Final – Costing – Quick Revision

- Our today's schedule shall be as follows :
- First Session : 7 to 9 AM
- Break 1 : 9 to 9:15 AM
- Second Session : 9:15 to 11:15 AM
- Break 2 : 11:15 to 11:30 AM
- Third Session : 11:30 AM to 1:30 PM
- Important Note : As it is a quick revision session, please do not waste your time in writing, but focus your attention only on revising.
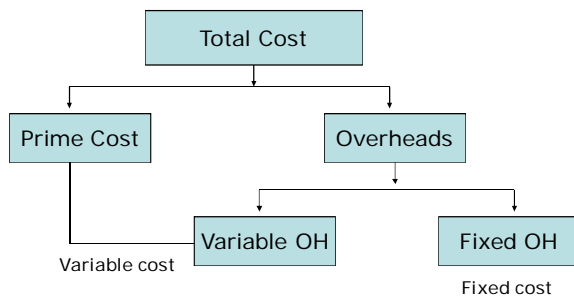
Marginal Costing

- It is a technique used for managerial decision making.
- This technique recognises only two types of costs i.e. (1) Variable cost and (2) Fixed cost.
- If there is a semi-variable cost, then it needs to be sub-divided into variable and fixed cost separately.

Division of Cost

Variable cost

Fixed cost

Behaviour of Cost

Production	Variable Cost		Fixed Cost	
	Per unit	Total	Per unit	Total
Increase	constant	increases	decreases	constant
Decrease	constant	decreases	increases	constant

Golden Formula

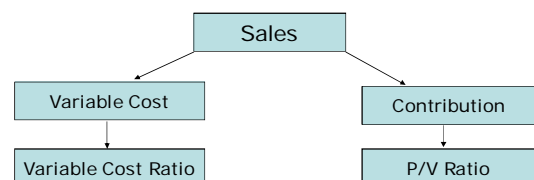Sales – Variable Cost = Contribution

Contribution – Fixed Cost = Profit/Loss

We can say that excess contribution over fixed cost is profit and excess of fixed cost over contribution is loss.

Profit Volume Ratio

- P/V Ratio = $\dfrac{\text{Contribution}}{\text{Sales}}$ X 100

Break Even Point (BEP)

- It is the point at which there is no profit or no loss.
- It means, at BEP, Total Contribution = Total Fixed Cost
- Management is interested in knowing BEP, because the first objective of management is to cross BEP.
- A firm starts earning profit only after crossing BEP.
- BEP can be expressed in 3 ways – (a) No. of units, (b) Sale Value Or (c) % capacity.
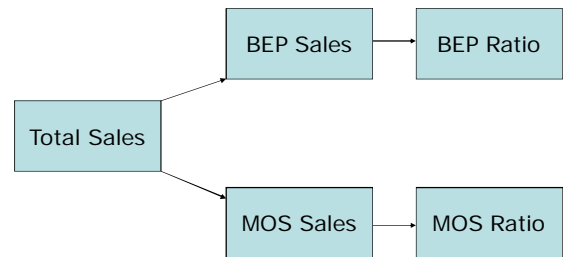
BEP – All in one formula

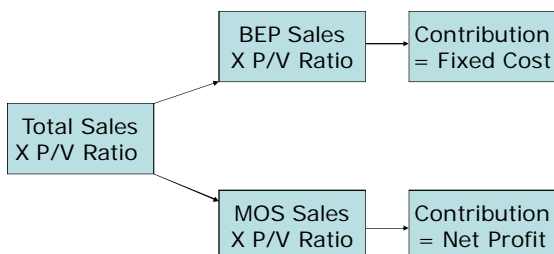$$= \frac{\text{Total Fixed Cost}}{\text{cont. p.u./PV ratio/cont. at 1\% cap.}}$$

Margin of Safety (MOS)

- It is the sales in excess of BEP sales.
- MOS = Total Sales – BEP Sales

- MOS Ratio = $\dfrac{\text{MOS Sales} \times 100}{\text{Total Sales}}$

Margin of Safety Ratio

```
                          BEP Sales  →  BEP Ratio

Total Sales

                          MOS Sales  →  MOS Ratio
```

Net Profit = MOS Sales x P/V Ratio

```
                    BEP Sales       Contribution
                    X P/V Ratio  →  = Fixed Cost

Total Sales
X P/V Ratio

                    MOS Sales       Contribution
                    X P/V Ratio  →  = Net Profit
```

Short Cut Formulae

2

Sales Qty.	Sales @ Rs. 10	Variable Cost @ Rs. 6	Contribution @ Rs. 4	Fixed Cost	Profit	Total Cost
10,000	1,00,000	60,000	40,000	25,000	15,000	85,000
15,000	1,50,000	90,000	60,000	25,000	35,000	1,15,000
Diff. 5,000	50,000	30,000	20,000	NIL	20,000	30,000

$$\text{Variable Cost p.u.} = \frac{\text{Change in Total Cost}}{\text{Change in Output}}$$

Sales Qty.	Sales @ Rs. 10	Variable Cost @ Rs. 6	Contribution @ Rs. 4	Fixed Cost	Profit	Total Cost
10,000	1,00,000	60,000	40,000	25,000	15,000	85,000
15,000	1,50,000	90,000	60,000	25,000	35,000	1,15,000
Diff. 5,000	50,000	30,000	20,000	NIL	20,000	30,000

$$\text{Contribution p. u.} = \frac{\text{Change in Profit}}{\text{Change in Output}}$$

Sales Qty.	Sales @ Rs. 10	Variable Cost @ Rs. 6	Contribution @ Rs. 4	Fixed Cost	Profit	Total Cost
10,000	1,00,000	60,000	40,000	25,000	15,000	85,000
15,000	1,50,000	90,000	60,000	25,000	35,000	1,15,000
Diff. 5,000	50,000	30,000	20,000	NIL	20,000	30,000

$$\text{P / V Ratio} = \frac{\text{Change in Profit}}{\text{Change in Sales}} \times 100$$

Sales Qty.	Sales @ Rs. 10	Variable Cost @ Rs. 6	Contribution @ Rs. 4	Fixed Cost	Profit	Total Cost
10,000	1,00,000	60,000	40,000	25,000	15,000	85,000
15,000	1,50,000	90,000	60,000	25,000	35,000	1,15,000
Diff. 5,000	50,000	30,000	20,000	NIL	20,000	30,000

$$\text{Variable Cost Ratio} = \frac{\text{Change in Cost}}{\text{Change in Sales}} \times 100$$

Family of BEP's

There are 4 members in the family –

1. Normal BEP : It is the point at which, there is no profit or no loss.
2. Cash BEP : It is the point at which, cash profit or cash loss is zero.
3. Composite or Overall BEP : It is the point at which, overall profit or loss of multiple products is zero.
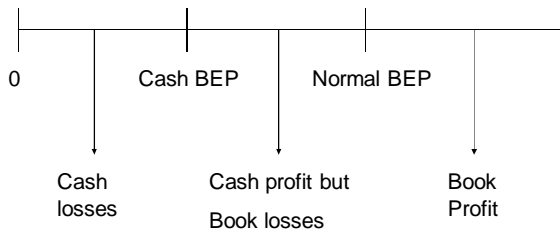4. Cost BEP : It is the point at which, total cost under the two alternatives is same.

Cash BEP

$$= \frac{\text{Total Cash Fixed Cost}}{\text{Contribution p. u. or P/V ratio}}$$

Comparison of Normal & Cash BEP

```
|------|---------|---------|------------|
0     Cash BEP   Normal BEP

       Cash        Cash profit but      Book
       losses      Book losses          Profit
```

Composite or Overall Break-even Point :

In case a concern is dealing in several products, a composite break-even point can be computed using the following formula:

Composite Break-even Point	**Composite P/V Ratio**
$= \dfrac{\text{Total Fixed Cost}}{\text{Composite P/V Ratio}}$	$= \dfrac{\text{Total Contribution}}{\text{Total Sales}} \times 100$

Cost BEP

- It is the point at which the total cost of 2 alternatives is exactly the same.
- Cost BEP is used in decision making between 2 alternatives.
- Below Cost BEP, the alternatives with lower fixed cost is better and above Cost BEP, the alternative with lower variable cost per unit is better.

An Example

- Suppose we have to decide between purchase of 2 vehicles, say a Scooter and a Motorcycle.
- Annual Fixed Cost for a Scooter is ` 5,000 and variable cost is ` 1.2 per km.
- Annual Fixed Cost for a Motorcycle is ` 8,000 and variable cost is ` 0.8 per km.

Let's calculate Cost BEP

- Let's assume that annual distance travelled is N kms. at which total cost p.a. is same for both the vehicles.
- Scooter [(N x 1.2) + 5,000] = Motorcycle [(N x 0.8) + 8,000]
- 1.2N – 0.8N = 8,000 – 5,000
- 0.4N = 3,000
- Hence, N = 7,500 kms. p. a.

Short cut for Cost BEP

$$= \frac{\text{Differential Fixed Cost}}{\text{Differential Variable Cost per km.}}$$

- = (8,000 – 5,000) / (1.2 – 0.8)
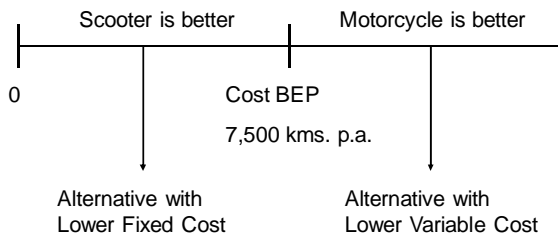- = 3,000 / 0.4
- = 7,500 kms. p.a.

Interpretation of Cost BEP

Scooter is better	Motorcycle is better

0   Cost BEP

7,500 kms. p.a.

Alternative with
Lower Fixed Cost

Alternative with
Lower Variable Cost

Pricing Decision

- Decision regarding fixation of sales price can be taken using marginal costing theory.
- Sales price can be calculated as Variable cost + Desired contribution.
- We should try to quote a competitive sales price to our prospective customer, in order to earn some incremental profit.

Pricing Decision

- Many a times a question says that you should calculate the sales price in order to maintain the same profit as before. But, same profit could mean any of the following :
- (a) same overall profit as before or
- (b) same profit per unit as before or
- (c) same % profit as before
- One should read the data carefully to avoid the mistake in calculation.

Make or Buy Decision

- It is the decision regarding manufacture of a particular component or buying from outside.
- The decision depends on the relevant cost of buying and relevant cost of manufacturing.
- Unavoidable fixed costs are irrelevant for decision making.

Relevant & Irrelevant Fixed OH

Relevant Fixed OH	Irrelevant Fixed OH
Specific OH incurred is relevant	General OH or Absorbed OH is irrelevant
It is avoidable fixed cost	It is unavoidable fixed cost
It is an incremental fixed cost	It is not an incremental cost
e.g. depreciation on M/C purchased specially for manufacture	e.g. proportionate factory rent charged to the product

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Non financial aspects

- Quality of supplies by outsider
- Regularity of outside supplier
- Integrity and reliability of supplier
- Behaviour of supplier during shortages
- Dependence on outside agency etc.

Exploring New Markets

- When the present market is saturated, then one has to explore new markets.
- If the firm is left with balance capacity, then the incremental cost shall be variable cost, which should be compared with incremental revenue, to take the decision regarding entering in to new market.
- Any special cost or benefit should also be considered in decision making but existing fixed cost should be ignored.

Key Factor Questions

- It is a manufacturing resource, which is in short supply. It could be limited availability of raw material or machine hours or skilled labour hours etc.
- These limited resources are also known as limiting factors or governing factors etc. because they limit your production and sales activity and thus profitability.
- Our objective shall be to maximise the profit within available limited resources.

Steps for solving Key Factor Questions

- Identify the key factor
- Calculate contribution per unit
- Calculate contribution per key factor
- Assign ranking to each product
- Allocate key resources based on ranking
- The resultant answer is optimum product mix.

Let's see the presentation of an answer of a key factor question

i) Statement of contribution :

Particulars	A	B	C
a. Selling Price (Rs./unit)	120	80	200
b. Variable Cost (Rs./unit)	100	70	150
c. Contribution per unit (a – b)	20	10	50
d. Material required (kgs. / unit)	1	2	5
e. Contribution per kg. of raw materials (c / d)	20	5	10
f. Priority for manufacture	I	III	II

ii) Statement showing allocation of Key Resources (i.e. Calculation of Optimum Product Mix)

Particulars	No. of units	Material per unit (Kgs.)	Total Material (Kgs.)	Balance Material (Kgs.)
Total available Raw material				50,000
Less : To be used for maximum demand of A	15,000	1	15,000	35,000
Less : To be used for Maximum demand of C	5,000	5	25,000	10,000
Less : Balance material to be used for B	5,000	2	10,000	--

6

iii) Statement of Optimum Profit :

Particulars	Rs.
Contribution :	
A : (15,000 units x Rs. 20 per unit)	3,00,000
B : (5,000 units x Rs. 10 per unit)	50,000
C : (5,000 units x Rs. 50 per unit)	2,50,000
Total Contribution	6,00,000
Less : Fixed Cost	2,00,000
Maximum Profit	4,00,000

Absorption Costing & Marginal Costing

Difference Between Absorption Costing & Marginal Costing

S.N.	Absorption Costing	S.N.	Marginal Costing
1.	Fixed cost is treated as Product Cost.	1.	Fixed cost is treated as Period Cost.
2.	Inventory is valued at total cost. (i.e. variable cost + fixed cost)	2.	Inventory is valued only at variable cost.
3.	Value of stock is higher under absorption costing.	3.	Value of stock is lower under marginal costing.
4.	Absorption Costing shows higher profits if Production is more than Sales. i.e. absorption costing rewards production.	4.	Marginal Costing shows higher profits if Sales is more than Production. i.e. marginal costing rewards sales.
5.	It is primarily used for accounting.	5.	It is primarily used for decision making.

Step Ladder Cost

- It is a type of semi variable cost, which is partly fixed and partly variable. But the problem is that the fixed and variable parts are not separable from each other.
- This cost remains constant in a particular range and then changes. Then again it remains constant in another range and again changes and so on…
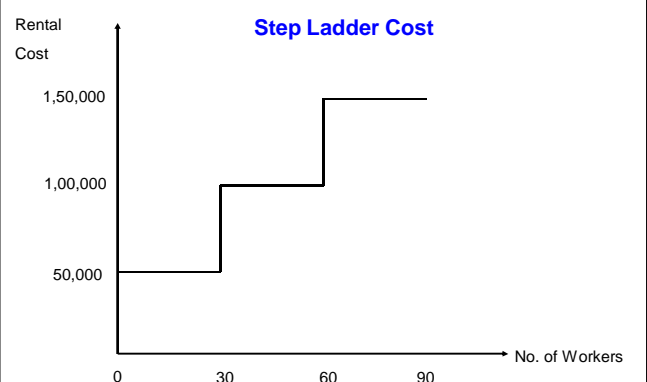

Concept of Step Ladder Cost

- Let's assume that a mini bus can accommodate 30 passengers.
- Your company hires this bus to bring the workers in the factory.
- Rent of the bus is ` 50,000 per month. Then the rent cost shall be a step ladder cost and can be graphically presented as:

Step Ladder Cost

Approach

- Whenever there is a step ladder cost given in the question, it cannot be solved using our normal technique. Because, we cannot divide the cost in two parts namely, (a) variable cost and (b) fixed cost.
- Hence, the approach used in solving such question is 'Trial & Error'. You may either treat the step ladder cost as variable cost and try the answer or treat it as fixed cost and then try the answer.

Relevant & Irrelevant Costing

- In these questions, majority of the data is irrelevant for decision making.
- Your skill lies in separating relevant data from irrelevant data, to be used for the purpose of decision making.

Relevant & Irrelevant Cost for Decision Making

Relevant Cost	Irrelevant Cost
Future cost or cost to be incurred	Sunk cost or past cost
Avoidable cost i.e. discretionary cost	Unavoidable cost i.e. non-discretionary cost
Cost which changes due to decision	Cost which remains same irrespective of decision
Incremental cost i.e. additional cost	Non-incremental cost i.e. not an additional cost
Specific overheads incurred for the decision	Common or general overheads absorbed

Relevant & Irrelevant Cost for material lying in stock

1. Historical Cost or Book Value – It is a sunk cost, hence irrelevant.
2. Realisable Value (i.e. sale value) – It is relevant only if the material has no alternative use.
3. Replacement Cost (i.e. latest purchase price) – It is relevant only if the material is of regular use and its consumption will necessitate additional purchase.

Standard Costing & Variance Analysis

- It is a technique, which is popularly used for cost control.

Types of Variances

Summary of Material Cost Variances

Total Cost Variance
= (SQ x SP) – (AQ x AP)

Price Variance
= AQ x (SP – AP)

Usage Variance
= SP x (SQ – AQ)

Mix Variance
= SP x (SM – AM)

Sub-Usage
= SP x (SQ – SM)
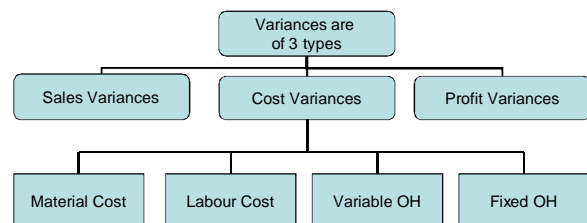
AM = Actual Qty. Consumed and

SM = Actual Total Qty. consumed revised in standard proportion.

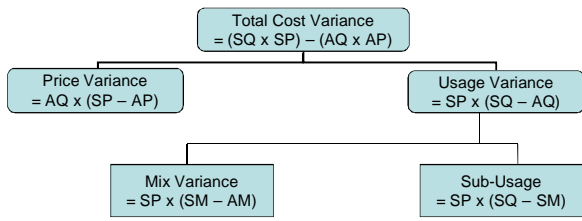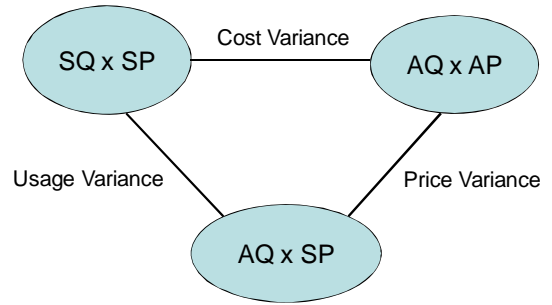CA. Rakesh Agrawal   49

Circular Tally™

SQ x SP   Cost Variance   AQ x AP

Usage Variance   Price Variance

AQ x SP

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Circular Tally©

SQ   Usage Variance   AQ i.e. AM

SP

Sub-usage Variance   Mix Variance

AQ revised
i.e. SM

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Labour Cost Variances

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Summary of Labour Cost Variances

Total Cost Variance
= (SH x SR) – (AH x AR)

Rate Variance
= AH x (SR – AR)

Efficiency Variance
= SR x (SH – AH)

Mix Variance
= SR x (SM – AM)

Sub-Efficiency
= SR x (SH – SM)

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Circular Tally™

SH x SR   Cost Variance   AH x AR

Efficiency Variance   Rate Variance

AH x SR

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9

Slide 55:

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SH — Efficiency Variance — AH i.e. AM

SR

Sub-efficiency Variance

Mix Variance

AH revised i.e. SM

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Slide 56:

Labour Cost Variance with Idle Time

Total Cost Variance
= (SH x SR) – (AH paid x AR)

Rate Variance
= AH paid x (SR – AR)

Efficiency Variance
= SR x (SH – AH paid)

Idle time Variance
= SR x (AH paid – AH worked)

Mix Variance
= SR x (SM – AM)

Sub-Efficiency
= SR x (SH – SM)

Note : Actual Mix is actual hours worked.

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Slide 57:

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SH x SR — Cost Variance — AH paid x AR

Efficiency Variance

Rate Variance

AH paid x SR

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Slide 58:

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Std. Hrs. — Efficiency Variance — AH paid

SR

Sub-efficiency Variance

Idle Time Variance

AH worked revised i.e. SM — Mix Variance — AH worked i.e. AM

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Slide 59:

Labour Cost Variance with Idle Time but without mix & sub-efficiency

- In the given problem, if there is labour idle time but no labour mix. In such case, the labour cost variance is analysed in 3 parts:

Labour Cost Variance

Rate Variance | Idle Time Variance | Efficiency Variance

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Slide 60:

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SH x SR — Cost Variance — AH paid x AR

Efficiency Variance

Rate Variance

AH worked x SR — Idle Time Variance — AH paid x SR

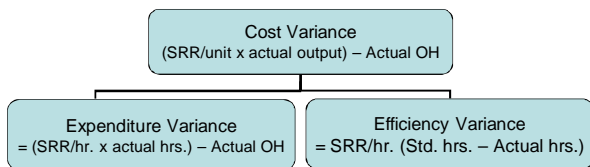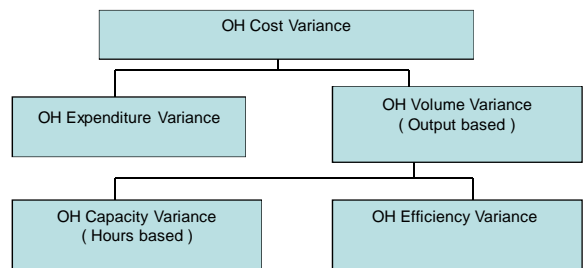CA. Rakesh Agrawal   60

10

Variable OH Cost Variances

Calculation of Standard Recovery Rates :

- SRR/Unit = $\dfrac{\text{Budgeted Overheads}}{\text{Budgeted Output}}$

- SRR/Hour = $\dfrac{\text{Budgeted Overheads}}{\text{Budgeted Hours}}$
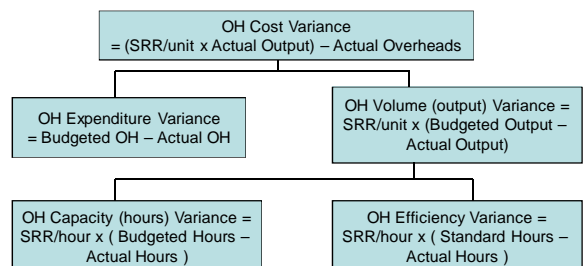

Analysis of V. OH Cost Variance

Cost Variance
(SRR/unit x actual output) – Actual OH

Expenditure Variance
= (SRR/hr. x actual hrs.) – Actual OH

Efficiency Variance
= SRR/hr. (Std. hrs. – Actual hrs.)

Fixed OH Cost Variances

OH Cost Variance

OH Expenditure Variance

OH Volume Variance
(Output based)

OH Capacity Variance
(Hours based)

OH Efficiency Variance

Trick to remember formulae

- First and last variance is same as Variable OH variance i.e. Cost variance and Efficiency variance.
- Rest all the variances are Budget minus Actual.

Fixed OH Cost Variances

OH Cost Variance
= (SRR/unit x Actual Output) – Actual Overheads

OH Expenditure Variance
= Budgeted OH – Actual OH

OH Volume (output) Variance =
SRR/unit x (Budgeted Output – Actual Output)

OH Capacity (hours) Variance =
SRR/hour x (Budgeted Hours – Actual Hours)

OH Efficiency Variance =
SRR/hour x (Standard Hours – Actual Hours)

OH Calendar Variance
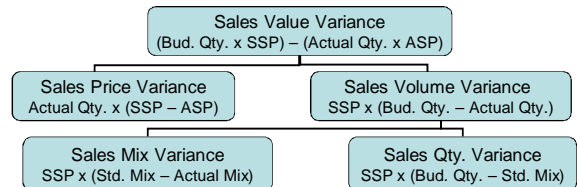
- It is based on no. of working days
- = SRR/day x (Bud. Working days – Actual working days)
- If actual no. of working days are more, the variance is favourable and if actual working days are less, then it is adverse.
- SRR/day = Bud. OH / Bud. Working days

OH Capacity Variance Revised

- However, there is a small change in Capacity Variance due to Calendar Variance.

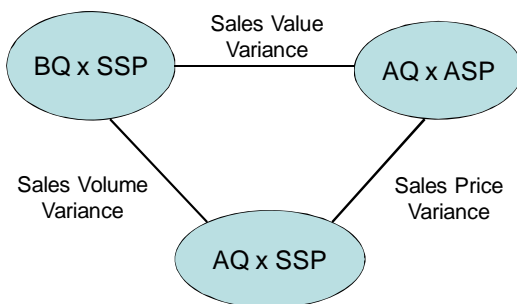 = SRR/hour x (Bud. hours in actual working days – Actual hours in actual working days)

Sales Variances

Summary


```
                    Sales Value Variance
            (Bud. Qty. x SSP) – (Actual Qty. x ASP)
      ┌──────────────────────┴──────────────────────┐
   Sales Price Variance                   Sales Volume Variance
   Actual Qty. x (SSP – ASP)              SSP x (Bud. Qty. – Actual Qty.)
        Sales Mix Variance                   Sales Qty. Variance
        SSP x (Std. Mix – Actual Mix)        SSP x (Bud. Qty. – Std. Mix)
```
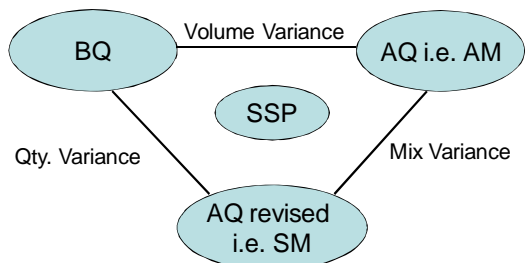
Note : Actual Mix is actual quantity sold and Std. Mix is the total of actual Quantity sold, revised in Std. proportion.

Circular Tally©

BQ x SSP — Sales Value Variance — AQ x ASP

Sales Volume Variance

Sales Price Variance

AQ x SSP

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BQ — Volume Variance — AQ i.e. AM

SSP

Qty. Variance

Mix Variance

AQ revised i.e. SM
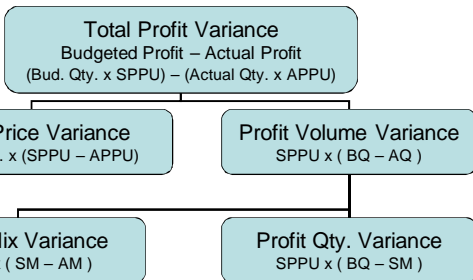
Profit Variances

Total Profit Variance
Budgeted Profit – Actual Profit
(Bud. Qty. x SPPU) – (Actual Qty. x APPU)

Profit Variances

Total Profit Variance
Budgeted Profit – Actual Profit
(Bud. Qty. x SPPU) – (Actual Qty. x APPU)

Profit Price Variance
Actual Qty. x (SPPU – APPU)

Profit Volume Variance
SPPU x (BQ – AQ)

Total Profit Variance
Budgeted Profit – Actual Profit
(Bud. Qty. x SPPU) – (Actual Qty. x APPU)

Profit Price Variance
Actual Qty. x (SPPU – APPU)

Profit Volume Variance
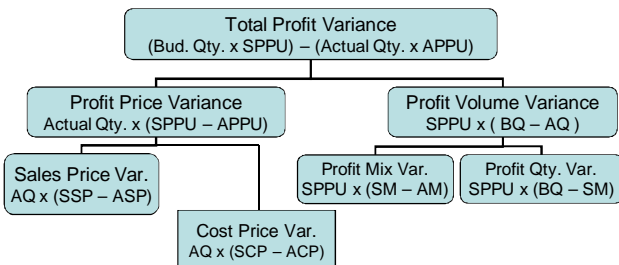SPPU x (BQ – AQ)

Profit Mix Variance
SPPU x (SM – AM)

Profit Qty. Variance
SPPU x (BQ – SM)

Analysis of Profit Price Variance

Profit Price Var. = AQ x (SPPU – APPU)

Sales Price Var. = AQ x (SSP – ASP)
Cost Price Var. = AQ x (SCP – ACP)

Total Profit Variance
(Bud. Qty. x SPPU) – (Actual Qty. x APPU)

Profit Price Variance
Actual Qty. x (SPPU – APPU)

Profit Volume Variance
SPPU x (BQ – AQ)

Sales Price Var.
AQ x (SSP – ASP)

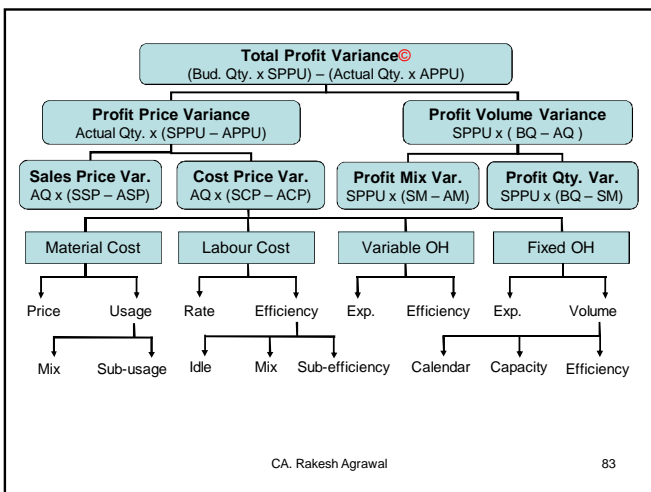Cost Price Var.
AQ x (SCP – ACP)

Profit Mix Var.
SPPU x (SM – AM)

Profit Qty. Var.
SPPU x (BQ – SM)

Profit Price Var.	= AQ x (SPPU – APPU)	
Sales Price Var.	= AQ x (SSP – ASP)	
Cost Price Var.	= AQ x (SCP – ACP)	
Material Cost Var.	= AQ x (SMC – AMC)	
Labour Cost Var.	= AQ x (SLC – ALC)	
V.OH Cost Var.	= AQ x (S.V.OH – A.V.OH)	
F.OH Cost Var.	= AQ x (S.F.OH – A.F.OH)	

Slide 79

Total Profit Variance
(Bud. Qty. x SPPU) – (Actual Qty. x APPU)

Profit Price Variance — Actual Qty. x (SPPU – APPU)

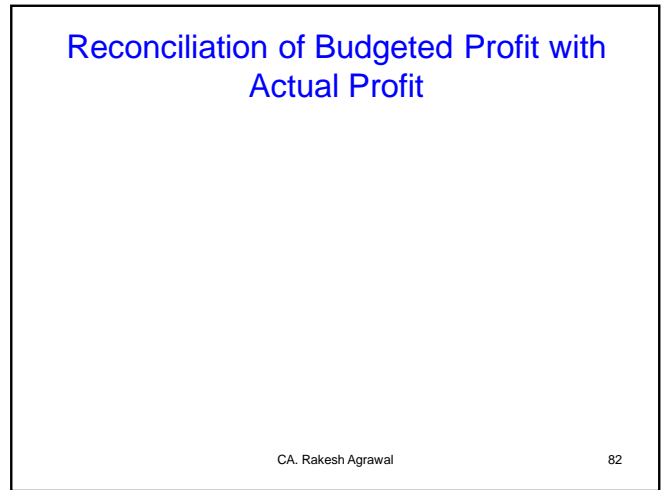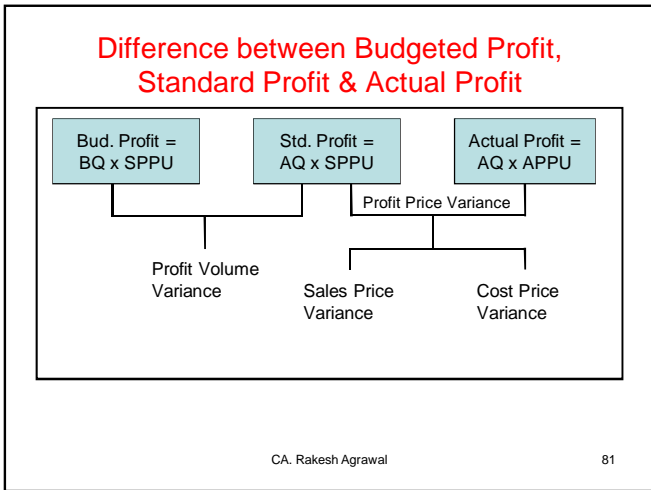**Profit Volume Variance** — SPPU x (BQ – AQ)

Sales Price Var. AQ x (SSP – ASP)	Cost Price Var. AQ x (SCP – ACP)	Profit Mix Var. SPPU x (SM – AM)	Profit Qty. Var. SPPU x (BQ – SM)
Material Cost	Labour Cost	Variable OH	Fixed OH

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Slide 80

Total Profit Variance©
(Bud. Qty. x SPPU) – (Actual Qty. x APPU)

Profit Price Variance — Actual Qty. x (SPPU – APPU)

Profit Volume Variance — SPPU x (BQ – AQ)

Sales Price Var. AQ x (SSP – ASP)	Cost Price Var. AQ x (SCP – ACP)	Profit Mix Var. SPPU x (SM – AM)	Profit Qty. Var. SPPU x (BQ – SM)
Material Cost	Labour Cost	Variable OH	Fixed OH
Price / Usage	Rate / Efficiency	Exp. / Efficiency	Exp. / Volume
Mix / Sub-usage	Idle / Mix / Sub-efficiency		Calendar / Capacity / Efficiency

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Slide 81

Difference between Budgeted Profit, Standard Profit & Actual Profit

Bud. Profit = BQ x SPPU	Std. Profit = AQ x SPPU	Actual Profit = AQ x APPU

Profit Price Variance

Profit Volume Variance

Sales Price Variance   Cost Price Variance

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Slide 82

Reconciliation of Budgeted Profit with Actual Profit

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Slide 83

Total Profit Variance©
(Bud. Qty. x SPPU) – (Actual Qty. x APPU)

Profit Price Variance — Actual Qty. x (SPPU – APPU)

Profit Volume Variance — SPPU x (BQ – AQ)

Sales Price Var. AQ x (SSP – ASP)	Cost Price Var. AQ x (SCP – ACP)	Profit Mix Var. SPPU x (SM – AM)	Profit Qty. Var. SPPU x (BQ – SM)
Material Cost	Labour Cost	Variable OH	Fixed OH
Price / Usage	Rate / Efficiency	Exp. / Efficiency	Exp. / Volume
Mix / Sub-usage	Idle / Mix / Sub-efficiency		Calendar / Capacity / Efficiency

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Slide 84

An Example of Reconciliation Statement of Profit :

Particulars	W.N.	Rs.	Rs.
Budgeted Profit [10,000 units x 14.23]	3		1,42,300
Less : Profit Volume Variance	3		(14,230)
Standard Profit [9,000 units x 14.23]			1,28,070
Add : Favourable Variances :			
Sales price variance	2	11,250	
Labour efficiency variance	7	6,750	
Variable OH efficiency variance	9	1,008	
Fixed OH expenditure variance	10	1,340	
Fixed OH efficiency variance	12	1,935	22,283

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14

Statement continued . . .

Particulars	W.N.	Rs.	Rs.
Less : Adverse Variances :			
Material price variance	4	23,400	
Material usage variance	5	9,000	
Labour rate variance	6	10,125	
Variable OH expenditure	8	1,258	
Fixed OH capacity variance	11	4,085	(47,868)
Actual Profit			1,02,485

Budgets and Budgetary Control

- Budget is a quantitative plan of action for future period.
- Budgetary control is a technique of exercising overall managerial control with the help of budgets.

Difference between

Standard Costing	Budgetary Control
Stress is on cost control	Stress is on overall managerial control
Micro level control	Macro level control
Doesn't help in coordinating activities	Helps in coordinating various activities

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Types of Budgets

- From examination point of view, you are generally asked to prepare :
1. Functional Budgets : i.e. Sales budget, Production budget, Purchase budget, Manpower budget, Cash budget etc. and
2. Flexible Cost Budgets : i.e. Calculation of cost at various levels of activities. These are based on marginal costing principles.

Functional Budgets

- These are very popular questions.
- To solve these questions, first you have to identify the key factor or budget factor. In majority cases, it is sales.
- Then you have form a linkage between key factor and other dependent budgets like production, material consumption, material purchase, manpower etc.

Common Link used in Budget
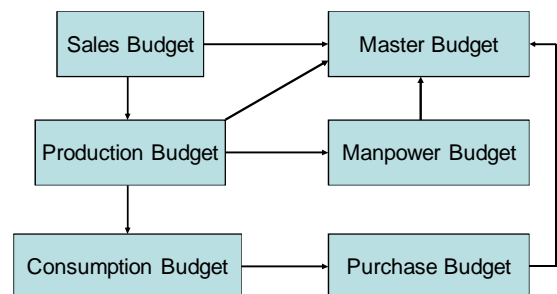
Pricing Decisions & Pareto Analysis

- It is one of the most crucial and difficult decision, which management has to make.
- Growth and profitability of an organisation largely depends upon it's pricing decision.
- Pricing decisions are of two types :
1. Pricing for External Customers and
2. Pricing for Internal Transfers

Methods of Pricing

- There are 4 methods of fixation of sales price :
1. Cost plus Pricing
2. Rate of Return Pricing
3. Variable Cost Pricing
4. Competitive Pricing

Market Entry Strategies

1. Skimming Pricing
- It is the pricing method, where very high price is charged initially and then it is reduced gradually over a period of time.
- It is generally used for a new invention and technologically new product being launched.

2. Penetration Pricing
- It is the pricing method, where very low prices are charged initially and then it is increased gradually over a period to time.
- This pricing policy is generally used in a competitive market.

Price Differentials

(a) Clock Time Differential
(b) Calendar Time Differential
(c) Geographical Price Differential
(d) Consumer Category Price Differential

Pareto Analysis

- It was developed by an Italian Economist called Vilfredo Pareto.
- He was studying the pattern of wealth owned by the people of state of Milan.
- He noticed that 80% of the wealth of Milan was owned by 20% of its citizens.
- He called it as 80 : 20 Rule.

Pareto Analysis

- He observed a similar pattern in other states also.
- Then Mr. Pareto applied this observation to other business situations to prove its validity.
- He noticed that with some approximation say 70 : 30 or 75 : 25, it applied to all situations.
- In nutshell, few things are responsible for big results or few reasons are responsible for big problems and so on.

Pareto Analysis

- Very often, 80% of consequences flow from 20% of causes, 80% of results come from 20% of effort, the opinion of 20% defines the society, 20% of customers contribute to 80% of our profitability and 80% of the question paper comes from 20% of the syllabus.
- Joseph Juran referred to this 20% as the 'vital few' and the 80% as the 'trivial many'. Focus on the 20% vital few and ignore 80% trivial many to improve the productivity.

Application of Pareto Analysis

- **Here are some business applications of this theory :**
1. **Pricing of product**
2. **Customer Profitability**
3. **Stock Control**
4. **Application in Activity Based Costing**
5. **Quality Control**

Transfer Pricing

- Transfer price is the price which one unit of an organisation charges to another fellow unit of the same organisation for the goods or services supplied.
- This decision assumes more significance specially when the various units of the organisation are treated as responsibility centres.
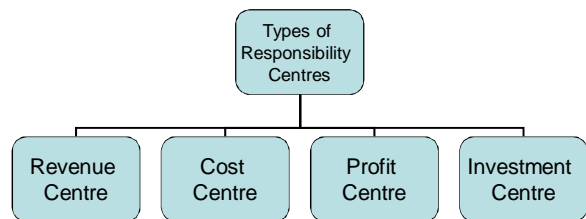
Objectives of Transfer Pricing

- To foster commercial attitude in the executives who are responsible for the performance.
- To ensure optimum utilisation of resources, so that overall profit of the organisation can be maximised.
- To promote healthy competition amongst the sister units of the same concern.

Methods of Transfer Pricing

- Primarily there are 3 methods of transfer pricing :
1. Pricing at Cost : It includes –
   - (a) Actual manufacturing cost
   - (b) Standard cost
   - (c) Full cost
   - (d) Full cost plus
2. Market Price method
3. Negotiated Price method

Important Points for Problem Solving

- The objective should always be to maximise the total profits of the organisation and not of the individual profit center.
- Method of transfer pricing does not affect the overall profit of the organisation, but it only affects the profitability of individual responsibility centers.
- When we buy goods from outside or sale the goods outside, then only the overall profit of the organisation gets affected.

Activity Based Costing (ABC)

- It is an alternative method of charging Factory Overheads.
- **There are 3 methods of charging factory overheads:**
1. Single Rate or Blanket Rate Method
2. Departmental Rate Method and
3. Activity Based Costing Method

Activity Based Costing Method

- It is similar to departmental rate method with the only difference that the rates are calculated activity wise instead of department wise.
- Generally, the no. of activities carried out in an organisation are more than the no. of departments.
- Hence, this method leads to more detailed analysis of overheads activity wise.
- This method is considered to be superior to all other methods.
- Overheads are charged more accurately and thus the cost data is reliable for decision making.

Steps Involved in ABC

1. Make a list of all activities, which are carried out in the organisation.
2. Bifurcate the activities in to Primary and Secondary activities.
3. Group the cost data activity wise. It is similar to allocation of OH.
4. Charge common cost of various activities to each activity, on suitable basis. It is similar to apportionment of OH.
5. Charge secondary activity costs to primary activities, on the basis of services rendered. It is similar to re-apportionment of OH.

Steps Involved in ABC

6. Take the total of overheads cost of each Primary Activity. It is known as 'Activity Cost Pool'.
7. Divide the total cost by a suitable basis (known as activity cost driver), to calculate overhead recovery rate for that activity (known as activity cost driver rate).
8. Use this rate to charge the overheads cost to cost object.

Costing in Service Sector (Operating Costing)

This method of costing is used for calculating cost and profitability in the Service industry. E.g. Goods transport, Passenger transport, Hotels, Hospitals, Educational Institutes etc.

Important points to note :

1. Identification of Unit of Service
2. Quantification of effective services rendered
3. Uniformity of data
4. Cost Sheet format

Cost Sheet Format

Particulars	Total	Per unit
A. Variable Cost :		
B. Semi Variable Cost :		
C. Fixed Cost		
D. Total Cost (A+B+C)		
E. Revenue		
F. Profit		

Target Costing

- It is defined as "a structured approach to determining the cost at which a proposed product with specified functionality and quality must be produced, to generate a desired level of profitability at its anticipated selling price."

Target Costing

- From the definition, we can say that it is the reverse approach of calculating cost from it's selling price.
- Under conventional method, we calculate cost, and then add profit to it, to get selling price.
- Under Target Costing, we first anticipate the sales price, then deduct our desired profit margin, to arrive at the target cost.

Life Cycle Costing

- This technique of costing believes that like a human life cycle, a product also passes through various cycles in its life. Which is known as Product Life Cycle.
- A product generally passes through the following 5 phases in its life :
- (a) Introduction
- (b) Growth
- (c) Maturity
- (d) Decline
- (e) Deletion

Total Quality Management (TQM)

- The TQM theory is based on a belief that "There is always a scope for improvement, whatever small."
- This belief, makes you to adjust to the changes in economy, change in technology and so on. In simple words, it causes frequent changes for making further improvement.
- The objective is not to stop at the best performance, but to better the previous bests.
- This theory believes that, we not only have to satisfy the customer's expectation but we should exceed his expectation.

Certain Concepts in TQM

- Quality Control (QC) : The stress is only on the quality of finished goods produced.
- Quality Assurance (QA) : The stress is on assuring good quality of finished product, that is zero defect policy.
- Quality Management (QM) : The stress is on the entire managerial process, by which the goods are produced and sold.

Six C's of TQM

- For successful implementation of TQM in an organisation, following are considered to be the essential requirements :
1. Commitment : specially form top management
2. Culture : TQM is a culture or attitude
3. Continuous Improvement :
4. Co – Operation : total employee involvement
5. Customer focus : external & internal both
6. Control : i.e. monitoring and supervision

Cost of Quality

- The "cost of quality" isn't the price of creating a quality product or service. It's the cost of NOT creating a quality product or service.
- Every time work is redone, the cost of quality increases.
- In short, any cost that would not have been incurred if quality were perfect contributes to the cost of quality.

Cost of Quality

- The quality costs are of 4 types i.e.
(a) Prevention cost
(b) Appraisal cost
(c) Internal failure cost and
(d) External failure cost.

Value Chain Analysis

- This technique views an organisation as a chain of activities which are inter-related to each other.
- Which means, an organisation is divided in to a number of activities. Then each activity is analysed for cost incurred on it and value added by it.

Procedure of Value Chain Analysis

1. Treat all customers i.e. internal as well as external customers as your customers.
2. Arrange for a feedback process, to know how much value your customer receives from an activity.
3. Compare the cost incurred on each activity versus value received by your customer.
4. Identify Value Added (VA) activities and Non Value Activities (NVA). Stop the NVA activities.
5. Some activities which are NVA, but are required to be carried out for the sake of legal compliance, should be continued.

Objectives of Value Chain Analysis

1. Reduce cost without affecting value received by the customer
2. Increase Value without increasing the cost
3. Reduce cost and simultaneously increase the value received by customer.

Just in Time Approach (JIT)

- This approach aims at removal of all possible waste from the system.
- The broad approach is to remove the wastage of resources like men, machine, material etc.
- However, it places more stress on inventory management i.e. Raw Material, WIP and Finished Goods.

Raw Material Management under JIT

- The company will identify such suppliers of material, who can deliver quality material, just before the start of production.
- The purpose is to have no stock of material and thereby save material management cost.
- Production schedules are shared with the supplier, so that he can supply right quantity of material at right time.

WIP & FG under JIT

- Lack of co-ordination between different machine operators, usually result in building up huge inventories of WIP.
- To reduce this inventory, a Kanban Card system may be introduced.
- Kanban Card, is a written instruction passed on by downstream machine operator to upstream machine operator. It specifies the type of input, quantity of input and timing of material needed to upstream machine operator. Thus it helps in better co-ordination between them.

WIP & FG under JIT

- Another idea is to produce the goods in small batch size, to avoid overstocking.
- However, small batch size will lead to more number of batches and thus higher set-up cost.
- To reduce the set-up cost of machine, a Video Tape approach may be introduced.
- Under this approach, a video shooting is done while the machine is under set-up.
- This video tape is shown to skilled engineers and technicians to suggest the improvements in the methods of machine set-up. After 4 to 5 trials, it is observed that the set-up time and set-up cost can be considerably reduced.

WIP & FG under JIT

- One more method is to have "Small Working Cells". That is 4 to 5 different machines of small capacity can be put in one cell and only one operator is appointed for that cell.
- The operator is trained to handle all the machines in the cell. He can do machine set up, necessary repairs etc.
- Thus the capital investment in machinery is reduced and manpower cost is reduced.
- The machine operator is held fully responsible for his work and he cannot pass on the blame to other.
- If demand picks up later on, then more such working cells can be established, over a period of time. The idea is to avoid huge investment in the initial stage and avoid manpower cost.

Material Requirement Planning – MRP I

- It is an automated approach to plan for the material requirement of an organisation. In this approach, Computer and Software is used to do the entire material requirement planning.
- Sales people will feed the data of customer orders booked by them. Like, the quantity to be delivered, place of delivery and time of delivery.
- The software will automatically update, the delivery schedules, packing schedules, production schedules, purchase orders etc., depending upon the time required for each activity.

Material Requirement Planning – MRP I

- The concerned clerk or manager will view his schedule on daily basis and will execute the same.
- For smooth functioning of this system, one has to ensure that the pre-requisite information fed in to the system is accurate. Like, Bill of Material, Lead Time, Processing Time, Delivery Time etc.
- Another important thing is to ensure the strict adherence to the schedules.

MRP-II

- This is the recent development in MRP.
- It says that in addition to planning for material, we need to plan for other resources also like manpower, machinery etc.
- Hence, MRP-II stands for "Manufacturing Resource Planning". Just an extension of MRP-I.

ERP - Enterprise Resource Planning

- ERP is an integrated software, which covers all the managerial functions of an organisation.
- It is the best gift of Software Industry to this commercial world.
- In today's era of globalisation and competition, it is becoming very difficult to effectively manage the business. Specially, in case of Multinational Companies, whose business operations are spread all over the world, control has become very difficult.
- In such a situation, ERP is the only effective solution, to manage the business.

Advantage of ERP Software

- Duplication of work is avoided
- Uniformity in approach, all over the world
- Very quick in consolidation of data
- All business functions are bundled into one software
- Competitive Edge over others

Balanced Score Card

- It is a method of comparison of performance of 2 or more business entities.
- This method suggests that the comparison should not be based on Quantitative data only, but Qualitative aspects should also be considered, to make the comparison meaningful.
- This tool for comparison was devised by Kaplan & Norton in the year 1992.

Business Perspective of Balanced Score Card

- Generally, balanced score card has the following four perspectives from business evaluation point of view.
1. Customer perspective : i.e. how do customers see us.
2. Internal perspective : i.e. what must we excel at.
3. Innovation and Learning perspective : i.e. can we continue to improve and create value.
4. Financial perspective : i.e. how do we look to our shareholders.

Benchmarking

- It is a technique for continuous improvement.
- It involves comparing a firm's product, service or activity against other best performing organisation.
- The objective is to find the difference between our organisation and the best organisation, to know the areas of improvement.

Process of Benchmarking

1. Planning : It includes defining the goals, identification of best performance, forming a benchmarking team etc.
2. Collection of data and information
3. Analysing the findings
4. Recommendations
5. Monitoring and Reviewing

Computer Aided Manufacturing (CAM)

- When manufacturing process is carried out using machinery and integrated software, it is called as computer aided manufacturing.
- It is a process of automation to avoid the chances of error due to human element.
- Production people call it is as CNC machines i.e. Computer Numerical Control machines.
- CNC machines are able to repeat the same operation continuously in identical manner, with high accuracy level.
- The machine operator's job has changed from doing the work to getting the work done from machines with the help of computers.

Throughput Accounting

- This concept is similar to key factor concept of marginal costing.
- The only difference here is that, all costs other than material cost is treated as fixed cost.
- Throughput Contribution = Sales – Material cost
- The objective is to maximize throughput contribution, within available limited resources.

Theory of Constraints (TOC)

- This theory was advocated by Goldratt and Cox of USA in 1989.
- The same theory in UK was known as Throughput Accounting.
- This theory distinguishes between a bottleneck and a constraint.
- Bottleneck is a key factor i.e. something in short supply, which is internal to the organisation and Constraint is a limitation which is external to the organisation.

Procedure of TOC

- Step 1 : Calculate total resources required for each department separately. i.e. [no. of units x resources required per unit]
- Step 2 : Calculate throughput accounting (TA) ratio for each department as –

  $$\frac{\text{Capacity Required}}{\text{Capacity Available}} \times 100$$

- Step 3 : The highest TA ratio will be considered as the bottleneck factor.
- Now, we have to follow the same procedure of marginal costing question, treating this bottleneck factor as a key factor, to maximise throughput contribution.

Uniform Costing & Inter Firm Comparison

- Uniform Costing is not a separate method of costing. In fact, when several undertakings start using the same costing principles and practices, they are said to be following uniform costing.
- Uniform Costing is a pre-requisite for inter firm comparison.
- Inter firm comparison is a technique of evaluation of performance, efficiency, costs and profits of firms belonging to same industry.

Uniform Costing & Inter Firm Comparison

- The purpose of inter firm comparison is to exchange the cost and profit data with each other, to improve the efficiency of each organisation.
- However, in order to make the data comparable, one has to follow Uniform Costing approach.
- There are various areas in cost accounting, where the calculation of cost is different for different organisations. One needs to bring uniformity in the approach of cost calculation to make the data comparable with each other.

Some areas of differences

- Method of stock valuation.
- Method of charging depreciation.
- Labour remuneration system.
- Method of allocation and absorption of overheads.
- Method of apportionment of joint cost etc.

  Note : Unless the differences in these areas are reconciled and uniform approach to cost calculation is followed, the data is not fit for inter firm comparison.

Thank you !

- Wish you Best luck for your exam !