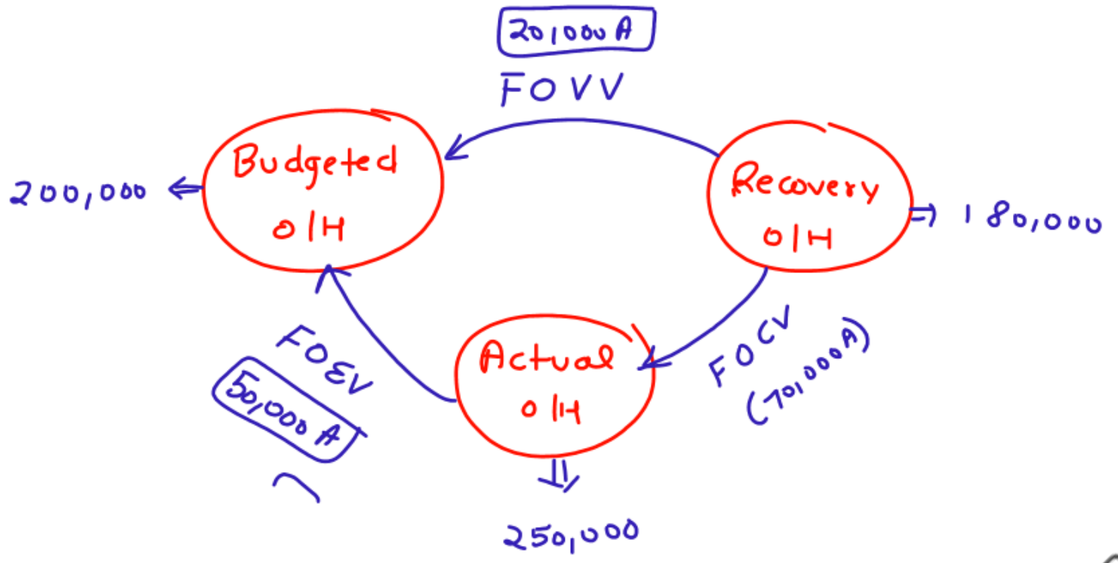
② FOEV = Budgeted o/H − Actual o/H

= 100,000 − 94000 = 6000F

③ FOVV = Recovery o/H − Budgeted Hr

= 96000 − 100,000 = 4000A

Trick to learn formula



FOCV = Recovery OIH − Actual OIH ①

FOEV = Budgeted OH − Actual OIH ②

FOVV = Recovery OIH − Budgeted OH

Q22

Recovery O/H = Actual output (pm) × Budgeted O/H per unit

= 2550 × 1/unit

(Per month) = **2550**

Budgeted O/H per unit = Budgeted O/H / Budgeted output

= 30 lc / 30 lc = 1/unit

Fixed O/H Volume Variance = Recovery O/H per month − Budgeted O/H per month

= 2550 − 2400

= **150 F**

Bugeted O/H per month = $\left(\frac{30,000}{50}\right)$ × 4

(1 week)

= **2400**

Fixed o/H Volume Variance = Recovery o/H − Budgeted o/H

= (Actual output × Budgeted o/H per unit) − (Budgeted output × Budgeted o/H per unit)

= [Actual output − Budgeted output] × Budgeted o/H per unit

(or)

= [Actual output − Budgeted output] × Standard o/H per unit

FIXED O|H EFICIENCY VARIANCE

Example Mr A Worker

Std time for 1 unit = 2 Hour

Actual output = 500 unit

Budgeted O|H |Hour = 10|Hr

Actual Hour worked = 800 Hr

Budgeted Hour = 1200 Hr

Standard Hour for Actual output = Actual output × Std time

= 500 unit × 2 Hr/unit

= 1000 Hour

Actual Hour Worker = 800 Hour

Fixed O|H efficiency Variance = [Std Hour for Actual output − Actual Hour worked] × Budgeted O|H per Hour

(Std Rate per Hr)

= (1000 Hr − 800 Hr) × 10

= 200 Hr × 10

= 2000 F

FOEV = (SH × SR) − (AH × SR)

Q23

Fixed o/H efficiency Variance = (SH for Actual output − Actual Hour worked) × Budgeted o/H per Hour

= (1400 Hr − 450 Hr) × ₹2/Hr

= 950 Hr × 2

= 1900 F

Budgeted o/H per Hour = Budgeted o/H / Budgeted Hour = ₹4000 / 2000 Hr = ₹2/Hour

Budgeted Hour = 1000 unit × 2 Hr/unit = 2000 Hr

Std Hour of per Actual output = 700 unit × 2 Hr/unit

= 1400 Hr

FIXED O/H CAPACITY VARIANCE

Ex A Machine

Budgeted Hour = 400 Hour

Actual Hour = 320 Hour

Budgeted o/H per Hour = 5/Hour

Fixed o/H Capacity Variance = (Actual Hour − Budgeted Hour) × Budgeted o/H Per Hr

= (320 Hr − 400 Hr) × 5/Hr

= 80 × 5

= 400 A

Fixed o/H Capacity Variance = (AH − BH) × S.R/Hr

= (AH × SR) − (BH × S.R)

Q24

$$\text{Fixed O/H Capacity Variance} = \left(\text{Actual Hour} - \text{Budgeted Hour}\right) \times \text{Budgeted O/H per Hr}$$

$$= (1900\,Hr - 2000\,Hr) \times 15$$

$$= \boxed{1500\,A}^{*}$$

① Actual Hour (per year) $= [(40-2) \times 50]$

$= [38/\text{week} \times 50] = \boxed{1900\ \text{Hour}}$

② Budgeted Hour (per year) $= [40\,Hr/\text{week} \times 50] = \boxed{2000\,Hr}$

③ $$\text{Budgeted O/H Per Hour} = \frac{\text{Budgeted O/H}}{\text{Budgeted Hour}}$$

$$= \frac{30{,}000}{2000}$$

$$= \boxed{15/\text{Hour}}$$

Fixed o/H Calendar Variance

$$\text{Fixed o/H Calendar Variance} = \left(\text{Revised Budgeted Hour} - \text{Budgeted Hours}\right) \times \text{Budgeted o/H Per Unit}$$

$$= (RBH - BH) \times SR$$

$$= (RBH \times SR) - (BH \times SR)$$

Q25

		Budgeted	Actual
Machine	=	800 Hr per day	750 Hr / day
No. of day in Month	=	25 day	24 day
Working Hour	=	800 Hr x 25 day = 20,000 Hr	750 Hr x 24 day = 18000 Hr

→ Kyuki Budgeted data and Actual Data Comparable Nhi hai because of No. of days

→ Toh Ab Hum Budgeted data ko Actual Data ke hisab se change Karenge jisse Hum Compare kar paye

→ Jab Budgeted Data, Actual Data ke hisab se change krte hai toh usko

Revised Budgeted Data kehenge.

Revised Budgeted Hours = 800 Hr × 24 day = 19200 Hr

(or)

$\frac{20,000 \text{ Hr}}{25 \text{ day}} \times 24 \text{ day} = 19200 \text{ Hr}$

Fixed OH Calendar Variance = (RBH − BH) × SR

= (19200 − 20,000) ×

= 800 × 7.5

= ₹6000 A

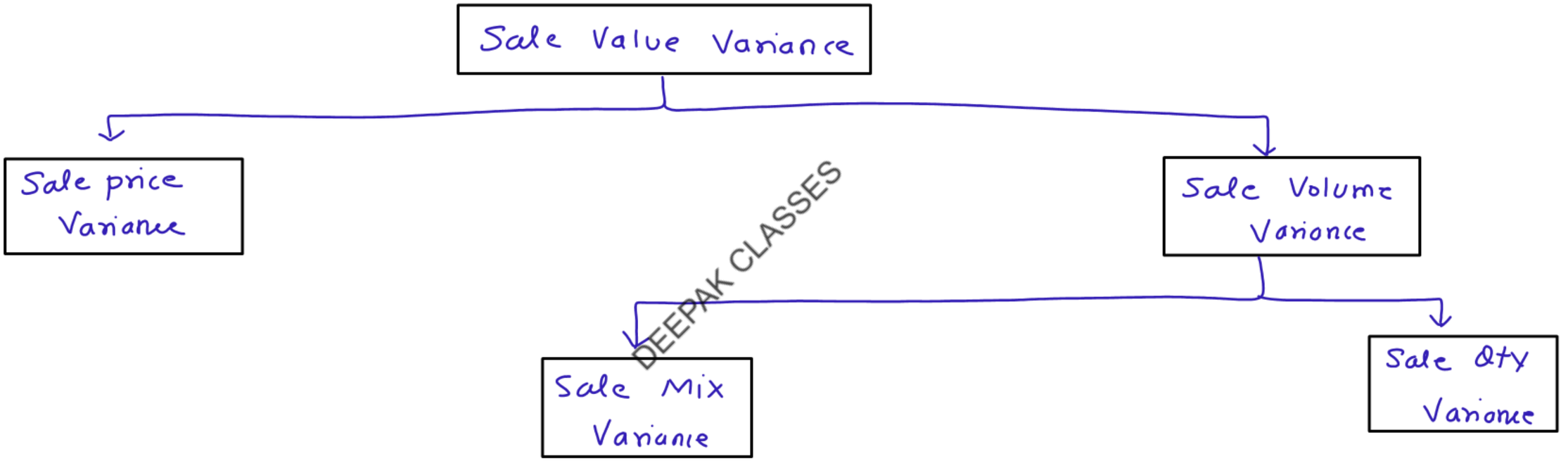
B O/H per Hr = $\frac{\text{BFO}}{\text{BH}}$

= $\frac{150,000}{20,000}$

= 7.5 / Hr

Sale Variance

Sale Variance Based on Turnover

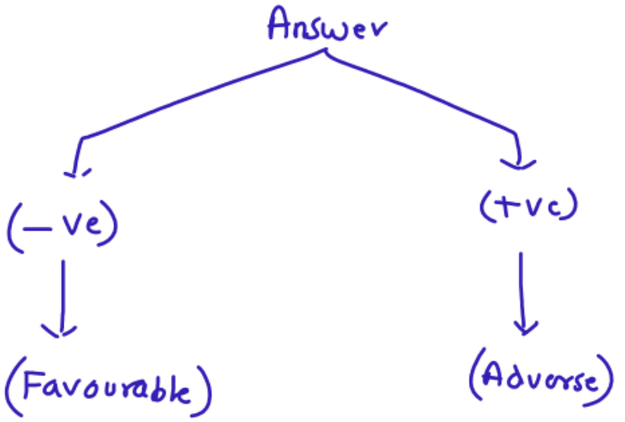


Sale Value Variance

Sale Value Variance	=	Budgeted Sale	−	Actual Sale

= (BQS × SP) − (AQS × SP)

= (BQS − AQS) × SP



Ex

Budgeted sale = 5L

Actual sale = 5.5L

Sale Value Variance = BS − AS

= 5L − 5.5L = (50K)F

Ex

Budgeted	Actual
Budgeted Qty sold = 1000 unit	Actual Qty Sold = 1200 unit
Budgeted S.P = 10/unit	Actual selling price = 8/unit

Sale Value Variance = (BQS × BSP) − (AQS × ASP)

= 1000 × 10 − (1200 × 8)

= 10,000 − 9600

= ₹400 A

Jab Variance aane ki vajah Price hota hai toh usko

SALE PRICE VARIANCE

⇓

(BSP − ASP) AQS

(10 − 8) 1200 = 2400A

Jab Variance aane ki vajah Qty hota hai toh usko

SALE VOLUME VARIANCE

⇓

(BQS − AQS) × BSP

(1000 − 1200) × 10

2000F

Q26

Sale value variance = Budgeted sale − Actual sale

A	−	22500	− 14300	=	8200 A
B	−	15000	− 17100	=	2100 F
C	−	12000	− 27000	=	15000 F
					8900 F

Sale price Variance = (BSP − ASP) × AQS

A	=	(15 − 13) × 1100	=	2200 A
B	=	(10 − 9) × 1900	=	1900 A
C	=	(8 − 9) × 3000	=	3000 F
				1100 A

Q27

Sale Volume Variance = (BQS − AQS) × BSP

A	=	(1500 − 1100) × 15	=	6000 A
B	=	(1500 − 1900) × 10	=	4000 F
C	=	(1500 − 3000) × 8	=	12000 F
				10,000 F

Sale Value Variance = Sale price Variance + Sale Volume Variance

8900 F = 1100 A + 10,000 F

8900 F = 8900 F

Sale Mix Variance

Q28

	BQS	BSP	AQS	ASP	Revised std Qty
A	1500	15	1100	13	2000
B	1500	10	1900	9	2000
C	1500	8	3000	9	2000
	4500		6000		6000

Std Ratio = 1 : 1 : 1

Sale Mix Variance = (RSQ - AQS) x BSP

A = (2000 - 1100) x 15 = 13500 A

B = (2000 - 1900) x 10 = 1000 A

C = (2000 - 3000) x 8 = 8000 F

6500 A

Sale Qty Variance

Q29

	BQS	BSP	AQS	ASP	Revised std Qty
A	1500	15	1100	13	2000
B	1500	10	1900	9	2000
C	1500	8	3000	9	2000
	4500		6000		6000

Std Ratio = 1 : 1 : 1

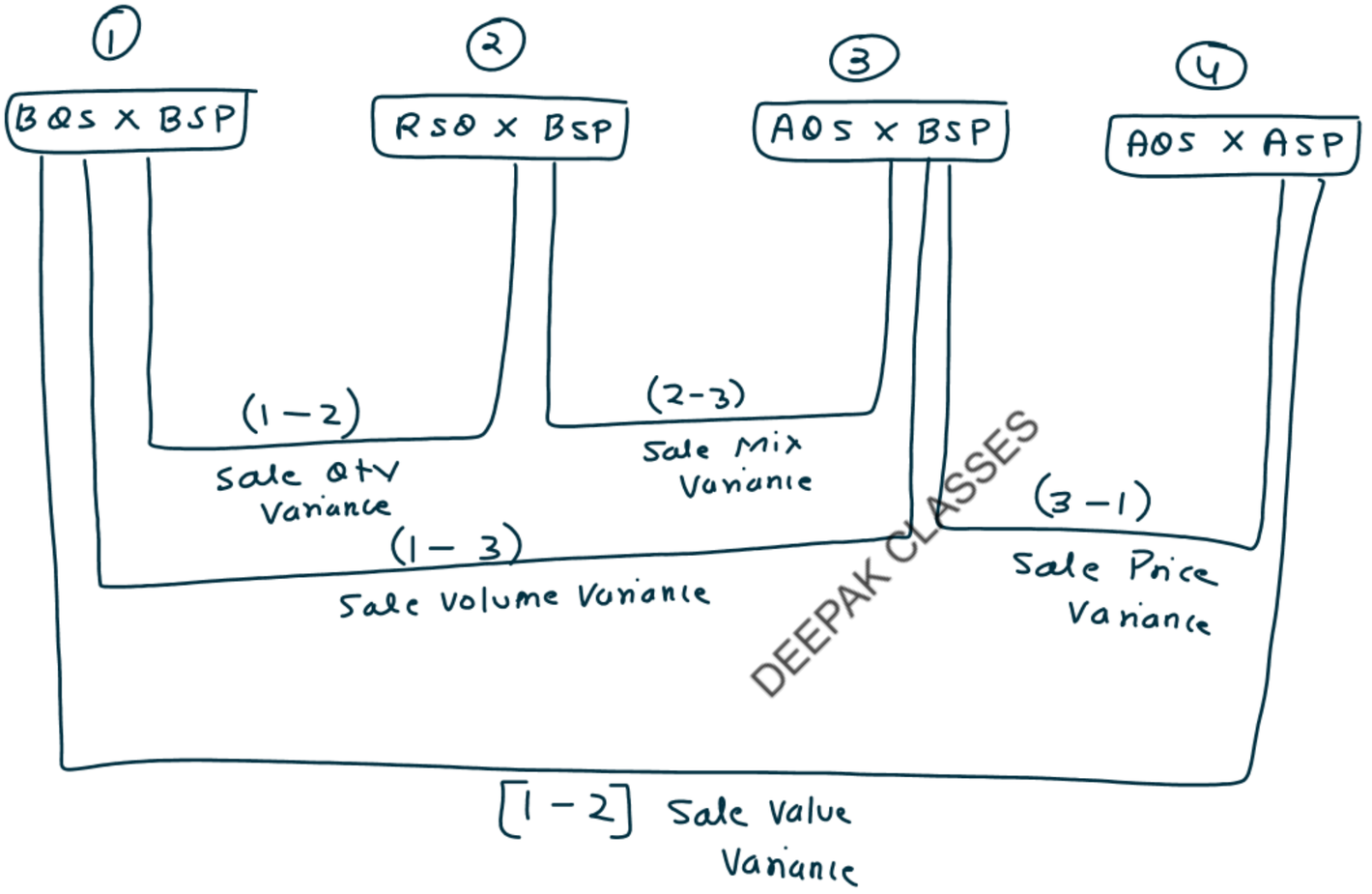
Sale Qty Variance = (BQS − RSQ) × BSP

A = (1500 − 2000) × 15 = 7500 F

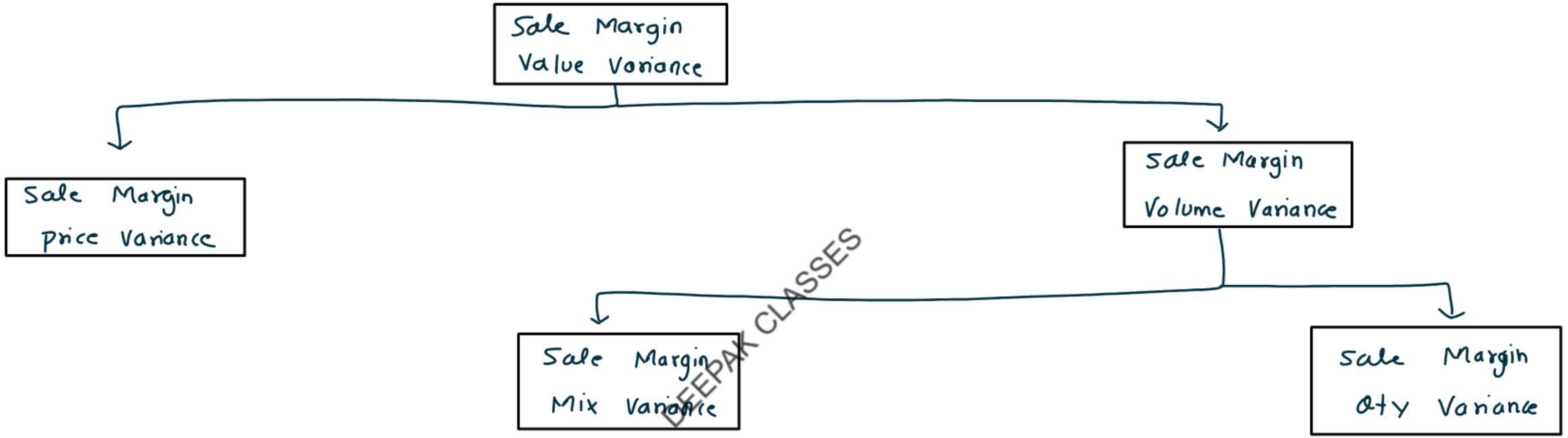
B = (1500 − 2000) × 10 = 5000 F

C = (1500 − 2000) × 8 = 4000 F

16500 F



Sale Variance Based on profit margin



Sale Margin Value Variance

This is the difference between Actual Value of sale Margin and Budgeted Value of sale Margin

Sale Margin Value Variance	=	Budgeted profit	−	Actual profit

Ex

Budgeted profit = 5 lakh

Actual profit = 4.50 lakh

Sale Margin Value Variance = Budgeted profit − Actual profit

= 5L − 4.5L

= 50k A

Ex

Budgeted Qty sold = 1000	Std profit per unit = ₹ 10
Actual Qty sold = 1100	Actual profit per unit = ₹ 8

Sale Margin Value Variance = Budget profit − Actual profit

= (1000 × 10) − (1100 × 8)

= 10,000 − 8800

= 1200 A

Agar variance aane ki vajah profit per unit toh usko Hum

SALE MARGIN PRICE VARIANCE

= (Std Profit per unit − Actual profit per unit) × Actual Qty sold

= (10 − 8) × 1100 = 2200 A

Agar variance aane ki Vajah Volume hai toh usko Hum

SALE MARGIN VOLUME VARIANCE

= (BQS − AQS) × Std profit per unit

= (1000 − 1100) × 10

= 1000 F

Concept

Actual profit per unit = Selling price per unit (Actual) − Cost price per unit

↓

(It will be Calculated on the Basis of Budgeted Data)

Calculating Cost per unit

Cost per unit	=	Budgeted selling price per unit	−	Budgeted / std profit per unit

Q30 & Q31 & Q32

① Calculating Cost per unit

Cost per unit = Budgeted selling price per unit − Std profit per unit

A = 15 − 8 = 7

B = 10 − 5 = 5

C = 8 − 2 = 6

② Calculating Actual profit/unit

Actual profit/unit = Actual S.P/unit − Cost/unit

A = 12 − 7 = 5/unit

B = 9 − 5 = 4/unit

C = 9 − 6 = 3/unit

(1) Sale Margin Value Variance = Budgeted profit - Actual profit

A = (1000 × 8) − (800 × 5) = 4000 A

B = (1000 × 5) − (1200 × 4) = 200 A

C = (1000 × 2) − (1500 × 3) = 2500 F

1700 A

(2) Sale Margin price Variance = (Std profit per unit − Actual profit per unit) × Actual qty sold

A = (8 − 5) 800 = 2400 A

B = (5 − 4) 1200 = 1200 A

C = (2 − 3) 1500 = 1500 F

2100 A

(3) Sale Margin Volume Variance = (BQS − AQS) × Std profit per unit

A = (1000 − 800) × 8 = 1600 A

B = (1000 − 1200) × 5 = 1000 F

C = (1000 − 1500) × 2 = 1000 F

400 F

Sale Margin Mix Variance

Sale Margin Mix Variance	=	(RSQ − AQS)	×	Std profit per unit

	Budgeted Qty sold	Actual Qty sold	Revised Std Qty
A	1000	800	1167
B	1000	1200	1167
C	1000	1500	1166
	3000	3500	3500

Std Ratio = 1 : 1 : 1

Mix Variance

Qty Variance

Sale Margin Mix Variance

A = (1167 − 800) × 8 = 2936 A

B = (1167 − 1200) × 5 = 165 F

C = (1166 − 1500) × 2 = 668 F

2103 A

Sale Margin Volume Variance

Sale Margin Volume Variance	=	(BQs − RSQ)	× Std profit per unit

	Budgeted Qty sold	Actual Qty sold	Revised Std Qty
A	1000	800	1167
B	1000	1200	1167
C	1000	1500	1166
	3000	3500	3500

Std Ratio = 1 : 1 : 1

Mix variance

Qty variance

Q34

A = (1000 − 1167) × 8 = 1336 F

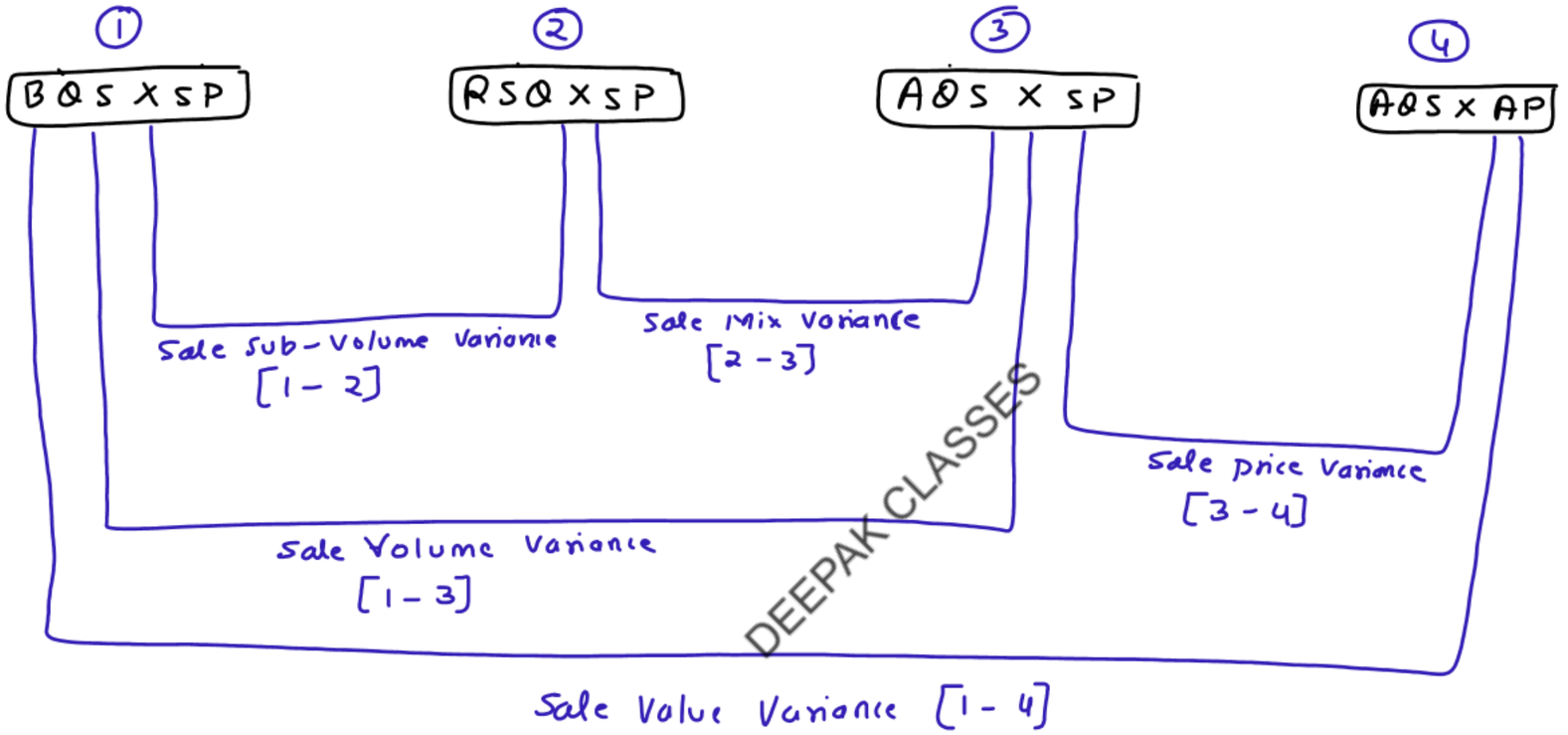
B = (1000 − 1167) × 5 = 835 F

C = (1000 − 1166) × 2 = 332 F

2503 F

Module Question with solution

Q33



Product	BQS	S.P	AQS	AP	RSQ
A	6000	5	5000 ┐ 6500 1500 ┘	5 4.75	5906.25
B	10,000	2	7500 ┐ 9250 1750 ┘	2 8.50	9843.75
	16000		15,750		15,750

Std Ratio = 6000 : 10,000

= 6 : 10

= 3 : 5

	① BQS x SP	② RSQ x SP	③ AQS x SP	④ AQS x AP
A	30,000	29,531.25	32500	32,125
B	20,000	19,687.5	18500	29,875
	50,000	49,218.75	51,000	62000

1) Sale Value Variance = 1 - 4 = 12000 F

2) Sale Price Variance = 3 - 4 = 11000 F

3) Sale Volume Variance = 1 - 3 = 1000 F

4) Sale Mix Variance = 2 - 3 = 1781.25 F

5) Sale Sub Volume Variance = 1 - 2 = 781.25 A

Full Fledge Question

Q34 Statement showing Equivalent Production

	Material		labour		overhed	
Completed unit	9000	100%	9000	100%	9000	100%
Work in progress	900	100%	450	50%	450	50%
Equivalent units	9900		9450		9450	

Computation of Material Cost Variance (9900 unit) [9900 unit]

Product	SQ	SP	AQ	AP	RSQ
A	19800 kg	3	22,275 kg	2.8	22,110 kg
B	9900 kg	4	10,890 kg	4.1	11,055 kg
	29,700 kg		33,165 kg		33,165 kg

Std Ratio = 19800 : 9900
= 2 : 1

	①	②	③	④
Product	SQ x SP	RSQ x SP	AQ x SP	AQ x AP
A	59,400	66,330	66,825	62,370
B	39,600	44,200	43,560	44,649
	99000	1,10,530	1,10,385	1,07,019

1) Material Cost Variance = 1 − 4 = 8019 A

2) Material price Variance = 3 − 4 = 3366 F

3) Material Usage Variance = 1 − 3 = 11,385 A

4) Material Mix Variance = 2 − 3 = 145 F

5) Material yield Variance = 1 − 2 = 11,530 A

Computing labour cost variance

	① (9450)	②	③	④
Product	(SH x SR)	(RSH x SR)	(AH x SR)	(AH x AR)
	(47,250 x 4)	—	(48000 x 4)	(48000 x 3.9843)
	1,89,000	—	192,000	191,250

Actual = 9450

Std = 12000 → 9450

Labour Hour = $\frac{60,000}{12000} \times 9450$

= 47250 Hr

1) Labour Cost variance = 1 - 4 = 2250 A

2) labour Rate variance = 3 - 4 = 750 F

3) labour Efficiency variance = 1 - 3 = 3000 A

4) Idle time Variance = (Actual Hr for payment − Actual Hr worked) x SR

= (48000 - 47700) x 4

= -300 Hr x 4

= (1200 A)

Computing Variable o/H variance

① Variable o/H Cost Variance = Std o/H Cost for Actual output − Actual o/H Cost

= (47,250 × 1) − 45000 = 2250 F

SH as per AO

$\left(\frac{60,000}{12000} \times 9450\right)$

⇒ 47,250 Hr

② Variable o/H Expenditure Variance = [SR − AR] × Actual Hr

= (SR × AH) − (AR × AH)

= (1 × 47700) − 45000 = 2700 F

$AR = \frac{45000}{47700} = 0.9433$

③ Variable o/H Efficiency Variance = [SH − AR] × Std Rate

= (47250 − 47700) × 1

= 450 A

Computing Fixed O/H Variance

① Fixed O/H Cost Variance = Recovery O/H − Actual O/H

= 94500 − 120,900 = 26400A

② Fixed O/H Expenditure Variance = Budgeted O/H − Actual O/H

= 120,000 − 120,900 = 900A

③ Fixed O/H Volume Variance = Recovery O/H − Budgeted O/H

= 94500 − 120,000 = 25500A

① Actual O/H = 120,900 (Given)

② Recovery O/H = Actual output × Budgeted O/H / unit

= 9450 × 10

= 94500

③ Budgeted O/H = Budgeted Hr × Budget O/H per Hr

= 60,000 × 2

= 120,000

Budgeted O/H Per unit = 120,000 / 12000 = 10/unit

(4) Fixed OIH efficiency variance = (SH for Actual output − Actual Hour worked) × Budgeted OIH Per Hour

= (47250 − 47,700) × 2

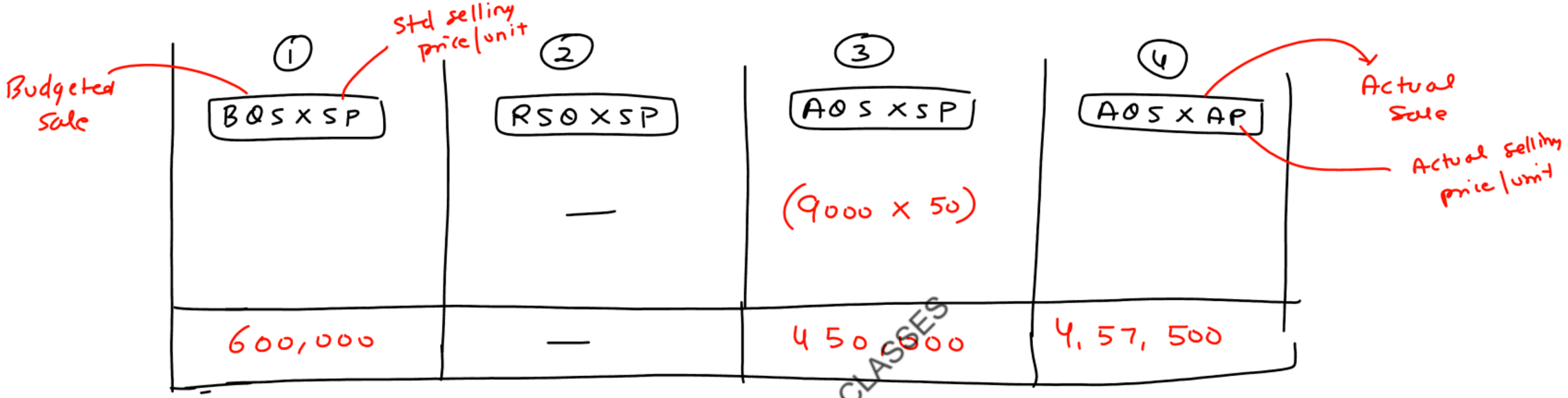
= 900 A

(5) Fixed OIH Capacity Variance = (Actual Hr worker − Budgeted Hour) × Budgeter OIH Per Hour

= (47,700 − 60,000) × 2

= 24600 A

Computating Sale variance based on Turnover

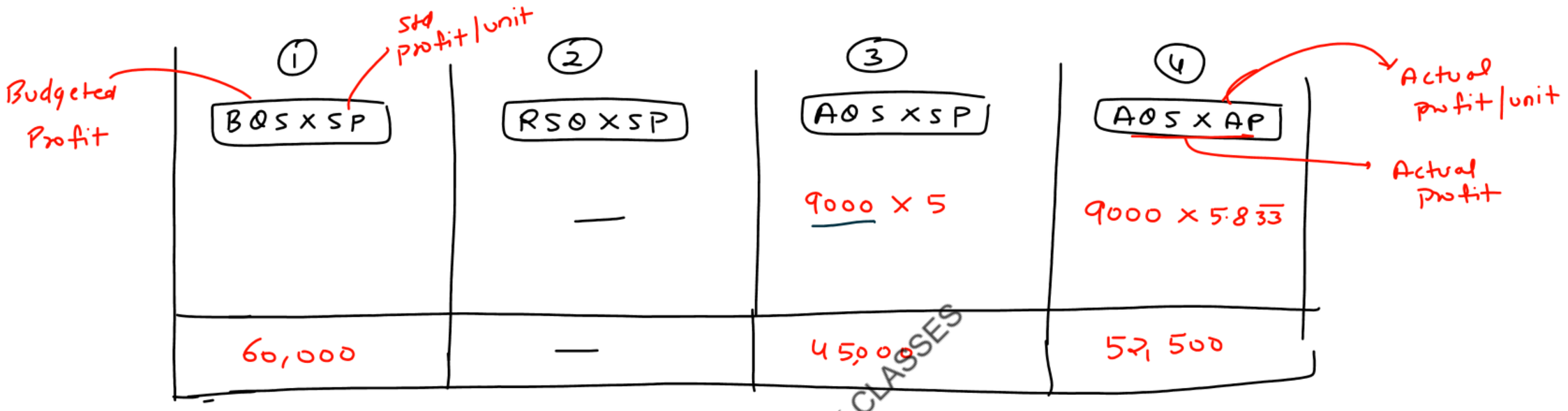


1) Sale value variance = 1 − 4 = 142,500 A

2) Sale Price variance = 3 − 4 = 7500 F

3) Sale Volume variance = 1 − 3 = 150000 A

Computating Sale variance based on Turnover



1) Sale Margin Value Variance = 1 − 4 = 60,000 − 52500 = 7500 A

2) Sale Margin Price variance = 3 − 4 = 45000 − 52500 = 7500 F

3) Sale Margin Volume variance = 1 − 3 = 60k − 45k = 15000 A

AP/unit = SP/unit − Cost/unit

= 50.833 − 45

= 5.83333

Controlling Ratio

1) In addition to the Variance, Certain Controlling Ratio are Commonly used by the Management for the use in Controlling operation.

2) These ratio are generally Expressed in terms of percentage.

3) If the Ratio is 100% or above, it indicate favourable position.

4) If the Ratio is less than 100%, it indicate Adverse / unfavourable position

5) These Important Ratio are :-

   a) Efficiency Ratio

   b) Activity Ratio

   c) Capacity Ratio

Efficiency Ratio

Ex Mr A → Worker

Actual output = 500 unit

Standard Hour for Actual output = 10,000 Hour

Actual Hours Worked = 12000 Hour

$$\text{Efficiency Ratio} = \frac{\text{Std Hr for Actual output}}{\text{Actual Hour worked}} \times 100$$

$$= \frac{10,000}{12,000} \times 100$$

$$= 83.33\%$$

b) If Actual Hour worked = 9000 Hour

$$\text{Efficiency Ratio} = \frac{10,000}{9000} \times 100$$

$$= 111.11\%$$

Activity Ratio

Actual output = 500 unit

Std Hour for Actual output = 2500 Hour

Budgetary Hour = 5000 Hour

$$\text{Activity Ratio} = \frac{\text{Std Hour for Actual output}}{\text{Budgetary Hour}} \times 100$$

$$= \frac{2500\text{Hr}}{5000\text{Hr}} \times 100$$

$$= 50\%$$

Explaination

500 unit ko Banane mai 2500 Hr lagne chaiye the Standard Hour aus us chiz ke lie 5000 Hour Budgeted Hour die hue isse Hamare 2500 Hour unutilized hua jo ki waste hogye jisko Hum kabhi aur ultized kr skte the isliye yhe ek Adverse situation hai. (2500 Hr lost)

↓

Estimation

Capacity Ratio

Actual output = 500 unit

Actual Hr worked = 3000 Hr

Budgeted Hr = 5000 Hr

$$\text{Capacity Ratio} = \frac{\text{Actual Hr worked}}{\text{Budgetory Hr}} \times 100$$

$$= \frac{3000\ \text{Hr}}{5000\ \text{Hr}} \times 100$$

$$= \boxed{60\%}$$

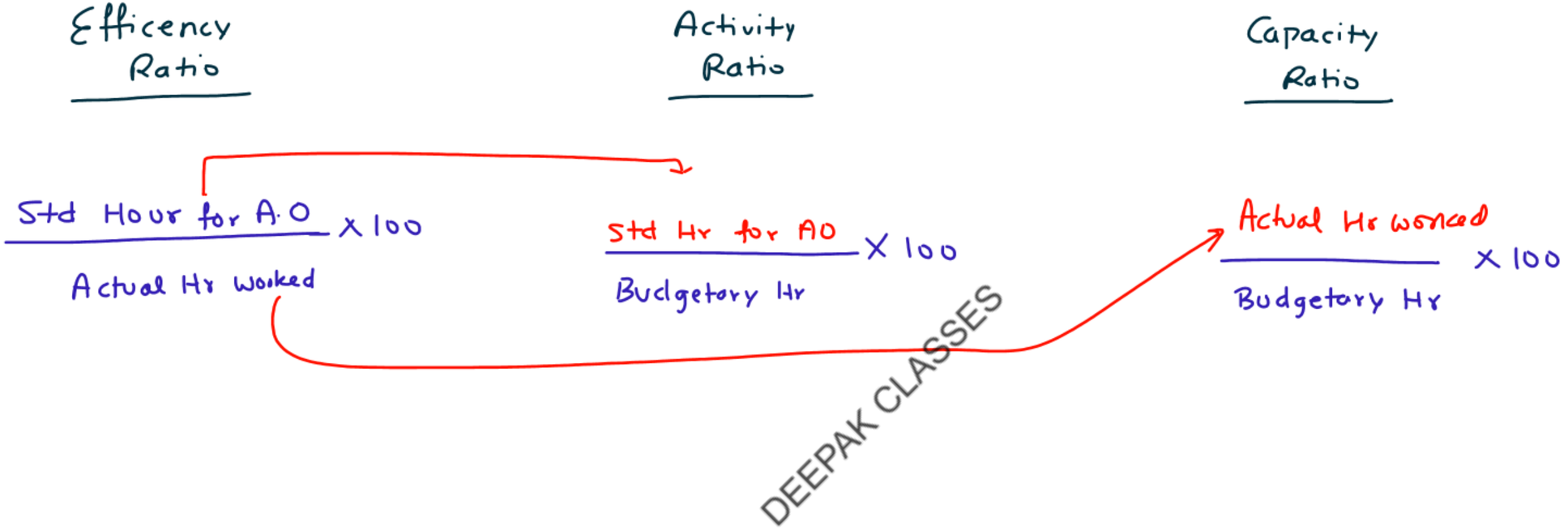
Explaination

500 unit ko Banane mai 3000 Hr lag gye Actual mai aur us chiz ke lie 5000 Hour Budgeted Hour die hue isse Hamare 2000 Hour unutilized hua jo ki waste hogye jisko Hum kam aur ultized kr skte the isliye yhe ek Adverse situation hai. (2000 Hr lost)

↓

Actual lost

Trick



Q35

Actual Hour worked = 500 Hr

Std Hour for Actual Output = (60 unit × 8) = 480 Hr

Budgeted Hour = (80 unit × 8) = 640 Hr

① Efficiency Ratio = $\frac{480}{500} \times 100$ = 96%

② Activity Ratio = $\frac{480\ Hr}{640\ Hr} \times 100$ = 75%

③ Capacity Ratio = $\frac{500\ Hr}{640\ Hr} \times 100$ = 78.125%

Practical Question Solution

① Material Cost Variance = Standard Cost for Actual production − Actual Cost

= 3200 − 2760

= 440 F

②

	SQ SP ①	RSQ SP ②	AQ SP ③	AQ AP ④
X	2250	2288	2400	3200
Y	4000	4070	4800	3600
Z	6250	6350	5250	6300
	12500	12708	12450	13100

RSQ SR :- 3 : 4 : 5

X − $\frac{1220}{12} \times 3$ = 305

Y − $\frac{1220}{12} \times 4$ = 407

Z − $\frac{1220}{12} \times 5$ = 508

1220

① MCV = 1 − 4 = 600 A

② MPV = 3 − 4 = 650 A

③ MUV = 1 − 3 = 50 F

④ MMV = 2 − 3 = 258 F

⑤ MYV = 1 − 2 = 208 A

Q3

SH = 200 Hr

SR = 1

AH = 190 Hr

AR = 1.25

① LCV = SC − AC

= 200 − 237.5

= **37.5 A**

② LRV = (SR − AR) AH

= (1 − 1.25) 190

= **47.5 A**

③ LEV = (SH − AH) SR

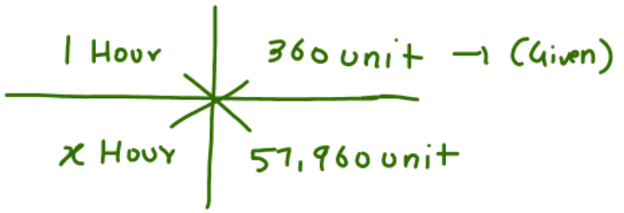
= (200 − 190) 1

= **10 F**

Q4

Actual production = 57,960 unit

Total Hour worked by 100 worker



$57,960 = 360x$

$x = \frac{57,960}{360}$

x = 161 Hour

(Per worker)

Per worker = 161 Hour

Total Hour Worked by 100 Worker = 161 × 100

= **16100 Hour**

Standard Cost = 16,100 × 4.80

= **77,280**

Calculating Actual Cost

Hour Worked in a month = 40/week × 4 week

= **160 Hour** per worker

1. (91 worker × 160 Hr) × 4.80 = 69,888

2. (5 worker × 160 Hr) × 5 = 4000

3. (4 worker × 160 Hr) × 4.60 = 2944

Actual Cost 76,832

① labour Cost Variance = SC − AC

= 77280 − 76,832

= 448 F

② labour Rate Variance = (SR − AR) AH

For 91 worker

(4.80 − 4.80) 14,560 = Nil

For 5 worker

(4.80 − 5) 800 = 160 A

For 4 worker

(4.80 − 4.60) 640 = 128 F

32 A

③ labour efficiency Variance = (SH − AH) SR

= (16,100 − 15800) × 4.80

= 1440 F

Standard Hour as per Actual = 100 worker × 161 Hour

= 16,100 Hr

Actual Hour for paid = (40 × 4) × 100

= 16000 Hour

idle time = 2Hr × 100

= 200 Hour

Actual Hour Worked = 16000 Hr − 200 Hr

= 15800 Hr

(4) labour idle time Variance = idle time × SR

= 200 Hr × 4.80

= 960 A

LCV = LRV + LEV + LITV

448F = 32A + 1440F + 960A

448F = 448F

Q5 Std Hour for Actual production

A = 10,000 unit × 15 Hr/unit

= 150,000 Hour

B = 15000 unit × 20 Hr/unit

= 300,000 Hr

Calculate Standard Cost

A = 150,000 × 5 = 7.5 Lakh

B = 300,000 × 5 = 15 lakh

22.5 lakh

① Labour Cost Variance = Std Cost − Actual Cost

= 22.5L − 23L

= 50,000 A

② Labour Rate Variance = (SR − AR) × AH

1. (5 − 7) × 12000 = 24000 A
2. (5 − 7.5) × 9400 = 23500 A
3. (5 − 5) × 429100 = NiL

47,500 A

③ Labour Efficiency Variance = (SH − AH) × S.R

= (450,000 − 450,500) × 5

= −500 × 5

= 2500A

Q17

Worker	Standard		Actual		
	SH	SR	AH	AR	RSH
Gracle A	24000 Hr	90	22000	80	25200
Grade B	32000 Hr	40	36,800	45	36,600
	56000 Hr		58,800		58,800

Std Ratio = 24 : 32

= 3 : 4

	SHSR ①	RSHSR ②	AHSR ③	AHAR ④
A	21,60,000	22,68000	19,80,000	17 60,000
B	12,80,000	14,64 000	14,72000	16,56000
	34,40,000	37,32 000	34,52000	34,16,000

① LCV = 1 - 4 = 24000 F

② LRV = 3 - 4 = 36000 F

③ LEV = 1 - 3 = 12000 A

④ LMV = 2 - 3 = 280,000 F

⑤ LYV = 1 - 2 = 2,92000 A

Q6

	Standard		Actual	RSH
	SH	SR	AH	
Skilled	36000	80	28,800	32 400
Unskilled	24000	40	25200	21600
	60,000		54000	54000

Std Ratio = 36 : 24
= 3 : 2

labour yield Variance = (SHSR − RSHSR)
= (SH − RSH) SR

Skilled = (36000 − 32400) × 80 = 288000 F

Unskilled = (24000 − 21600) × 40 = 96000 F

→ 384000F

LEF = (SH − AR) SR

Skilled = 576000

Unskilled = 480000A

528000F

LMV = (RSH − AH) SR

skilled = 288000

unsk = (144000)

144000 F

(For Proof of Answer)

Q1, Q2, Q3, Q4, Q5, Q6, Q17

(Completed)

Q7 ① Variable O/H Cost Variance = Standard Variable O/H cost as per Actual − Actual Variable O/H Cost

= (2000 × 0.40) − 1500

= 800 − 1500

= 700 A

★ Standard Rate Per Hour = Cost / Hr = 1000 / 5000 = 0.20/Hr

★ Standard Rate Per unit = Cost / unit = 1000 / 2500 = 0.40/unit

② Variable O/H Rate variance = (SR − AR) AH

= AHSR − AHAR

= (6000 × 0.20) − 1500

= 1200 − 1500

= 300 A

③ Variable O/H efficiency Varor = (SH − AH) SR

= [(2000unit × 2) − 6000] × 0.20

= [4000 − 6000] × 0.20

= 400A

★ standard time per unit = 5000 Hr / 2500 unit = 2 Hour/unit

08

★ Recovery O/H = Actual Production × Standard Rate per unit

= 5200 × 2

= 10,400

★ Std Rate per unit = 10,000 / 5000 = 2/unit

① Fixed O/H Cost Variance = Recovery O/H − Actual O/H

= 10,400 − 10,200

= 200 F

② Fixed O/H Exp. Variance = Budgeted O/H − Actual O/H

= 10,000 − 10,200

= 200 A

③ Fixed O/H Volume Variance = Recovery O/H − Budgeted O/H

= 10,400 − 10,000

= 400 F

★ Standard Hour for Actual output = 5200 unit × 4 Hr/unit

= 20,800 Hour

Standard Rate per Hour = $\frac{10,000}{20,000}$ = 0.50/Hr

(4) Fixed o/H efficiency variance = (SH − AH) SR

= [20,800 − 20100] × 0.50

= 700 × 0.50

= 350 F

(5) Fixed o/H Capacity Variance = (Actual Hour − Budgeted Hr) SR/Hr

= (20,100 − 20,000) × 0.50

= 100 × 0.50

= 50 F

Note → In this question we can't Calculate calender Variance because there is No information Regarding No. of working day.

Q9 Part-1 Variable OIH variance

① Variable OIH Cost variance = Std variable OIH Cost − Actual variable OIH cost

= 6000 − 5600

= 400 F

② Variable OIH Rate variable = (SR − AR) × AO

= (AO × SR) − (AO × AR)

= (1900 × 3) − 5600

= 5700 − 5600

= 100 F

③ Variable OIH efficiency variance = (SO − AO) × SR

= (2000 − 1900) × 3

= 100 × 3

= 300 F

Working

Std Rate per unit = Std V. OIH cost / Stand. unit = 6000 / 2000 = 3 / unit

Part 2 :- Fixed o/H Variance

① FOCV = Recovery o/H − Actual o/H

= 3800 − 4250

= 450 A

② FOEV = Budgeted o/H − Actual o/H

= 4000 − 4250

= 250 A

③ FOVV = Recovery o/H − Budgeted o/H

= 3800 − 4000

= 200 A

Recovery o/H = Actual Production × Standard Rate /unit

= 1900 × 2

= 3800

Std Rate per unit = Bud. Fixed o/H cost / Budgeted unit = 4000 / 2000 = 2/unit

Note :- In this question standard output is Not give so we cannot Calculate furthe Fixed o/H variance.

Completed Question = [1 to 9 & 17]

Q10 & ill 25

→ Same → (Complete)

Q11 Part A

Standard Qty as per Actual = 8000unit × 2kg

= 16000 kg

S.P = 2.50 | kg

Actual Qty = 16,500 kg

A P = 2.40 | kg

① MCV = SC − AC

= 40,000 − 39600

= 400 F

② MPV = (SP − AP) AQ

= (2.50 − 2.40) 16500

= 0.10 × 16500

= 1650 F

③ MUV = (SQ − AQ) SP

= (16000 − 16500) 2.50

= -500 × 2.50

= 1250 A

Part B Labour Variance

Std Hour as per Actual output = 8000 unit × 2

= 16000 Hour

S.R = 0.50 / Hour

Actual Hour = 18000 Hr

AR = 0.40 / Hr

① Labour Cost Variance = Standard Cost − Actual Cost

= (16000 × 0.50) − (18000 × 0.40)

= 8000 − 7200

= 800 F

② Labour Rate Variance = (SR − AR) × AH

= (0.50 − 0.40) × 18000

= 0.10 × 18000

= 1800 F

③ Labour efficiency Variance = (SH − AH) × S.R

= (16000 − 18000) × 0.50

= −2000 × 0.50

= 1000 A

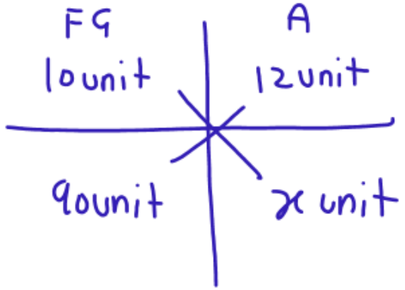
Q12

	Standard		Actual		
	S.Q → (90 unit)	S.R	AQ → (90 unit)	AR	R.S.Q
A	108	150	128	200	122 unit
B	144	200	192	150	162.67 unit
C	180	250	168	300	203.33 unit
	432 unit		488 unit		488 unit

Std Ratio - 108 : 144 : 180

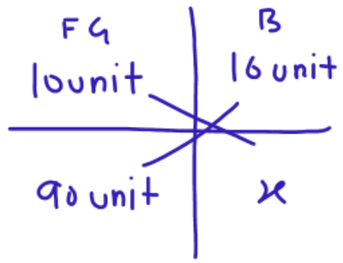
(÷36) = 3 : 4 : 5

Product A



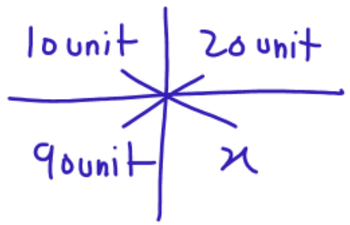
= 108 unit

Product B



= 144 unit

Product C



= 180 unit

	SQ SP	RSQ SP	AQ SP	AQ AP
A	16,200	18,300	19 200	25,600
B	28,800	32,533	38,400	28,800
C	45 000	50,833	42000	50,400
	90,000	101,666	99,600	104,800

① MCV = 1 - 4 = 14,800 A

② MPV = 3 - 4 = 5200 A

③ MUV = 1 - 3 = 9600 A

④ MMV = 2 - 3 = 2066 F

⑤ MYV = 1 - 2 = 11,666 A

Q13 ① Material Variance

Std Qty as per Actual output = AQ × S.P

= 18,750 × 1.5kg

= 28,125kg

① Material price Variance = (SP − AP) AQ

= (6 − 5.25) 29,860

= 22,395F

② Material usage Variance = (SQ − AQ) S.P

= (28,125 − 29,860) 6

= 10,410A

② Labour Variance

Std Hour for Actal output = 18,750 × 6

= 1,12,500

① Labour Rate Variance = (SR − AR) AH

= (5 − 6) 1,18,125

= 1,18,125A

② Labour efficiency Variance = (SH − AH) SR

= (1,12,500 − 1,18,125) 5

= 28,125A

③ Variable o/H Variance

Std Hour of per Actual = 18,750 × 6

= 1,12,500 Hr

① Variable o/H Exp Variance = (SR − AR) AH

= (SR · AH) − (AR AH)

= 4 × 1,18,125 − 485,000

= 12500 A

② Variable o/H efficiency Variance = (SH − AH) SR

= (1,12,500 − 1,18,125) × 4

= 22500 A

③ Variable o/H Cost Variance = Std Cost − Actual Cost

= (1,12,500 × 4) − 4,85,000

= 450000 − 485000

= 35000 A

Actual variable o/H Cost = 5,25,000 − 40,000 (Fixed)

= 485000

Note → We Assume that Variable o/H Hour is equal to Direct labour Hours because question is silent about Variable o/H Hours.

(4) Fixed O/H Variance

Recovery O/H = 18,750 unit × 3/unit

= **56,250**

(1) FOCV = Recovery O/H − Actual O/H

= 56,250 − 40,000

= **16,250 F**

(2) FOEV = Budgeted O/H − Actual O/H

= 60,000 − 40,000

= **20,000 F**

(3) FOVV = Recovery O/H − Budgeted O/H

= 56,250 − 60,000

= **3750 A**

Budgeted O/H = 20,000 × 3

= **60,000**

(5) Sale Variance

Std SP = 72/unit

Actual SP = 72/unit

Sale Value Variance = Standard − Actual

= (18750 × 72) − (18750 × 72)

= No Variance

Sale Volume Variance = (SQ − AQ) S.P

= (20,000 − 18,750) 72

= 1250 × 72

= 90,000

Q14

① Sale price variance = (SP − AP) AQ

* ⇒ (3 − 3) 5000 = Nil
* ⇒ (3 − 2.5) 8000 = 4000

4000 A

② Sale Volume Variance = (SQ − AQ) S.P

= (10,000 − 13000) 3

= −3000 × 3

= 9000 F

Q15

	SQ SP ①	RSQ SP ②	AQ SP ③	AQ AP ④
X	625	781.25	625	625
Y	600	750	900	975
Z	525	656.25	700	750
	1750	2187.50	2225	2350

① SVV = 1 - 4 = 600 F

② SPV = 3 - 4 = 125 F

③ SVV = 1 - 3 = 475 F

④ SMV = 2 - 3 = 37.5 F

⑤ SQV = 1 - 2 = 437.5 F

AP = Actual selling Price

SP = Standard selling Price

SQ = Standard Qty sold

AQ = Actual Qty sold

RSQ = Revised std Qty

Q16

	Standard		Actual		R·S·Q
	SQ	S·P	AQ	AP	
X	300	1	400	5	318·75
Y	500	8	450	6	531·25
	800		850		850

SQ = std qty sold

SP = std profit/unit

AQ = Actual qty sold

AP = Actual profit/unit

St Ratio = 300 : 500

= 3 : 5

	SQ SP ①	RSQ SP ②	AQ SP ③	AQ AP ④
X	300	318·75	400	2000
Y	4000	4250	3600	2700
	4300	4568·75	4000	4700

① Sale margin Value Variance = 1 − 4 = 400 F

② Sale margin price variance = 3 − 4 = 700 F

③ SMVV = 1 − 3 = 300 A

④ SMMV = 2 − 3 = 5687.5 A

⑤ SMQV = 1 − 2 = 268·75 F

Illustration 47

Calculating Equivalent unit

Material

(–)	WIP on 1 May : All material used in Previous month	= Nil
(+)	Unit during the month [6400 – 200]	= 6200 unit
(+)	WIP on 31 May :- All material used [600 × 100%]	= 600 unit
	Equivalent unit	6800 unit

labour

			Unit
⇔	WIP :- 1 May = (200 unit × 80% labour Required)	=	160 unit
(+)	during the month (6400 – 200)	=	6200 unit
(+)	WIP :- May 31 :- (600 unit × 80% labour Completed)	=	480 unit
	Equivalent unit		6840 unit

Material Variance

① Material Cost Variance = Standard Cost − Actual Cost

= [6800 × 3kg × 6] − 123,310

= 122,400 − 123,310

= 910 A

② Material price variance = (SP − AP) × AQ

= (6 − 5.9) × 20,900

= 2090 F

③ Material usage Variance = (SQ − AQ) × SP

= (20,400 − 20,900) × 6

= 3000 A

labour Variance

① labour Cost Variance = Standard Cost − Actual Cost

= (6840 × 4 × 7.50) − 208,670

= 205,200 − 2,08,670

= 3470 A

② labour Rate Variance = (SR − AR) AH

= (7.50 − 7.70) 27,100

= 5420 A

③ Labour Efficiency Variance = (SH − AH) × SR

= (27360 − 27100) × 7.50

= 1950 F

Module Question

Q36 (a) Calculating Material Variance

1) Material Cost Variance = Std Cost as per A.O − Actual cost

= (530 × 567) − 3,08,484

= 3,00,510 − 3,08,484

= 7974 A

2) Material price Variance = (SP − AP) × AQ

= AQ × SP − AQ × AP

= (42,845 × 7) − 3,08,484

= 2,99,915 − 3,08,484

= 8569 A

3) Material usage Variance = (SQ − AQ) × SP

= (42,930* − 42845) × 7

= 85 × 7

= 595 F

* SQ as per AO = AO × SQ

= 530 unit × 81 kg/unit

= 42,930

(b) Calculating labour variance

1) Labour Cost Variance = Standard Cost − Actual Cost

= (530 × 388) − 2,00,382

= 2,05,640 − 2,00,382

= 5258 F

2) labour Rate Variance = (SR − AR) AH

= (SR × AH) − (AR × AH)

= (51380 × 4) − 2,00,382

= 2,05,520 − 200,382

= 5138 F

3) labour efficiency Variance = (SH − AH) × SR

= (51410* − 51380) × 4

= 30 × 4

= 120 F

* SH as per A.O = AO × SH

= 530 unit × 97 Hr/unit

= 51,410

c) Calculating Variable OIH Variance

1) Variable OIH Cost Variance = Std Cost − Actual Cost

$= (530 \times 291) - 156{,}709$

$= 154{,}230 - 156{,}709$

$= \boxed{2479\ A}$

2) Variable OIH Expenditure Variance $= (SR - AR) \times AH$

$= (SR \times AH) - (AR \times AH)$

$= (3 \times 51380) - 156{,}709$

$= 154{,}140 - 156{,}709$

$= \boxed{2569\ A}$

3) Variable OIH efficiency Variance $= (SH - AH) \times SR$

$= (51{,}410 - 51380) \times 3$

$= 30 \times 3$

$= \boxed{90\ F}$

$51{,}410 = 530 \times 97$

SH for AO = 51,410

Q37

SQ = 1000 kg × 3 kg = 3000 kg (WN)

SP = 2.5 | kg

AQ = 3500 kg

AP = 3 | kg

① MCV = 7500 − 10,500

= 3000 A

② MPV = (2.5 − 3) × 3500

= 1750 A

③ MUV = (3000 − 3500) 2.5

= 1250 A

Q38

SQ = 300,000 kg (WN)

SP = 1 | kg

AQ = 2,80,000

AP = $\frac{252000}{280,000}$ = 0.90

① MCV = 300,000 − 252000

= 48000 F

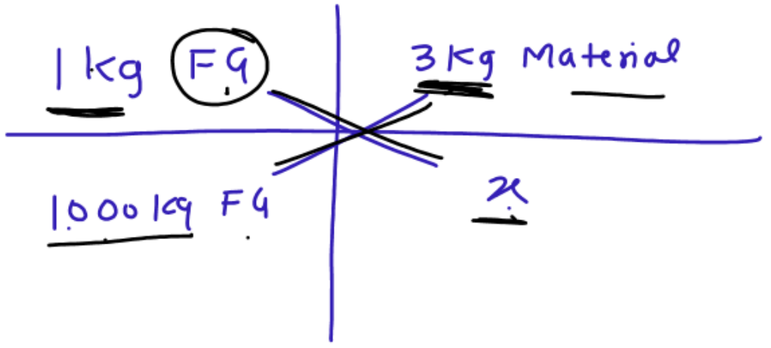
② MPV = (1 − 0.90) × 280,000

= 28000 F

③ MUV = (300,000 − 280,000) × 1

= 20,000 F

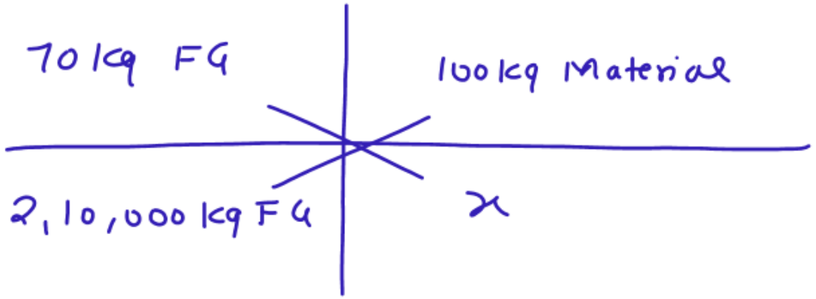
037



$x\,kg = 3 \times 1000$

Material = 3000 kg

038 WN



$$\frac{70}{3000} x = \frac{2,10,000}{x} \times 100$$

$$x = 3000 \times 100$$

$$x = 300,000\ kg$$

39

Direct Material Consumed = opening stock + purchase − closing stock

= Nil + 3000 − 500

(Kitni Mat Current yr/month mai Consumed hui) = 2500 unit

SO = 80 unit × 25 = 2000 unit

SP = 2/unit

AP = ₹9000 / 3000 unit = 3/unit

AQ = 2500 unit

DEEPAK CLASSES

(1) MCV = 4000 − 7500

= 3500 A

(2) MPV = (2 − 3) × 2500

= 2500 A

(3) MUV = (2000 − 2500) × 2

= 1000 A

Concept of Normal loss under Material & labour

Type - 1

	Standard	Actual
Material A	200 kg	250 kg
Material B	150 kg	100 kg
Material C	100 kg	150 kg
	450 kg ← D →	500 kg
less; Normal loss	(50 kg)	(100 kg)
output	400 kg ← S →	400 kg

→ Calculate R.S.Q

Std Ratio = 4 : 3 : 2

RSQ

$500kg \times \frac{4}{9} = 222.22$

$500kg \times \frac{3}{9} = 166.67$

$500kg \times \frac{2}{9} = 111.11$

Type - 2

	Standard	Actual
Material A	200 kg	250 kg
Material B	150 kg	100 kg
Material C	100 kg	100 kg
	450 kg ⟷ 5	450 kg → No Need to Calulate RSO because (Std Qty = RSO)
less; Normal loss @ 11.11%	(50 kg)	(20 kg)
output	400 kg ⟷ D	430 kg

RSO

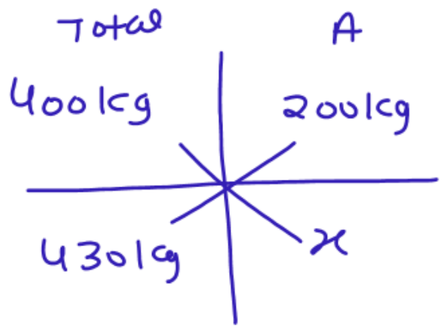
200 kg
150 kg
100 kg

450 kg
4 : 3 : 2

(Standard output as per Actual Qty) → (New std Qty)

Calculating New standard Qty

Material A

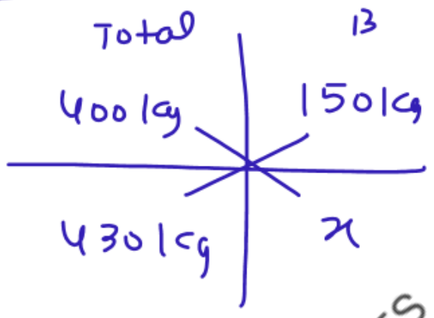


$400x = 430 \times 200$

$x = \frac{430 \times 2}{4}$

$x = 215$ kg

Material B

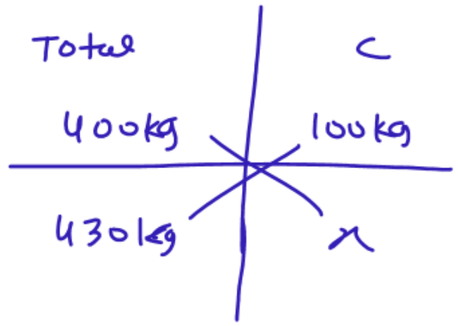


$400x = 430 \times 150$

$x = \frac{430 \times 150}{400}$

$x = 161.25$

Material C



$x = \frac{430 \times 100}{400}$

$x = 107.5$

Type - 3

	Standard	Actual
Material A	200 kg	250 kg
Material B	150 kg	100 kg
Material C	100 kg	150 kg
	450 kg ⟷ D	500 kg → Calculate RSQ
less; Normal loss	(50 kg)	(50 kg)
output	400 kg ⟷ D	450 kg → Calculate New std Qty

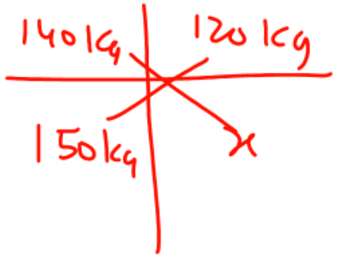
Q41

	Standard		Actual		RSQ
	SQ	SP	AQ	AP	
Material X	120 kg	25	110 kg	30	120 kg
Material Y	80 kg	50	90 kg	45	80 kg
	200 kg		200 kg		200 kg
Loss :-	(60 kg)		(50 kg)		
	140 kg		150 kg		

Std ratio = 120 : 80 = 3 : 2

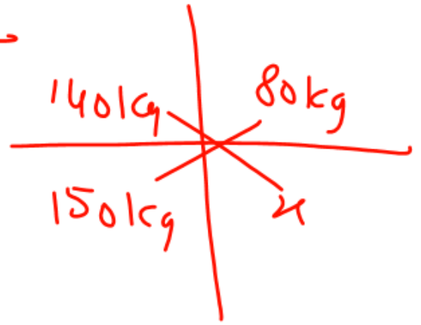
Calculating New std Qty

Material A



$x = 128.5714$

Material B



$x = 85.7142$

	NSO SP (1)	RSO SP (2)	AO SP (3)	AO AP (4)
X	3214.285	3000	2750	3300
Y	4285.71	4000	4500	4050
	7500	7000	7250	7350

MCV = 1 - 4 = 150 F

MPV = 3 - 4 = 100 A

MUV = 1 - 3 = 250 F

MMV = 2 - 3 = 250 A

MYV = 1 - 2 = 500 F

Q 42

	Standard		Actual	
	SQ	SP	AQ	AP
Mat X	247.5	15	210	16
Mat Y	165	10	190	10.50
	412.50		400 kg	
less:- loss @ 20%	(82.50)		(70 kg)	
output	330 kg	⟷	330 kg	

RSQ

$400 \times \frac{3.3}{5.5} = 240$ kg

$400 \times \frac{2.2}{5.5} = 160$ kg

400 kg

Standard Ratio = 247.50 : 165

÷ 75

= 3.3 : 2.2

	SOSP ①	RSOSP ②	AOSP ③	AOAP ④
X	3712.5	3600	3150	3760
Y	1650	1600	1900	1995
	5362.5	5200	5050	5355

① MCV = 1 − 4 = 7.5 F

② MPV = 3 − 4 = 305 A

③ MUV = 1 − 3 = 312.5 F

④ MMV = 2 − 3 = 150 F

⑤ MYV = 1 − 2 = 162.5 F

042

SH SR ①	AH SR ②	AH AR ③
800 x 60	792 x 60	50,688
$\Rightarrow$ 48000	$\Rightarrow$ 47520	

$$AH = \frac{50,688}{64} = 792 \text{ Hour}$$

① LCV = 1 - 3 = 2688 A

② LRV = 2 - 3 = 3168 A

③ LEV = 1 - 2 = 480 F

Q43

	Standard		Actual		Actual Hr Worked	RSH
	SH	SR	AH → Paid	AR		
Man	3840	45	2560	50	2496	3120
Women	1920	40	2240	25	2184	1560
	5760		4800		4680	4680

Std Ratio

3840 : 1920

2 : 1

Calculating S.H

Std Hr for Actual output = 2400 unit / 50 unit

= 48 Hour

↳ Std Hour for total Men = 48 Hr × 80 men = 3840 Hr

↳ Std Hour for total Women = 48 Hr × 40 men = 1920 Hr

Calculating Actual Hour for paid

Men = 40 Hr × 64 men

= 2560 Hr

Women = 40 Hr × 56 Women

= 2240 Hr

Actual Hour Worked

Men

39 Hr × 64 men = 2496 Hr

Women

39 Hr × 56 women = 2184

① LCV = SHSR − AHAR

Men = 172,800 − 128000 = 44,800

Women = 76800 − 56000 = 20,800

65,600 F

② LRV = (SR − AR) AH

Men = (45 − 50) × 2560 = 12800 A

Women = (40 − 25) × 2240 = 33,600 F

20,800 F

③ LEV = (SH − AH) × SR

Men = (3840 − 2496) × 45 = 60,480 F

Women = (1920 − 2184) × 40 = 10,560 A

49,920 F

④ LMV = (RSH SR) − (AH SR)

= (RSH − AH) × SR

Men = (3120 − 2496) × 45 = 28080 F

Women = (1560 − 2184) × 40 = 24960 A

3120 F

⑤ LYV = (SH − RSH) × SR

Men = (3840 − 3120) × 45 = 32400 F

Women = (1920 − 1560) × 40 = 14400 F

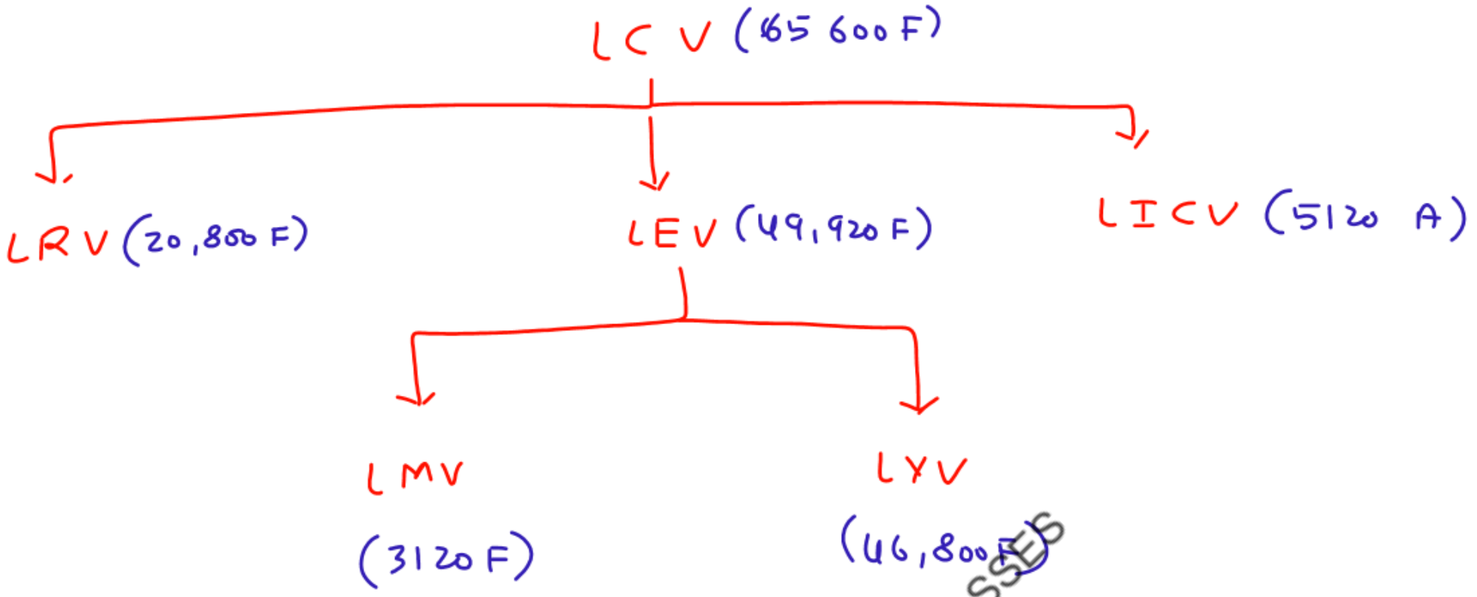
46800 F

⑥ Labour idle cost variance = (AH Worked − AH Paid) × SR

Men = (39 − 40) × 45 × 64 men = 2880 A

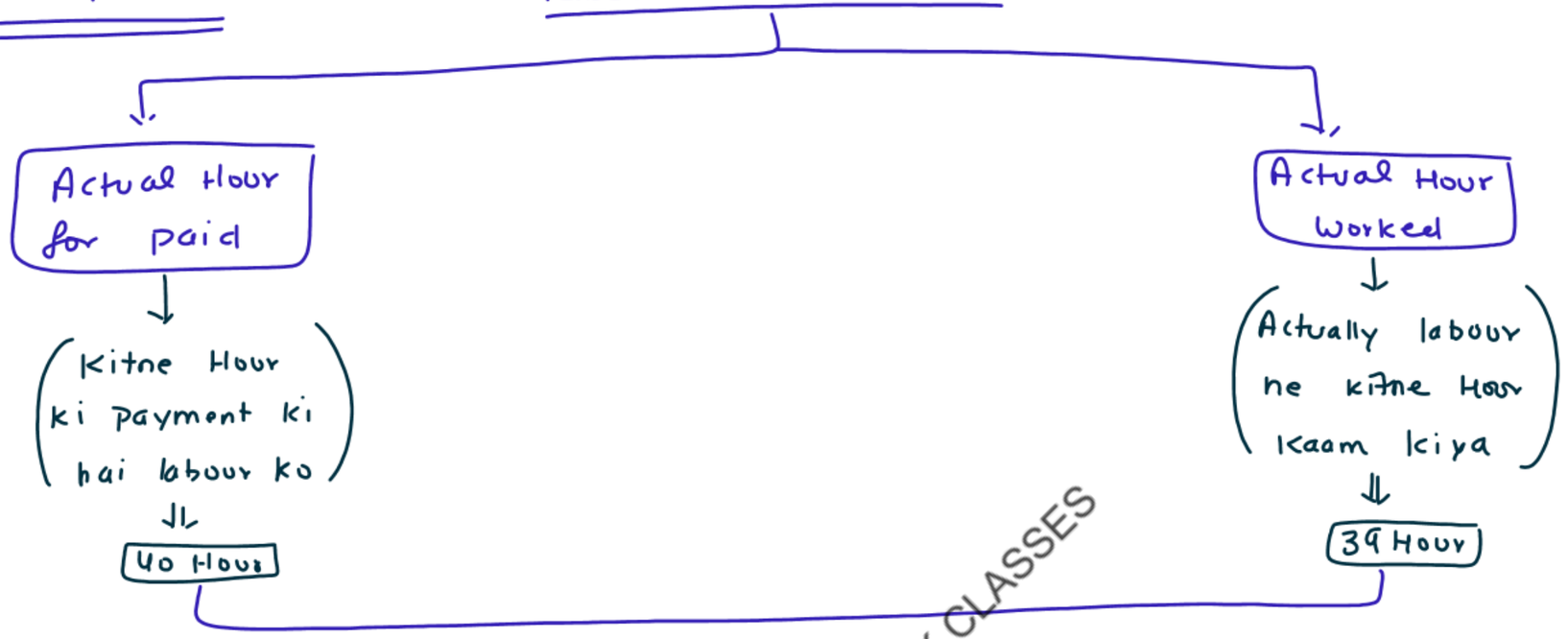
Women = (39 − 40) × 40 × 56 women = 2240 A

5120 A



Concept = Important

labour ke Question mai



Idle time = 40 Hr − 39 Hr

= 1 Hour

① labour Cost Variance = (SHSR) − (AHAR)

(Kitna Home Actual Cost aayi hai) ⇒ (Actual Hour for payment Consider krenge)

② labour Rate Variance

(SR − AR) × AH

(Actual Hour for payment)

③ Labour efficiency Variance

(SH - AH) x SR

(Actua Hour worked)

→ efficiency Hamesha kaom ke Basis par Calculate hoti hai

→ Labour Mix Variance → (Actual Hr worked)

→ Labour Yield variance ⇒ (Actual Hr worked)

(44)

Actual O/H = 31,000

Budgeted O/H = 30,000

Recovery O/H = Actual output × Std O/H cost per unit

= 22000 × 1.5/unit

= 33000

(1) Std Rate per unit = Budgeted O/H / Budgeted output = 30,000 / 20,000 = 1.5/unit

(2) Standard Hour per unit = Standard Hour / Standard unit

= 30,000 Hr / 20,000

= 1.5 Hour/unit

Std Hr = Budget cost / Budget cost/Hour = 30/1

= 30,000 Hr

(1) FOCV = Recovery O/H − Actual O/H

= 33000 − 31000

= 2000 F

(2) FOEV = Budgeted O/H − Actual O/H

= 30,000 − 31000

= 1000 A

(3) FOVV = Recovery O/H − Budgeted O/H

= 33000 − 30,000

= 3000 F

(4) Fixed o/H efficiency variance = (SH for AO − AHW) × Std Rate/Hour

= [(AO × Std Hr/unit) − AHW] ×

= [(22000 × 1.5 Hr) − 31500] × 1.

= [33000 − 31500] × 1

= 1500 F

(5) Fixed o/H Capacity Variance = [Actual Hour Worked − Budgeted Hour as per Actual] × Std Rate/Hr

= [31500 Hr − 32400 Hr] × 1

= 900 Hr × 1

= 900 A

Budgeted Hour as per Actual Day = $\frac{30{,}000\ Hr}{25\ day} \times 27\ day$

= 32400 Hr

(6) Fixed O/H Calender

Variance = (Actual working day − Budgeted Day) × Budgeted Cost/day

= (27 day − 25 day) × 1200/day

= 2 day × 1200

= 2400 F

Q45

	SQ SP ①	RSQ SP ②	AQ SP ③	AQ AP ④
X	1800	1800	2400	3200
Y	3200	3200	2400	1800
	5000	5000	4800	5000

SQ = Std Qty Sold

SP = Std Selling price

AQ = Actual Qty Sold

AP = Actual selling price

① Sale value Cost variance = 1 - 4 = Nil

② Sale value price variance = 3 - 4 = 200F

③ Sale value Volume variance = 1 - 3 = 200A

④ Sale value Mix variance = 2 - 3 = 200A

⑤ " " Yield " = 1 - 2 = Nil

Q46 (a)

	SQ SP (1)	RSQ SP (2)	AQ SP (3)	AQ AP (4)
A	30,000	31,250	36000	39000
B	28000	29,167	26000	24700
	58000	60,417	62000	63,700

SQ = Std Qty Sold

SP = Std Selling price

AQ = Actual Qty Sold

AP = Actual selling price

(1) Sale value Cost variance = 1 - 4 = 5700F

(2) Sale value price variance = 3 - 4 = 1700F

(3) Sale value Volume variance = 1 - 3 = 4000F

(4) Sale value Mix variance = 2 - 3 = 1583F

(5) " " Yield " = 1 - 2 = 2417F

RSQ

A 520.83333

B 729.16667

1250

Std Ratio = 5 : 7

Book solution

$$A = \frac{62000}{58000} \times 30,000 = 32068.96$$

$$B = \frac{62000}{58000} \times 28000 = 29,931$$

$$\frac{29,931}{62000}$$

600 × 60 = 36000

650 × 40 = 26000

1250 → 62000

500 × 60 = 30,000

700 × 40 = 28000

58000

(b)

	SQ SP (1)	RSQ SP (2)	AQ SP (3)	AQ AP (4)
A	2500	2605	3000	6000
B	5600	5832	5200	3900
	8100	8437	8200	9900

SQ = Std Qty Sold
SP = Std profit
AQ = Actual Qty Sold
AP = Actual profit

(1) Sale Margin Cost Variance = 1 - 4 = 1800 F

(2) Sale Margin price Variance = 3 - 4 = 1700 F

(3) Sale Margin Volume Variance = 1 - 3 = 100 F

(4) Sale Margin Mix Variance = 2 - 3 = 237 A

(5) " " Yield " = 1 - 2 = 337 F

RSQ

A	521
B	729
	1250

Std Ratio = 5 : 7

046

Scanner Questions

Q1

Material usage Variance = Material Mix variance + Material yield variance

= 1095 A + 1375 A

= **2470 A**

Now,

Material yield Variance = (Actual output − Standard output) × Std Rate

= (2550 unit − 2600 unit) × 27.5

= −50 unit × 27.5

= **1375 A**

Q2

Budgeted S.P/unit = $\frac{48000}{2400}$ = 20/unit

Actual SP/unit = $\frac{55000}{2500}$ = 22/unit

Budgeted C.P/unit = $\frac{38400}{2400}$ = 16/unit

Std profit/unit = 20 − 16 = 4/unit

Actual profit/unit = 22 − 16 = 6/unit

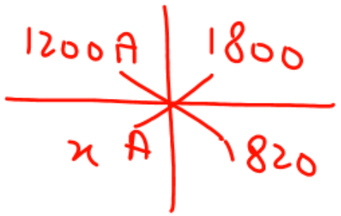
		₹
Actual profit [2500 × 6]	=	15000
Budgeted profit [2400 × 4]	=	9600
Profit variance		5400 F

Q3

		Standard Data		Actual Data		RSQ	New S.Q
		SQ	SP	AQ	AP		
Mat. A	60%	1200	40	1100	45	1200	1213.33
Mat B	40%	800	60	900	56	800	808.88
		2000		2000		2000	2022.22
less:- 10% loss		(200)		(180)			
		1800		1820			

Calculate New standard qty

Material A

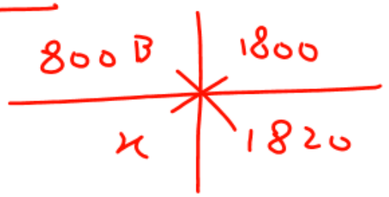


$1200 \times 1820 = 1800x$

$\frac{2184000}{1800} = x$

$x = 1213.333$

Mat. B



$\Rightarrow 1820 \times 800 = 1800x$

$\frac{1820 \times 8}{18} = x$

$x = 808.88$

	SO SP ①	RSO SP ②	AO SP ③	AO AP ④
A	$48,533.\overline{33}$	48K	44000	49500
B	$48,533.\overline{33}$	48K	54000	50,400
	97067	96000	98000	99,900

① MCV = 1 − 4 = 2833 A

② MPV = 3 − 4 = 1900 A

③ MUV = 1 − 3 = 933 A

④ MMV = 2 − 3 = 2000 A

⑤ MYV = 1 − 2 = 1067 F

Q4

Mat. Usage Variance = (SQ − AQ) SR

= (100 − 110) 2.25

= −10 × 2.25

= 22.5 A

Material Price Variance = (SP − AP) SQ

(i) When Variance is Calculated at point of purchase

MPV = (2.25 − 2.15) × 110

= 11 F

(ii) When Variance is Calculated at FIFO

First 100kg = (2.25 − 2.25) 100kg = Nil

Next 10kg = (2.25 − 2.15) 10kg = 1

1 F

(iii) When Variance is Calculated at LIFO

First 100kg = (2.25 − 2.15) 100kg = 11 F

Next 10kg = (2.25 − 2.25) 10kg = Nil

11 F

05

FOCV = Recovery O/H − Actual O/H

= 41600 − 40,800

= 800 F

FOEV = Budgeted O/H − Actual O/H

= 40,000 − 40,800

= 800 A

FOEV = Recovery O/H − Budgeted O/H

= 41,600 − 40,000

= 1600F

Recovery O/H = Actual output × Std Rate

= 20,800 × 2/unit

= 41600

Std Rate Per unit = Budgeted O/H / Budgeted unit = 40,000 / 20,000

= 2/unit

Q6

① Sale Value Variance = Std Sale − Actual Sale

= 3150 − 3700

= 550 F

② Sale price variance = (SP − AP) AQS

A	=	(12 − 11) × 100	=	100 A
B	=	(12 − 12) × 50	=	Nil
C	=	(9 − 8.5) × 200	=	100 A
D	=	(6 − 6) × 50	=	Nil
				200 A

③ Sale Volume Variance = (SQ − AQ) S.P

A	=	(100 − 100) × 12	=	Nil
B	=	(50 − 50) × 12	=	Nil
C	=	(100 − 200) × 9	=	900 F
D	=	(75 − 50) × 6	=	150 A
				750 F

Q9

(1) Variable OIH Cost variance = Std Cost − Actual Cost

= 400,000 − 520,000

= 120,000 A

(2) Variable OIH Expenditure variance = (SR − AR) AH

= SR AH − AR AH

= (2 × 220000) − 520,000

= 440,000 − 520,000

= 80,000 A

(3) Variable OIH efficiency variance = (SH − AH) SR

= (200,000 − 220,000) 2

= 40,000 A

WN

(1) Std time for 1 unit = 250,000 Hr / 50,000 = 5 Hr/unit

(2) Std Hour for Actual output = 40,000 × 5

= 200,000 Hr

(3) Std Rate / unit = 500,000 / 50,000 = 10/unit

(4) Std Rate / Hour = 500,000 / 250,000 = 2/Hour

Q13

	SQ SP ①	RSQ SP ②	AQ SP ③	AQ AP ④	RSQ
P	15000	14,250	12000	16000	475
Q	8000	7600	10,000	5000	380
R	5000	4750	2500	2000	95
	28000	26,600	24,500	23000	950 → 5:4:1

① SVV = 1-4 = 5000 A

② SPV = 3-4 = 1500 A

③ SVV = 1-3 = 3500 A

④ SMV = 2-3 = 2100 A

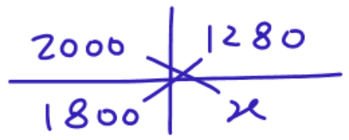
⑤ SQV = 1-2 = 1400 A

Pending question :- ~~7~~, ~~8~~, ~~10~~, ~~11~~, ~~12~~, 14, 15, 16, 17

Q7

	Standard Data		Actual Data		R.S.H	New S.H
	S.H	S.R	AH	AR		
skilled	1280	3	1120	4	1280	1152
semi-skilled	480	2	720	3	480	432
unskilled	240	1	160	2	240	216
	2000		2000		2000	
less :-	NIL		(200)			
	2000		1800			

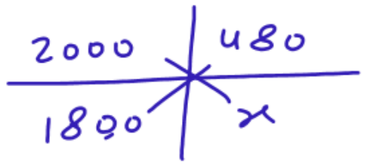
Skilled



$2000x = 1800 \times 1280$

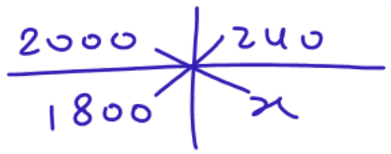
$x = 1152$

Semi-skilled



$x = 432$

Unskilled



$x = 216$

	NSH SR ①	RSH SR ②	AH SR ③	AH AR ④
skilled	3456	3840	3360	4480
semi-skilled	864	960	1440	2160
unskilled	216	240	180	320
	4536	5040	4960	6960

LCV = 1-4 = 2424A

LRV = 3-4 = 2000A

LEV = 1-3 = 424A

LMV = 2-3 = 80I=

LSEV = 1-2 = 504A

Q8

	Standard SQ	SP	Actual AQ	AP	Cost
X	30,000 kg	10	35000 kg	9	315000
Y	40,000 kg	5	42000 kg	6	252000
Z	50,000	6	53000 kg	7	3,71,000
	120,000		130,000		

(1) Material Cost Variance = Std Cost − Actual cost

X = 300,000 − 315000 = 15000 A

Y = 200,000 − 252000 = 52000 A

Z = 300,000 − 371000 = 71000 A

138000 A

(2) MPV = (SP − AP) AQ

X = (10 − 9) 35K = 35000 F

Y = (5 − 6) 42K = 42000 A

Z = (6 − 7) 53K = 53000 A

60,000 A

(3) MUV = (SQ − AQ) SP

X = (30K − 35K) 10 = 50,000 A

Y = (40K − 42K) 5 = 10,000 A

Z = (50K − 53K) 6 = 18000 A

78000 A

Q10

	Standard		Actual		
	SQ	SP	AQ	AP	RSQ
Mat A	60	20	44	25	66
Mat B	40	10	66	5	44
	100 kg		110 kg		110 kg
less-loss	(10 kg)		(20 kg)		
	90 kg		90 kg		

	SQ SP ①	RSQ SP ②	AQ SP ③	AQ AP ④
X	1200	1320	880	660
Y	400	440	660	330
	1600	1760	1540	1430

MCV = 1 - 4 = 170 F

MPV = 3 - 4 = 110 F

MUV = 1 - 3 = 60 F

MMV = 2 - 3 = 220 F

MYV = 1 - 2 = 160 A

Q11

① Fixed o/H Cost Variance = Recovery o/H − Actual o/H

= 38000 − 39000

= 1000 A

② Fixed o/H Expend. Variance = Budgeted o/H − Actual o/H

= 40,000 − 39000

= 1000 F

③ Fixed o/H Volume Variance = Recovery o/H − Budgeted o/H

= 38000 − 40,000

= 2000 A

Recovery o/H = Actual output × Std Rate/unit

= 3800 × 10

= 38000

Std Rate/unit = Budgeted o/H / Budgeted unit = 40,000 / 4000

= 10/unit

Standard Fixed o/H as per Actual production = 3800 unit × 10

= 38000

Revised Budgeted o/H = 40,000 / 20 × 21 = 42000

④ Fixed o/H Calender Variance = Revised Budgeted o/H − Budgeted o/H

= 42000 − 40,000

= 2000 F

⑤ Fixed o/H Efficiency Variance = Std o/H as per Actual − Revised Budgeted o/H

= 38000 − 42000

= 4000 A

Q12

① FOCV = Recovery O/H − Actual O/H

= 2700 − 2500 = 200 F

② FOEV = Budgeted O/H − Actual O/H

= 2400 − 2500 = 100 A

③ FOVV = Recovery O/H − Budgeted O/H

= 2700 − 2400 ⇒ 300 F

Recovery O/H = Actual Production × Std Rate/unit

= 900 × 3

= 2700

Std Rate/unit = Budgeted O/H / Budgeted unit = 2400 / 800 = 3/unit

Standard time/unit = 4000 Hr / 800 unit

= 5 Hr/unit

Std Rate per Hr = 2400 / 4000

= 0.6/Hour

Std Hour for Actual output = 900 unit × 5

= 4500 Hr

(4) FOEV = (SH − AH) SR

= (4500 − 4200) × 0.60

= 300 × 0.60

= 180 F

(5) Fixed o/H Capacity Variance = (AH − RBH) × S.R/unit

= (4200 − 4400) × 0.60

= 200 × 0.60

= 120 A

Fixed o/H Calender Variance = (RBH − BH) Std Rate Per Hour

= (4400 − 4000) × 0.60

= 400 × 0.60

= 240 F

R.B.H = $\frac{4000\ Hr}{20\ day}$ × 22

= 4400 Hr

Q14

Raw Material 1500 kg @ 20/kg

MPV = 6000 F

Std Cost of RM per kg = ?

$$MPV = (SR - AR)\,AQ$$

$$6000 = (SR - 20)\,1500$$

$$\frac{6000}{1500} = SR - 20$$

$$4 = SR - 20$$

SR/kg = 24

Q15

$$FOCV = \text{Recovery O/H} - \text{Actual O/H}$$

$$= 10,500 - 12000 = 1500\ A$$

$$FOEV = \text{Budgeted O/H} - \text{Actual O/H}$$

$$= 10,000 - 12000 = 2000\ A$$

$$FOVV = \text{Recovery O/H} - \text{Budgeted O/H}$$

$$= 10,500 - 10,000 = 500\ F$$

Recovery O/H = 2100 unit × 5 = 10,500

Q16

① FOEV = (SH − AH) SR/Hr

= [15920 − 15120#] 6

= 4800 F

② FOCV = (AH − RBH) SR
(Capacity)

= (15120 − 17,280) 6

= 12960 A

③ FOCV = (RBH − BH) S.R
(Calender)

= (17280 − 18000) 6

= 4320 A

$$SR/Hr = \frac{\text{Budgeted OIH}}{\text{Budgeted Hr}}$$

$$= \frac{108,000}{18000^{*}} = 6/\text{Hour}$$

* [720 Hr/day × 25 day] — Budgeted

[630 Hr/day × 24 day] — Actual

R.B.H = 720 Machine Hr per day × 24 day

= 17,280 Hr