SUBJECT : CMA II
MATERIAL VARIANCES
SEM-IV

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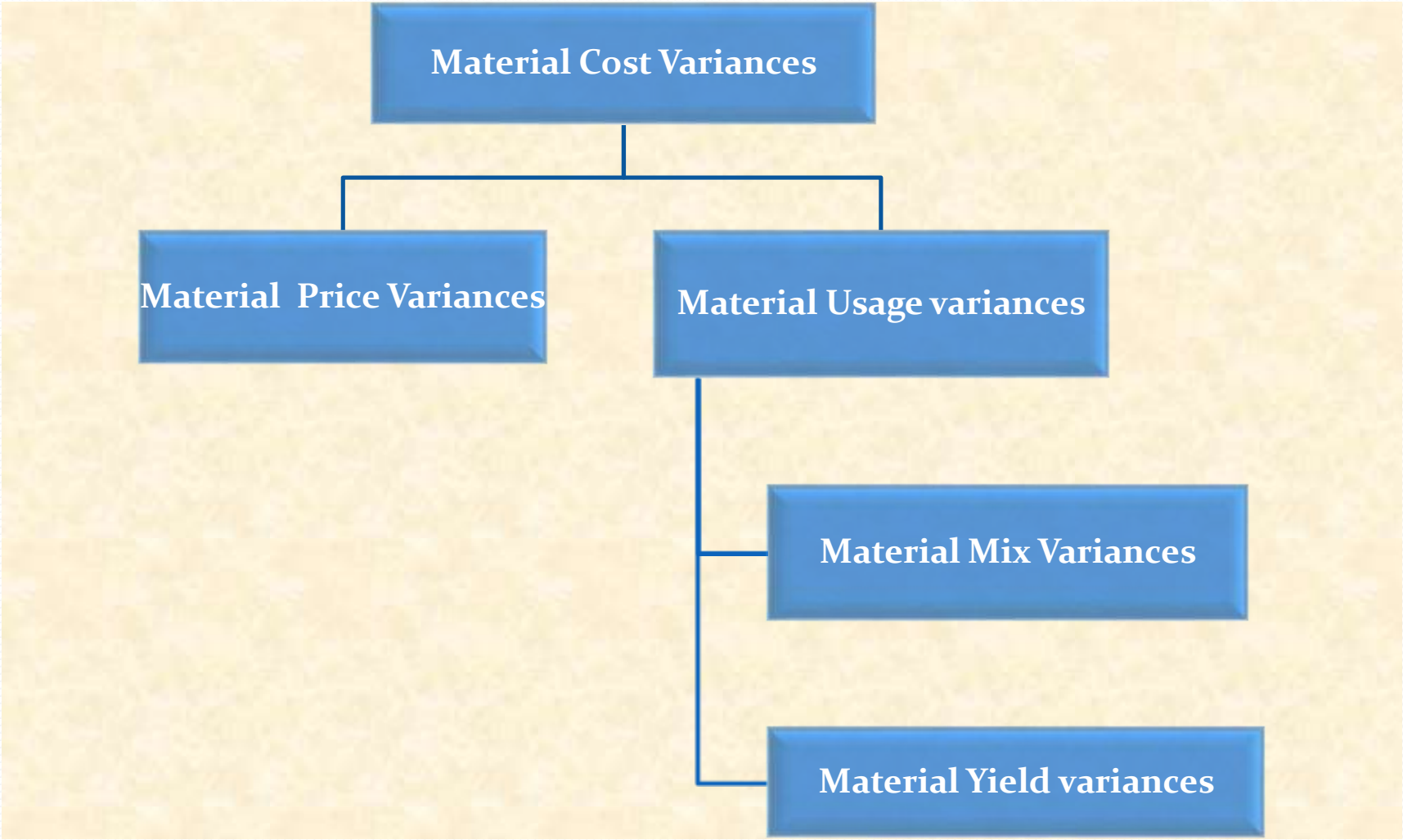
Labour Variances: Types and Formula



(a) Material Cost Variance:

Material cost variance is the difference between the actual cost of direct material used and standard cost of direct materials specified for the output achieved. This variance results from differences between quantities consumed and quantities of materials allowed for production and from differences between Standard Price And Actual Price.

Material cost variance = (SQ X SP) - (AQ X AP)

Where SQ = Standard quantity for the actual output
SP = Standard price
AQ = Actual quantity
AP = Actual price

(b) Material Price Variance:

Materials price variance = (Actual Price – Standard Price) X Actual Quantity

Example:

	Standard	**Actual**
Price	Rs.10 per kg.	Rs. 8 per kg.
Quantity	200 kgs.	150 kgs.

Ans:

Materials price variance = (Standard Price - Actual Price) X Actual Quantity

MPV = (10 – 8) x 150

= 300 (F)

(c) Material Usage Variance

The material quantity or usage variance results when actual quantities of raw materials used in production differ from standard quantities that should have been used to produce the output achieved. It is that portion of the direct materials cost variance which is due to the difference between the actual quantity used and standard quantity specified.

Materials Usage variance = (Standard Quantity - Actual Quantity) x Standard Price

Materials usage variance

Example:

Standard material cost per unit:

Material A — 2 units @ Rs. 10=20

Material B — 3 units @ Rs. 20 =60

Units completed 1,000

Actual Materials Used:

Material A = 2050 units

Material B = 2980 units

Ans:

Materials Usage variance = (Actual Quantity – Standard Quantity) x Standard Price

Material A = (2000 – 2050) x Rs. 10 = Rs. 500 (A)

Material B = (3000-2980) x Rs. 20 = Rs. 400 (F)

Total = Rs. 100 (A)

(d) Material Mix Variance

Materials mix variance is that portion of the materials quantity variance which is due to the difference between the actual composition of a mixture and the standard mixture.

Material mix variance = *(Standard cost of Actual quantity of the standard mixture Standard cost of Actual Quantity of the actual Mix)*

Or,

Materials Mix Variance = *(Revised Standard Mix of Actual Input – Actual Mix) x Standard Price*

Revised standard mix = *(Standard Mix of the Particular Material ÷ Total Standard Quantity) X Actual Input*

Example:

A product is made from two raw materials, material A and material B. One unit of finished product requires 10 kg of material.

Material A –	20%	– 2 kg @ ₹ 20	=	₹ 40
Material B –	80%	– 8 kg @ ₹ 10	=	₹ 80
	100%	– 10 kg @ ₹ 12	=	₹ 120

During a period one unit of product was produced at the following costs:

Material A –	8 kg @ ₹ 20	=	₹ 160
Material B –	4 kg @ ₹ 12.5	=	₹ 50
	12 kg @ ₹ 17.5	=	₹ 210

Ans:

Material Mix Variance = *(Standard cost of Actual quantity of the standard Mix - Standard cost of Actual Quantity of the Actual Mix)*

Revised standard proportion =

$$\frac{\text{Standard proportion of a particular mix}}{\text{Total standard quantity}} \times \text{Actual input}$$

Revised standard proportion:

Material A = 2/10 × 12 = 2.40 kg.

Material B = 8/10 × 12 = 9.60 kg.

Material A = (2.4 – 8) x Rs. 20 = Rs. 112 (A)

Material B = (9.6-4) x Rs. 10 = Rs. 56 (F)

Total = Rs. 56 (A)

(e)Material Yield Variance

It is that portion of materials usage variance which is due to the difference between the actual yield obtained and standard yield specified (in terms of actual inputs).

Material Yield Variance = (Standard Yield - Actual yield) x Standard cost per unit

(e)Material Yield Variance

Example:

Standard input = 100 kg

Standard yield = 90 kg

Standard cost per kg of output = Rs 200/ Per Kg

Actual input 200 kg

Actual yield 182 kg.

Ans:

Calculation of Material Yield variance:

Material Yield Variance = (Standard Yield - Actual yield) x Standard cost per unit

Calculation of Standard Yield = [(Actual Yield X Standard Input) ÷ Standard Yield]

= [(182 X 100) ÷ 90]

= 202.22 kg

MYV = (202.22 kg – 200 kg) X Rs. 200/ per Kg

= Rs. 444.44 (F)

Thank You