FTR 1 Standard Costing & Variance Analysis

Issue	Points to remember				Page
Classification of Variances	**Based on**	**Classification**			1.1
	1. **Type of Cost**	(a) Material, (b) Labour, & (c) Overheads.			
	2. **Causal Factor**	Variances of – (a) Efficiency, (b) Price, (c) Volume.			
	3. **Impact on Profit**	(a) Favourable, & (b) Adverse.			
Groups of Variances	**Elements of Cost**	**Variance of Efficiency**	**Variance of Price**	**Variance of Volume**	1.2
	Materials	Usage, Mixture, Yield	Price	Revision	
	Labour	Efficiency, Idle Time	Rate of Pay		
	VOH	Efficiency	Expenditure	Revision	
	FOH	Efficiency	Expenditure	Capacity, Calendar	
	Sales	Quantity, Mixture	Price		
Material Variance – Reasons	1. **Controllable** – Failure to purchase anticipated quantities, Not availing cash discount, Failure to buy standard quality of materials, Deficiencies in price negotiation. 2. **Non controllable** – Change in prices of basic materials, changes in related charges, Failure to buy standard quality of materials.				1.2
Material Usage Variance – Reasons	1. Use of sub–standard/ defective materials. 2. Carelessness in use of material. 3. Products failing to pass inspection & further material required for rectification.		4. Pilferage 5. Wastage. 6. Difference in material quality 7. Use of non–standard mix.		1.2
Labour Rate Variance – Reasons	1. Increase in Wage Rate due to inflation, cost of living index, etc. 2. Higher wage awards not anticipated at the time of setting standards. 3. Special increments/ allowances given to workers. 4. Use of wrong type of labour. 5. Using a composition different from that of standard. 6. Excessive overtime & consequent premium payment.				1.2
Labour Eff. Variance – Reasons	1. Changes in quality stds or material specifications. 2. Use of sub–standard employees. 3. Poor working conditions.		4. Inefficient organisation. 5. Defective machinery or equipment. 6. Incompetent Supervision		1.3
VOH Variances – Reasons	1. Over/ Under spending. 2. Faulty planning & selection of wrong base for estimation of absorption rates. 3. Differences in rate of cost. 4. Differences in processing time.				1.3
FOH Variances – Reasons	1. Over or under **spending – Expenditure Variance.** 2. Difference in output due to **time factor – Capacity Variance.** 3. Difference in output due to **quantity factor – Efficiency Variance.** 4. Difference in output due to **days factor – Calendar Variance.**				1.3
SOH Variance Analysis	Based on – 1. Head of Expenditure, 2.Nature of Expenses, 3. Product–wise, 4. Manager–wise / Salesman–wise.				1.3
AOH Variance Analysis	1. Budget to Actual 2. Operation Costing or ABC		3. Ratio Analysis 4. Trend Analysis		1.4
Sales Variances – Reasons	1. Changes in unit selling prices – **Price** Variance, 2. Changes in physical volume of each product sold – **Quantity** Variance, and 3. Changes in proportion of volume – **Mix** Variance.				1.4
Profit Variances – Reasons	1. Direct substitution of products. 2. Actual quantity of constituents of sales different from budgeted quantity. 3. Actual total quantity different from budgeted total quantity. 4. Difference between actual and budgeted unit cost. 5. Difference between actual and budgeted unit sale price.				1.4
Accounting Types	1. Partial Plan, 2. Single Plan & 3. Dual Plan **Note:** For Journal Entries under 1 & 2, Refer Page 1.14.				1.13

Issue	Points to remember			Page
Differences between Partial & Single Plan	**Particulars**	**Partial Plan**	**Single Plan**	1.13
	1. Computed at	End of the period.	At the point of transaction.	
	2. Nature of Control	Helps only post–control.	Current control is facilitated.	
	3. MPV computed for	Actual Quantity Consumed.	Actual Quantity Purchased.	
	4. RM Valuation	Valued at Actual Cost.	Valued at Standard Cost.	
	5. Variances adjusted	in WIP Control Account.	in respective Cost Accounts.	
	6. Nature of analysis	Suitable if simple analysis of variance is sufficient.	Preferred if frequent detailed analysis of variance is desired.	
	7. Documentation	Detailed documentation not necessary.	Requires more planning & effective documentation at each stage.	
Disposition of Adverse Cost Variances	A. Write–off all variances to Costing P&L A/c at the end of every period – Assuming all variances are abnormal.	Costing P&L A/c Dr. To Variance A/cs (individually)		1.15
	B. Assuming all variances are normal, Distribute all variances proportionately to – (1) Units Sold, (2) Closing Stock of FG, & (3) Closing Stock of WIP.	Cost of Sales A/c Dr. (for units sold) Finished Goods Control Dr. (for Closing FG) WIP Control A/c Dr. (for Closing WIP) To Variance Accounts (individually)		
	C. Write off Quantity Variances (MUV, LEV etc.) to Costing P&L A/c & apportion Price Variances (MPV, LRV etc.) over Cost of Sales, WIP and FG stocks. **Note:** Quantity Variances are assumed abnormal while Price Variances are deemed normal.	Costing P& L A/c Dr.(For Quantity Var.) Cost of Sales A/c Dr. Finished Goods Ctrl A/c Dr. WIP Control A/c Dr. To Variance Accounts(individually)		
Disposition of Favourable Cost Variances	A. Write–off all Variances to Costing P&L A/c at the end of every period – Assuming all Variances are abnormal.	Variance A/cs (individually) Dr. To Costing P&L A/c		1.15
	B. Carry forward to next accounting period	No Journal Entry is required.		
	C. Reversal of Cost Absorption Entries – Assuming all Variances are normal, and excess cost absorbed to be reversed to reflect correct cost, profits & stock values.	Variance Accounts (individually) Dr. To Cost of Sales A/c (for units sold) To Fin.Goods Ctrl A/c (for Closing FG) To WIP Control A/c (for Closing WIP)		
Stds in Job Industry	Standards are to be set and analysed with respect to – 1. Material Quantities, 2. Material Prices, 3. Labour Standards, 4. Overhead Standards.			1.15
Standard Costing with ABC System	1. Standards are established for each cost element based on specifications & variances between Budgeted & Actual Costs analysed for remedial measures. 2. In ABC System, costs are collected around Activity Pools & assigned to products & services using appropriate Cost Drivers, thereby, standards set for carrying out each type of activity.			1.16
Opportunity Costs in Variance Reports	1. Opportunity Cost arises from failure to use scarce resources efficiently & it is appropriate to include Contribution Loss in reporting Material Usage Variance/ Labour Efficiency Variance, in case material is scarce/ labour hours are scarce. 2. Loss of contribution should be included in Variance Report, and assigned / charged to the Manager, whose sub–standard performance caused loss.			1.16
Inventory Valuation at Standard Cost	Inventories should be valued at **Normal Costs,** i.e. Standard Costs adjusted in light of variances unconnected with efficiencies. **Reasons** for inventory valuation at Standard Costs are – 1. Efficiency Variations 2. Carryover Effect of efficiencies or inefficiencies of a period 3. Need for Online Valuation			1.16
Problems of Std Costing during inflation	1. Assumptions regarding inflation. 2. Price Indices. 3. Standard Mixes requiring different inputs.	4. Efficiency Variances. 5. Decision making. 6. Operations to maintain up–to–date standards.		1.16

Issue	Points to remember			Page
Std Costing & Budg Ctrl	A Budgetary Control System can operate without Standard Costs. The two systems are not **inter–dependent**, i.e. they can exist independently. Though the two are not independent, they are inter–related, and function well as complementary to one another.			1.17
Std Costing vs Budgetary Control	**Particulars**	**Standard Costing**	**Budgetary Control**	1.17
	Meaning	Standards Costs are **pre–determined costs** representing what the costs should be, at the level of efficient conditions of production and operation.	Budgets are financial and/or quantitative statements, prepared and approved prior to a defined period of time, of the policy to be pursued during that period for achieving that objective.	
	Coverage	Generally restricted to **Costs.**	Include estimates of **income, costs** and **employment of capital.**	
	Basis	Determined by the collection of **technical data.**	Determined based on **Management's plans.**	
	Effect of temporary conditions	Effect of short–run temporary changes will **not** be reflected in Standard Costs.	Effect of short–term changes in cost structure, etc, will be **fully reflected** in Budgeted Costs.	
	Permanence	Standard Costs are usually **semi–permanent** in nature.	They are estimated **usually for one year.**	
Behavioural aspects of Std Costing	1. Static Behaviour in Managers and Employees. 2. Undue Importance to Material Price, Labour Rate, Efficiency and Capacity Usage. 3. Emphasis on Standard Cost than Allowable Cost. 4. Unsuitable for Pricing Decisions.			1.17

Computation of Variances

1. Material Cost Variances:

Particulars	SQ × SP Col. (1)	RAQ × SP Col. (2)	AQ × SP Col. (3)	AQ × AP Col. (4)
Material A Material B				
Total	**WN 1**	**WN 2**	**WN 3**	**WN 4**

Differences

Material **Yield** Variance = SQ × SP – RAQ × SP + Material **Mix** Variance = RAQ × SP – AQ × SP + Material **Price** Variance = AQ × SP – AQ × AP

Material **Usage** Variance = SQ × SP – AQ × SP + Material **Price** Variance b/fd as above

Total Material Cost Variance
= Standard Material Cost – Actual Material Cost
= SQ × SP – AQ × AP

Meaning of Terms / Abbreviations used:

SQ = Standard Quantity, i.e.
= Expected consumption for actual output.

AQ = Actual Quantity of Material Consumed.

RAQ = Revised Actual Quantity, i.e.
= Actual Quantity re–written in standard proportion.

S.P = Standard Price per unit of material consumed.

A.P = Actual Price per unit of material consumed.

Note: Material Purchase Price Variance (MPPV)

Material Price Variance is computed for the actual quantity of materials consumed. If such Price Variance is computed for the actual material quantity **purchased**, it is called as Material Purchase Price Variance. It is computed as –

MPPV = PQ × SP – PQ × AP

Where PQ = Purchase Quantity,
SP = Standard Prices, and AP = Actual Prices.

2. Labour Cost Variances:

A. Classification based on Grade (Mix) of Labour

Particulars	SH × SR	RAH × SR	AH × SR	AH × AR
	Col. (1)	Col. (2)	Col. (3)	Col. (4)
Grade A Grade B, etc.				
Total	**WN 1**	**WN 2**	**WN 3**	**WN 4**

Differences

Labour **Sub–Efficiency** Variance = SH × SR – RAH × SR + Labour **Mix** Variance = RAH × SR – AH × SR + Labour **Rate** Variance = AH × SR – AH × AR

Labour **Efficiency** Variance = SH × SR – AH × SR + Labour **Rate** Variance b/fd as above

Total Labour Cost Variance
= Standard Wages – Actual Wages
= SH × SR – AH × AR

B. Classification based on Idle Time Analysis

Particulars	SH × SR	Net AH × SR	Total AH × SR	Total AH × AR
	Col. (1)	Col. (2)	Col. (3)	Col. (4)
Grade A Grade B, etc.				
Total	**WN 1**	**WN 2**	**WN 3**	**WN 4**

Differences

Labour **Net Efficiency** Variance = SH × SR – Net AH × SR + Labour **Idle Time** Variance = Net AH × SR – Total AH × SR + Labour **Rate** Variance = AH × SR – AH × AR

Note: Labour **Idle Time** Variance is **always Adverse.**

Labour **Gross Efficiency** Variance = SH × SR – Total AH × SR + Labour **Rate** Variance b/fd as above

Total Labour Cost Variance
= Standard Wages – Actual Wages
= SH × SR – AH × AR

Meaning of Terms / Abbreviations used:

SR = Standard Rate per Labour Hour.
AR = Actual Rate paid per Labour Hour.
SH = Standard Hours, Time Allowed for actual output.
= i.e. Expected time for actual output.
AH = Actual Hours paid for.
Net AH = Total AH – Idle Time.
RAH = Revised Actual Hours, i.e.
= Actual Hours re–written in standard proportion.

3. VOH Cost Variances: A. Based on Time

SH × SR	AH × SR	AH × AR, i.e. AVOH
Col. (1)	Col. (2)	Col. (3)

VOH **Efficiency** Variance = SH × SR – AH × SR + VOH **Expenditure** Variance = AH × SR – AH × AR

Total VOH Cost Variance = SH × SR – AH × AR

(or) **B. Based on Output**

AO X SR	SO X SR	AO × AR, i.e. AVOH
Col. (1)	Col. (2)	Col. (3)

VOH **Efficiency** Variance = AO × SR – SO × SR + VOH **Expenditure** Variance = SO × SR – AO × AR

Total VOH Cost Variance = AO × SR – AO × AR

Notes:

- VOH Cost Variance = Standard or Absorbed VOH less Actual VOH. So, Difference in VOH Absorption is called as ~~VOV~~ VoH Cost Variance. Underabsorption represents Adverse Variance, and Overabsorption represents Favourable Variance.
- Either Time Based or Output Based computation may be applied for VOH Variance Computation.

- When idle–time data is available, VOH Efficiency (i.e. Gross Efficiency) Variance is also further sub–classified into –
  (a) VOH **Idle Time** Variance = Idle Hours × VOH Standard Rate per hour, (this is always adverse), **and**
  (b) VOH **Net Efficiency** Variance = (Total AH – Net AH) × VOH Standard Rate per hour. [i.e. Gross Efficiency Variance less Idle Time Variance]

Meaning of Terms / Abbreviations used:

SH = Standard Hours, i.e.
= Expected time (Time allowed) for actual output.
AH = Actual Hours worked.
Net AH = Total AH – Idle Time
AO = Actual Output.
SO = Standard Output, i.e.
= Expected Output for the Actual Hours worked.
AVOH = Actual Variable Overhead
SR = Standard Rate per hour or per unit, as the case may be.
AR = Actual Rate per hour or per unit, as the case may be.

Conversion Factors used in computation

	Time–based	Output–based	This represents.....
1.	SH×SR ph =	AO×SR pu =	Standard or Absorbed VOH
2.	AH×AR ph =	AO×AR pu=	Actual Variable OH
3.	AH×SR ph =	SO×SR pu =	Std Cost of Actual Hours worked

4. FOH Cost Variances:

AO × SR	AH × SR	PFOH	BFOH	AFOH
Col. (1)	Col. (2)	Col. (3)	Col. (4)	Col. (5)

FOH **Efficiency** Variance = AO × SR – SO × SR, i.e.= SH × SR – AH × SR + FOH **Capacity** Variance = AH× SR – PH ×SR + FOH **Calendar** Variance = PFOH – BFOH = PH× SR – BH ×SR + FOH **Expenditure** Variance = BFOH – AFOH

FOH **Volume** Variance = AO × SR – BFOH + FOH **Expenditure** Variance b/fd as above

FOH Cost Variance
= Standard or Absorbed FOH– Actual FOH
= AO × SR – AFOH

Meaning of Terms / Abbreviations used:

AO = Actual Output.
BO = Budgeted Output.
SO = Standard Output, i.e.
= Expected Output for Actual Hours worked.
PO = Possible Output, i.e.
= Expected Output for Actual Days worked.
AH = Actual Hours worked.
Net AH = Total AH – Idle Time, wherever applicable.
BH = Budgeted Hours.
SH = Standard Hours, i.e.
= Expected Time (Time Allowed) for Actual Output.
PH = Possible Hours,
= i.e. Expected Hours for Actual Days worked.
AFOH = Actual Fixed Overhead.
BFOH = Budgeted Fixed Overhead.
PFOH = Possible Fixed Overhead = Expected Fixed Overhead for Actual Days worked = BFOH × $\frac{AD}{BD}$
SR = Standard Rate per Unit or per Hour, as the case may be. **AD** = Actual Days & **BD** = Budgeted Days.

Conversion Factors used in computation

	Time–based	Output–based	This represents.....
1.	SH×SR ph =	AO×SR pu =	Standard or Absorbed Fixed OH
2.	AH×SR ph =	SO×SR pu =	Std Cost of Actual Hours worked
3.	BH×SR ph =	BO×SR pu =	Budgeted Fixed OH
4.	PH×SR ph =	PO×SR pu =	Possible Fixed OH

Notes:

- FOH Cost Variance = Standard or Absorbed FOH less Actual FOH. So, Difference in FOH Absorption is called as FOH Cost Variance. Underabsorption represents Adverse Variance, and Overabsorption represents Favourable Variance.
- Either Time Based or Output Based computation may be applied for FOH Variance Computation.
- When idle–time data is available, FOH Efficiency (i.e. Gross Efficiency) Variance is also further sub–classified into –
  (a) FOH **Idle Time** Variance = Idle Hours × FOH Standard Rate per hour, (this is always adverse), **and**
  (b) FOH **Net Efficiency** Variance = (Total AH – Net AH) × FOH Standard Rate per hour. [i.e. Gross Efficiency Variance less Idle Time Variance]
- When Calendar Variance is not given, (i.e. days related data not given), then Capacity Variance will be WN 2 – WN 4, i.e. AH× SR – BH ×SR.
- The above FOH Variance Computation is applicable when a Firm adopts Absorption Costing System. If the Firm adopts Marginal Costing System, **only** FOH Expenditure Variance will be computed.

5. Sales Variances: Sales Variances can be analysed and computed in any of the following approaches –
1. Impact on Turnover – Total or Turnover Approach, and 2. Impact on Profit – Margin or Profit Approach.

A. SALES VARIANCES UNDER TOTAL APPROACH (IMPACT ON TURNOVER)

Particulars	Col. (1): BQ × BP	Col. (2): RAQ × BP	Col. (3): AQ × BP	Col. (4): AQ × AP
Product A				
Product B				
Total	**WN 1**	**WN 2**	**WN 3**	**WN 4**
Differences				

Sales **Quantity** Variance = BQ × BP – RAQ × BP + Sales **Mix** Variance = RAQ × BP – AQ × BP + Sales **Price** Variance = AQ × BP – AQ × AP

Sales **Volume** Variance = BQ × BP – AQ × BP + Sales **Price** Variance b/fd as above

Total Sales Variance
= Budgeted Sales Value – Actual Sales Value
= BQ × BP – AQ × AP

B. SALES VARIANCES UNDER MARGIN APPROACH (IMPACT ON PROFIT)

Particulars	Col. (1): BQ × BM	Col. (2): RAQ × BM	Col. (3): AQ × BM	Col. (4): AQ × AM
Product A				
Product B				
Total	**WN 1**	**WN 2**	**WN 3**	**WN 4**
Differences				

Sales Margin **Quantity** Variance = BQ × BM – RAQ × BM + Sales Margin **Mix** Variance = RAQ × BM – AQ × BM + Sales Margin **Price** Variance = AQ × BM – AQ × AM

Sales Margin **Volume** Var.= BQ×BM – AQ×BM + Sales Margin **Price** Variance b/fd as above

Total Sales Margin Variance
= Budgeted Sales Margin – Actual Sales Margin
= BQ × BM – AQ × AM

Meaning of Terms / Abbreviations used:

BP = Budgeted Selling Price Per Unit. **AP** = Actual Selling Price Per Unit.
BQ = Budgeted Sales Quantity. **AQ** = Actual Sales Quantity.
RAQ = Revised Actual Sales Quantity = Actual Quantity Sold re–written in Budgeted Proportion.
BM = Budgeted Margin = Budgeted Price per unit **minus** Standard Cost per unit.
AM = Actual Margin = Actual Sales Price per unit minus Standard Cost per unit.

Relationship between Total and Margin Approach

Factor	Relationship	No. of Products	Method of Costing
1. **Price**	Sales Price Variance = Sales Margin Price Variance, i.e. **SPV = SMPV**	Applicable for individual products and product combinations also.	Applicable under Absorption Costing as well as under Marginal Costing System.
2. **Volume**	Sales Margin Volume Variance = Sales Volume Variance × Budgeted Net Profit Ratio, i.e. **SMVV = SVV × Budgeted Net Profit Ratio**	Applicable only for individual products and not for product combinations.	Applicable only under Absorption Costing System. (See **Note**)

Note: When Marginal Costing System is used, the relationship will be: **SMVV = SVV × Budgeted Profit Volume Ratio.**

6. Methods of Reconciliation:

Particulars			Method 1 (Marginal Costing)	Method 2 (Absorption Costing)
	Budgeted Profit		BQ × Budgeted Profit per unit	BQ × Budgeted Profit per unit
Effect of Sales Variances				
+/–	Sales Volume Variance Effect on Profit		SVV × Budgeted PVR	SVV × Budgeted NP Ratio
	Sales Price Variance		Either SPV or SMPV	Either SPV or SMPV
Effect of Cost Variances				
+/–	Material Variances	Usage		
		Price		
	Labour Variances	Net Efficiency		
		Idle Time		
		Rate		
	VOH Variances	Net Efficiency		
		Idle Time		
		Expenditure		
	FOH Variances	Net Efficiency	**Not Applicable**	
		Idle Time	**Not Applicable**	
		Capacity	**Not Applicable**	
		Expenditure		
	Actual Profit			

Notes:

1. **FOH Volume Variances:** Under Marginal Costing, FOH are treated as Period Costs and not absorbed to products. Hence, FOH Volume Variance and its sub–variances are **not applicable** under Marginal Costing. However, FOH Expenditure Variance is applicable both under Marginal and Absorption Costing.
2. **PV Ratio and NP Ratio:** SVV under Total Approach (i.e. effect on Turnover) is adjusted for the effect on profit by using Budgeted PV Ratio under Marginal Costing, and by using Budgeted NP Ratio under Absorption Costing. Alternatively, under Absorption Costing Method, SMVV may be used (since SMVV = SVV × NP Ratio).
3. Under Method 2, Budgeted Profit ± Sales Volume Variance impact on Profit, is called **Standard Profit on Actual Sales**, i.e. AQ sold × Budgeted Profit per unit.
4. **Profit Differences:** In case of presence of inventory (either WIP or FG), Profits under Method 1 (Marginal Costing System) and Method 2 (Absorption Costing System) will differ due to impact of inventory valuation. Also, if the above statement is prepared under Single Plan, i.e. use of Material Purchase Price Variance (instead of Material Price Variance), the reported profits as per Operating Statement and Profit Statement may differ.

7. Special Variances:

A. Material Purchase Price Variance = $\underline{PQ \times SP} - \underline{PQ \times AP}$

Uncontrollable Material Purchase Price **Planning Variance** = = $PQ \times \underline{SP} - PQ \times \underline{PMP}$

Controllable Material Purchase Price **Efficiency Variance** = $PQ \times \underline{PMP} - PQ \times \underline{AP}$

B. Material Usage Variance = $\underline{SQ \times SP} - \underline{AQ \times SP}$

Uncontrollable Material Usage **Planning Variance** = $\underline{SQ} \times SP - \underline{RSQ} \times SP$

Controllable Material Usage **Efficiency Variance** = $\underline{RSQ} \times SP - \underline{AQ} \times SP$

C. Labour Rate Variance = SH × SR – AH × SR

Planning Component = AH × SR – AH × RSR

Operational Component = AH × RSR – AH × AR

D. Sales Margin Volume Variance = BQ × BM – AQ × BM

Planning Element	**Appraisal Element**
Original Budgeted Sales Volume × (Budgeted Selling Price – Std. Cost)	Expert's Budgeted Sales Volume × (Expert' Selling Price – Std. Cost)
Less: Expert's Budgeted Sales Volume × (Expert's Selling Price – Std. Cost)	**Less:** Actual Sales Volume × (Actual Selling Price – Std. Cost)

where **Expert's Budgeted Sales Volume** = Total Market Sales Volume × Target Market Share Percentage.

E. Market Share & Market Size Variance

Sales **Margin Quantity Variance** (i.e. Impact on Profit) can also be sub–classified into

(a) **Market Size Variance** = Budgeted Market Share % × (Budgeted Industry Sale Quantity **less** Actual Industry Sale Quantity) × Budgeted Average Contribution p.u.

(b) **Market Share Variance** = Actual Industry Sale Quantity × (Budgeted Market Share % **less** Actual Market Share %) × Budgeted Average Contribution p.u.

FTR 2 Marginal Costing, CVP & Decision Making

FORMULAE

PV Ratio	$\frac{\text{Total Contribution}}{\text{Total Sales Value}} \times 100 = \frac{\text{Contribution per unit}}{\text{Sales Price per unit}} \times 100 = \frac{\text{Change in Contribution}}{\text{Change in Sales}} \times 100$ $= \frac{\text{Change in Profit}}{\text{Change in Sales}} \times 100 = 100\%$ **Less** Variable Cost Ratio.	
	in Sales Value (₹)	**in Quantity (units)**
BEP	$\frac{\text{Fixed Costs}}{\text{PV Ratio}}$	$\frac{\text{Fixed Costs}}{\text{Contribution per Unit}}$
MOS	Total Sales *Less* BEP Sales = $\frac{\text{Profit}}{\text{PV Ratio}}$	Total Sales Qtty *Less* BEQ = $\frac{\text{Profit}}{\text{Contribution per Unit}}$
Indifference Point	$\frac{\text{Difference in Fixed Costs}}{\text{Difference in PV Ratio}}$ $= \frac{\text{Difference in Fixed Costs}}{\text{Difference in Variable Cost Ratio}}$	$\frac{\text{Difference in Fixed Costs}}{\text{Difference in Contribution per Unit}}$ $= \frac{\text{Difference in Fixed Costs}}{\text{Difference in Variable Cost per Unit}}$
Shut Down Point	$\frac{\text{Avoidable Fixed Costs}}{\text{PV Ratio}}$	$\frac{\text{Avoidable Fixed Costs}}{\text{Contribution per Unit}}$

Issue	**Points to remember**			**Page**
Marginal Costing	Technique of decision making – involves – 1. Ascertainment of Total Costs, 2. Classification of Costs into – (a) Fixed, and (b) Variable. 3. Use of such information for analysis and decision–making.			2.1
Variable Cost & Fixed Cost	**Particulars**	**Variable Cost**	**Fixed Cost**	2.1
	Meaning	Cost which changes or **varies proportionately** based on output / volume / quantity.	Costs which are assumed to **remain constant**, for a given period of time, irrespective of level of output during that period.	
	Items	Direct Materials + Direct Labour + Direct Expenses + Variable POH + Variable S&D OH.	Fixed Cost = Fixed Production OH + Administrative OH + Fixed S&D OH.	
	Examples	Raw Materials, Labour, etc.	Rent, Salary, Insurance, etc.	

Issue	Points to remember			Page
	Cost per unit	Variable Cost per unit is assumed to remain constant at all levels of output.	Fixed Cost per unit will vary inversely with changes in the level of output.	
	Point of incurrence	Incurred only when production takes place. Hence, no production means no Variable Costs.	Incurred even at zero level of output. Hence, even at Nil Activity Level, Fixed Costs will be incurred.	
	Cost Behaviour	Once incurred, Variable Costs will increase proportionately based on the level of output / quantity.	Fixed Costs, once incurred, will be constant at all output levels.	
	Nature	Variable Costs are considered as product–related costs.	Fixed Costs are treated as period–related costs.	
	Inclusion in Inventory	Variable Costs are Product Costs, and hence included in inventory valuation.	Fixed Costs are not included in Inventory Valuation, and charged off to P&L A/c.	
Methods of segregating Semi–Variable Costs	Expenses that exhibit characteristics of Fixed and Variable Costs, which can be segregated using – 1. Graphical Method (Scatter Graph) or Line of Best Fit Method, 2. Analytical Method or Best Judgement Method, 3. High and Low Points Method, 4. Comparison by Period or Level of Activity Method, and 5. Least Squares Method. **Need:** (a) Control over Expenses, (b) Budgeting & Estimates, and (c) Decision–Making			2.2, 2.3
MC Eqn	Sales ***Less*** Variable Cost = Contribution = Fixed Cost **+** Profit			2.4
Difference between Marginal & Absorption Costing	**Particulars**	**Marginal Costing**	**Absorption Costing**	2.4
	Inventoriable Cost	Only Variable	Both Fixed and Variable	
	Classification	Fixed & Variable	Based on functions	
	Treatment of Fixed Cost	Regarded as Period Cost	Charged to Cost of Production	
	Presentation	Sales – VC = Contribution	Sales – Cost (Fixed & Var) = Profit	
	Effect of Stockholding	Does not affect Unit COP	Affects Unit COP	
	Variance Reporting	FOH Expenditure Variance only	FOH Exp. & Volume Variances	
Product & Period Cost	**Particulars**	**Product Cost**	**Period Cost**	2.5
	Meaning	Costs which are assigned to the product and are included in inventory valuation. These are called **Inventoriable Costs**.	Costs which are not assigned to the products but are charged as expenses against the revenue of the period in which they are incurred.	
	Examples	Manufacturing Costs, e.g. Cost of Raw Materials, Direct Wages, Production OH, Depreciation of Plant, Equipments, etc.	Non–Manufacturing Costs, e.g. General Administration Costs, Salesmen Salary, Depreciation of Office Assets, etc.	
	Inclusion in Inventory Valuation	These are **included** in inventory valuation. They are treated as **assets** till the goods to which they are assigned are actually sold.	These are **not included** in Inventory Valuation. They are written off as expense in the period in which they are incurred.	
Contri–bution	Sales – Variable Costs = Contribution. It is called so, since it initially contributes towards recovery of Fixed Costs and thereafter towards Profit of the business.			2.6
Profit	Contribution – Fixed Cost = Profit. Hence, Surplus Contribution = Profit.			2.6
Loss	Loss = Excess of Fixed Cost over Contribution. Hence, Loss = Unrecovered Fixed Costs			2.6
PV Ratio	1. Ratio of Contribution to Sales. 2. Basic Indicator of Profitability. 3. Higher PVR is better.			2.7
Break even ~~Break–Even Point~~ Point	1. **Meaning:** Level of Sales where Contribution is sufficient only to recover Fixed Costs. Hence, there is no profit or no loss. So, at BEP, Total Sales = Total Costs, Contribution = Fixed Costs, Profit / (Loss) = Zero. 2. **Significance:**			2.7
	Level of Sales	**Impact on Profits**		
	Less than BEP	Firm incurs Losses.	[Contribution < Fixed Cost]	
	Equal to BEP	No Profit & No Loss.	[Contribution = Fixed Cost]	
	Greater than BEP	Firm earns Profits.	[Contribution > Fixed Cost]	

<table>
<tr><th>Issue</th><th>Points to remember</th><th>Page</th></tr>
<tr><td>Assumptions of BE Analysis</td><td>1. Costs classifiable into Fixed and Variable Costs only.
2. Factors remain unchanged – SP per unit, VC per unit, Total Fixed Costs, Productivity of factors of production, Inventory, Sales Mix (incase of multi–product Co.)
3. Revenue and Cost functions are linear over the range of activity under consideration.
4. All resources are abundantly available for consumption (i.e. There is no Key Factor).</td><td>2.8</td></tr>
<tr><td>Break–Even Chart</td><td>Graphical representation of Cost–Volume–Profit rel'ship. Depicts – (a) Profitability, (b) BEP, (c) Angle of Incidence, (d) Rel'ship between VC, FC and contribution, and (e) Margin of Safety.</td><td>2.8</td></tr>
<tr><td>Types of Break Even Chart</td><td>1. Contribution Break–Even Chart
2. Cash Break–Even Chart
3. Control Break–Even Chart
4. Analytical Break–Even Chart
5. Product–wise Break–Even Chart
6. Profit Graph</td><td>2.9</td></tr>
<tr><td>Impact of Non Linear Sales and Cost functions</td><td>1. Optimum Output Level: In case of non–linear relationships, the Company should operate at the Optimum Output Level, i.e. the output where the profitability is maximum, which is –
(a) Gap / Distance between Total Sales and Total Cost is the greatest, i.e. Maximum Contribution and Maximum Profit,
(b) Total Contribution (and not Contribution p.u.) is the highest, and
(c) Incremental Contribution (or Additional Contribution) equals Zero.
2. BEP:
(a) BEP is identified as the point at which Total Revenue Curve cuts Total Cost Curve from below and not from above, (i.e. from "Loss" area to "Profit" area, and not otherwise).
(b) In case of Step–Fixed Costs with multiple points of intersection between Total Sales and Total Cost Curves, every point at which Total Revenue Curve cuts the Total Cost Curve from below, will be a BEP. Hence, there may be multiple BEPs at different activity levels.
3. Effect on Profits:
<table>
<tr><th>Particulars</th><th>At Optimum Level</th><th>Beyond Optimum Level</th></tr>
<tr><td>(a) Gap between TR and TC Curves</td><td>Maximum</td><td>Narrows down / reduces.</td></tr>
<tr><td>(b) Total Contribution and Total Profit</td><td>Maximum.</td><td>Reduces.</td></tr>
<tr><td>(c) Incremental Contribution</td><td>Zero.</td><td>Negative.</td></tr>
</table></td><td>2.10</td></tr>
<tr><td>Margin of Safety</td><td>1. Meaning: Difference between Total Sales and the Sales at Break–Even Point.
2. Significance:
(a) Profit = Contribution earned out of MOS.
(b) Low MOS means Firm has large Fixed Costs and is more vulnerable to changes in Sales.
(c) High MOS means a slight fall in Sales may not affect the business very much.</td><td>2.11</td></tr>
<tr><td>Indifference Point</td><td>1. Meaning: Level of Sales at which Total Costs (and hence Total Profits) of two options are equal. Decision–maker is indifferent as to option chosen, since both options lead to same profit.
2. Significance:
<table>
<tr><th>Level of Sales</th><th>Profitable Option to be chosen</th></tr>
<tr><td>Below Indifference Point</td><td>Option with Lower Fixed Cost.</td></tr>
<tr><td>At Indifference Point</td><td>Both options are equally profitable.</td></tr>
<tr><td>Above Indifference Point</td><td>Option with Higher PVR (lower VC)</td></tr>
</table></td><td>2.12</td></tr>
<tr><td>Shut Down Point</td><td>1. Meaning: Level of operations (Sales), below which it is not justifiable to pursue operations / production. Contribution is insufficient even to recover Avoidable Fixed Costs.
2. Significance:
<table>
<tr><th>Level of Sales</th><th>Decision</th><th>Reason</th></tr>
<tr><td>Below Shut down Point</td><td>Close Down Operations</td><td>Avoidable Fixed Costs are not fully recovered.</td></tr>
<tr><td>At Shut down Point</td><td>Continue Operations</td><td>Avoidable Fixed Costs are just recovered.</td></tr>
<tr><td>Above Shut down Point</td><td>Continue Operations</td><td>Avoidable Fixed Costs are fully recovered.</td></tr>
</table></td><td>2.13</td></tr>
<tr><td>CVP Analysis</td><td>• Analysis of three variables, viz. Cost, Volume and Profit.
• Aims at measuring variations of Profits and Costs with Volume, which is significant to business profit planning.</td><td>2.13</td></tr>
<tr><td>Advantages of Marginal Costing</td><td>1. Pricing decisions
2. Overhead Variances
3. True Profit
4. Control over Expenditure
5. Break–Even Analysis
6. Control over Expenditure
7. Business Decision–Making</td><td>2.14</td></tr>
</table>

Issue	Points to remember		Page
Limitations of Marginal Costing	1. Difficult to classify 2. Contribution is not final 3. Wrong pricing decisions	4. Stock Valuation 5. Naïve assumptions 6. Ignores time value	2.14
Decision Making Areas	1. **Determination of Selling Price** – (a) under normal circumstances, (b) for special market or for a special customer, (c) during recession, (d) at Marginal Cost or below Marginal Cost, (e) price–mix and price–discrimination decisions. 2. **Product Mix Decisions,** viz. – (a) Selection of optimal product mix, (b) Substitution of one product with another, (c) Discontinuing or dropping of a product line, etc. 3. **Production vs Outsourcing–** whether to Make or Buy a certain component / product. 4. **Shut–down or Continue**, determination of output level in period of recession or depression. 5. **Marketing Decisions,** viz. – Selling in the Domestic Market or in the Export Market, acceptance of Export Offers, etc. 6. **Change vs. Status Quo**, Retaining or replacing a Machine / Process, etc. 7. **Expanding or Contracting** decisions, etc.		2.15
Factors in MC decisions	1. Contribution 2. Specific Fixed Cost, if any 3. CVP Relationship	4. Incremental Contribution 5. Capacity 6. Non–Cost Factors	2.15
Key Factor	Key Factor / Budget Factor / Critical Factor represents a resource whose availability is less than its requirement. Denotes a Resource Constraint situation, e.g. RM or DLH or Plant capacity shortage. **Steps:** 1. Identify the Key Factor. 2. Compute Total Contribution or Contribution per unit of the product. 3. Compute Contribution per unit of the Key Factor, i.e. Contribution per Direct Labour Hour, Contribution per kg of Raw Material, etc. 4. Rank the products based on Contribution per unit of the Key Factor. 5. Allocate the Key Resources based on Ranks given above, and other conditions.		2.15
Key Factor – Principles	1. If Availability < Requirement, that Resource is called a Key Factor or Key Resource. 2. If Availability > Requirement, that Resource is called as an Idle Resource. 3. Key Resource and Idle Resource are mutually exclusive terms, i.e. they do not refer to the same resource as such. 4. Key Resource should not be kept idle, and an Idle Resource will always have spare capacity. 5. Key Resource has Opportunity Costs, while Idle Resources have no Opportunity Costs. 6. A Key Resource, if kept idle, will erode / reduce Contribution. 7. For identifying Key Resource, Availability = Normal Resource Availability at Normal Costs. Any additional resource availability at higher cost (e.g. additional labour hours due to Overtime Work and Premium) will not be considered. 8. For identifying Key Resource, Requirement = Requirement at 100% Capacity Levels, i.e. Maximum Output. 9. In case of minimum production condition, minimum resource requirements should be allocated independent of the Key Factor Ranking priority. Additional Resource requirements only should be allocated based on Key Factor Ranking. 10. In case of Multiple Products and Multiple Key Factors with difference in ranking priority, Linear Programming (LPP) Techniques may be applied for Resource Allocation decision. 11. Application of Key Factor Principles is subject to – (a) feasibility, and (b) Company policy.		2.16
Direct Costing	1. Direct Costing is the practice of charging all Direct Costs to operations, processes or products, leaving all Indirect Costs to be written off against profits in the period in which they arise. 2. Under Direct Costing, Stocks are valued at Direct Costs, i.e. costs whether fixed or variable, which can be directly attributable to the cost units. 3. Direct Costing differs from Marginal Costing in the sense that some Fixed Costs considered direct are charged to operations, processes or products, whereas in Marginal Costing only Variable Costs are considered in inventory valuation. 4. **Applications** of Direct Costing: (a) Stock Valuation, (b) Minimum quantity to be produced to recover pattern or mould cost, separately incurred for that order, (c) Close Down Decisions – like closing down of a Department or Shop.		2.16

Issue	Points to remember	Page
Differential Costing	Differential Cost is "the increase or decrease in total cost or the change in specific elements of cost that result from any variation in operations". It represents an increase or decrease in total cost resulting out of – 1. producing or distributing a few more or few less of the products, 2. a change in the method of production or of distribution, 3. an addition or deletion of a product or a territory, and 4. selection of an additional sales channel. Differential Cost includes Fixed and Semi–Variable expenses. It is the difference between the total costs of two alternatives. Differential Cost may be either incremental or decremental.	2.16
Areas of decision making	1. Stock Management and Inventory Control Decisions, 2. Plant Location Decisions, 3. Machinery Replacement / Capital Budgeting Decisions, 4. Sale at Split–off or Further Processing Decisions, 5. Product Decisions – Dropping or adding a product line, 6. Marketing Decisions, 7. Submitting Tenders and Quotations for new jobs based on **relevant cost** analysis, 8. Acceptance of Incremental Orders in situations like spare capacity, full capacity, etc. 9. Make or Buy Decisions, 10. Operate or Shut Down Decisions, 11. Product Pricing Decisions – Reduction or maintenance of price, 12. Opening of new sales territory or branch, 13. Intra–Company Transfer Pricing Decisions, 14. Purchasing vs. Lease Financing Decisions.	2.16
Non–Cost consi–derations in Shut Down Point	1. Loss of Market Share to competition, 2. Loss of Goodwill and Market Image, 3. Strain in Labour – Mgmt. relations, 4. Availability of Skilled Labour on re–opening, 5. Risk of obsolescence of Machinery, 6. Need to maintain machine in operating condition, 7. Arrangement of finance for compensation payable on retrenchment, if any. 8. Re–engineering Purchase decisions, viz. change in procurement policy to **'shop around'** may be considered to achieve economy in purchases, rather than merely accept high quality and high priced suppliers quotations. 9. Possibility of Wage Freeze (This may be considered as an extreme measure.)	2.17
Divestment Strategy	1. **Meaning:** Divestment involves a strategy of selling–off or shedding business operations to divert the resources, so released, for other purposes. Selling–off a business segment of Product Division is one of the frequent forms of Divestment Strategy. It may also include selling–off or giving up the control over a Subsidiary whereby the wholly–owned Subsidiaries may be floated as independently quoted Companies. 2. **Reasons:** (a) Opportunity to get more profitable product or segment but has **resource constraints**. (b) In case of purchase of **new business**, if some of the part of the acquired business is not upto the standard norms of profitability. (c) If any Business Segment / Product / Subsidiary **pulls down** the profit of the whole Firm. (d) If **managing the organisation** is very constrained, it is better to dispose off those divisions which involve large management skill, but less profitability. (e) If the Firm has **considerable losses**, selling–off or divestment policy is one suitable option to **"exit"** the current situation, and to go for **Turnaround Strategy**.	2.17
Decisions involving Dropping / Adding a Product	1. In case of dropping off unprofitable products, the Firm may have 2 options – (a) leave capacity unutilized, or (b) utilize the capacity for the manufacture of a more remunerative product. 2. For this purpose, the Contribution approach is adopted, taking following factors into account – (a) Contribution from unprofitable product (i.e. Sale Revenue Less Variable Costs) (b) Specific Fixed Costs of the unprofitable product, which can now be avoided or reduced. (c) Contribution from the other profitable product, which is proposed to be produced with the balance capacity.	2.17

Issue	Points to remember	Page
Product Mix Decision	**Relevant Costs:** (a) Future Costs, and (b) Differential Costs. Other factors include – 1. Available Production Capacity and Limiting Factors, if any. 2. Contribution per unit of the Limiting Factor. 3. Market Demand for the products. 4. Opportunity Costs, if any.	2.18
Product Distribution Decision	1. **Objective:** Getting the right goods to the places at the right time for the optimal cost. 2. **Basic output:** % of customers who should get their order in so many number of days. 3. Considered efficient if it maintains a particular level of service at minimum cost. 4. Decision–making tools: (a) Linear Programming (Transportation Model), (b) Inventory Models, and (c) Simulation Models.	2.18
Channel of distribution –Factors	1. Type of Product 2. Type of Market 3. Industry Practices 4. Effect on Profitability	2.18
Make or Buy Decisions – Factors	1. Quality of goods supplied by Supplier. 2. Reasonable certainty of the Supplier meeting the delivery dates, i.e. Timeliness. 3. Availability of more than one Supplier to reduce the risk involved in buying. 4. Lead Time involved in receiving the materials versus time involved in own production. 5. Supplier Stability, i.e. whether the Supplier will support the Firm in the long–run also. 6. Availability of skilled labour, technical know–how & capability to make product / component. 7. Labour relations – adverse effect on labour relations if it is decided to buy instead of making. 8. Cost of labour redundancies, if any. 9. Cost of Special Machineries to be installed in making the component. 10. Possible use of released capacity and facility as a result of buying instead of making. 11. Possibility of expanding capacity or creating extra capacity (e.g. Overtime Work, II Shift) 12. Process of making – whether confidential or patented or a general process. 13. Technical obsolescence of the component – whether investment in machinery is risky or not. 14. Seasonal demand of Components, leading to costs of inventory holding. 15. Price Stability and possibility of escalations in the Price of Components purchased. 16. Possibility of adverse Foreign Exchange Rate Fluctuations in respect of Imported Components. 17. Availability of transport and other infrastructure for procuring the component from outside. 18. Behaviour of cost of make and cost of buy in the long run. **Note:** Of the above (1) to (5) are relating to Suppliers, (6) to (8) are relating to Labour, (9) to (13) are relating to Capacity & the balance are relating to Other Factors.	2.18
Asset Replacement Decisions	**Cost Factors** 1. Operating Costs 2. profitability Return on Capital Employed and Interest on Capital 3. Opportunity Costs 4. Effect of disposal of the existing plant 5. Additional Capital Expenditure 6. Effect on tax liability **Non Cost Factors** 1. Market standing of the product 2. Nature of the market 3. Constraints on the resources 4. Possibility of any bottleneck 5. Possibility of any substitute product 6. Likely effects of any change in Government policy	2.19
Expansion of Capacity – Factors	1. Additional Fixed Overheads 2. Possible decrease in Selling Price 3. Whether the demand is sufficient	2.20

FTR 3 Pricing Decisions

Issue	Points to remember	Page
~~ost Plus~~ Cost plus	Selling Price= Estimated Cost plus a fixed Profit Margin.	3.1
ost determination inciples	1. Size of the unit and scale of operations 2. Uniform Costing for whole industry 3. Cost Classification 4. Determination of Fixed Costs 5. Depreciation	3.1

Cost determination Principles