13. BUDGETARY CONTROL

PROBLEM NO: 1

1. Sales Budget in Rupees

Particulars	S1	S2
Sale unit	60,000	40,000
Selling price per unit	140	200
Sales value	84,00,000	80,00,000

2. Production Budget in Units

Particulars	S1	S2
Sales units	60,000	40,000
(+) Closing stock	25,000	9,000
(-) Opening stock	20,000	8,000
Purchase of Raw Material	65,000	41,000

Raw Materials purchased budget in Quantities & Rupees:-

Particulars	A	B	C
Raw Materials consumption			
S1 – 65000	2,60,000	1,30,000	1,30,000
S2 – 41000	2,05,000	1,23,000	41,000
Raw Materials consumption	4,65,000	2,53,000	1,71,000
(+) Closing stock	36,000	32,000	7,000
(-) Opening stock	32,000	29,000	6,000
Raw Material (Purchase) in kgs	4,69,000	2,56,000	1,72,000
Raw Material price per unit	12	5	3
Purchase of Ram Material in Rs.	56,28,000	12,80,000	5,16,000

Direct Labour budget in (Rs)

S_1 = 65,000 x 2Hr's x Rs.12 = Rs.15,60,000

S_2 = 41,000 x 3Hr's x Rs.16 = Rs.19,68,000

Total Wage Cost = Rs. **35,28,000**

Closing Finished Goods Budget:-

Particulars	S_1	S_2
Direct Material		
A-12	48	60
B-5	10	15
C-3	6	3
Direct Wages	24 (2x12)	48(3x16)
Overhead	40	60
Total Cost	128	186
No.of units	25,000	9,000
Closing stock value	32,00,000	16,74,000

Profit and Loss Budget:-

S_1 = 60,000 x (140-128) = 7,20,000

S_2 = 40,000 x (200-186) = 5,60,000

Profit for the year = **12,80,000**

PROBLEM NO: 2

Production Budget of Product Minimize and Heavy high (in units)

Particulars	April		May		June		Total	
	MM	HH	MM	HH	MM	HH	MM	HH
Sales	8000	6000	10000	8000	12000	9000	30000	23000
Add: Closing stock(25% of Next month sales)	2500	2000	3000	2250	4000	3500	9500	7750
Less: Opening stock	2000*	1500*	2500	2000	3000	2250	7500	5750
Production units	8500	6500	10500	250	13000	10250	32000	25000

* Opening stock of April is the closing stock of March, which is as per Company's Policy 25% of next Month Sales.

Production Cost Budget

Element of cost	Rate (Rs)		Amount (Rs)	
	MM (32000 units)	HH (25000 units)	MM	HH
Direct Material	220	280	70,40,000	70,00,000
Direct Labour	130	120	41,60,000	30,00,000
Manufacturing overhead				
(400000 ÷ 180000 x 32000)			71,111	
(500000 ÷ 120000 x 25000)				1,04,167
			11271111	10104167

PROBLEM NO: 3

$$\text{Capacity Ratio} = \frac{\text{Actual Hours}}{\text{Budgeted Hours}} \times 100$$

$$75\% = \frac{AH}{6000\ \text{units} \times 4\ \text{hrs per unit}}$$

$$75\% = \frac{AH}{24{,}000 \text{Hrs}}$$

$$AH = 18{,}000 \text{ hrs}$$

$$\text{Efficiency Ratio} = \frac{\text{Actual output in terms of standard Hrs}}{\text{Actual working Hrs}} \times 100$$

$$= \frac{5{,}000\ \text{Units} \times 4\ \text{hrs per Unit}}{18{,}000\ \text{hrs}} \times 100$$

$$= \frac{20{,}000\ \text{hrs}}{18{,}000\ \text{hrs}} \times 100 = 111.11\%$$

$$\text{Activity Ratio} = \frac{\text{Actual output in terms of standard Hrs}}{\text{Budgeted output in terms of standard Hrs}} \times 100$$

$$= \frac{5000\ \text{Units} \times 4\text{hrs per unit}}{6{,}000\text{Units} \times 4\text{hrs per Unit}} \times 100$$

$$= \frac{20{,}000\ \text{Units}}{24{,}000\ \text{Units}} \times 100$$

$$= 83.33\%$$

PROBLEM NO: 4

a) Preparation of Production Budget (in nos)

Particulars	Oct	Nov	Dec	Jan
Demand for the month (Nos)	4,000	3,500	4,500	6,000
Add: 20% of next Month's demand	700	900	1200	1300
Less: Opening Stock	(950)	(700)	(900)	(1200)
Vehicles to be Produced	3,750	3,700	4,800	6,100

b) Preparation of Purchase budget for Part – X

Particulars	Oct	Nov	Dec
Production for the Month (Nos)	3,750	3,700	4,800
Add: 40% of next Month's production	1,480 (40% of 3700)	1,920 (40% of 4,800)	2,440 (40% of 6,100)
	5,230	5,620	7,240
No.of units required for production	20,920 (5,230 x 4 units)	22,480 (5,620 x 4 units)	28,960 (7,240 x 4 units)
Less: Opening stock	(4800)	(5,920) (1,480 x 4 units)	(7,680) (1,920 X 4 units)
No.of units to be Purchased	16,120	16,560	21,280

c) Budgeted Gross Profit for the Quarter October to December

Particulars	Oct	Nov	Dec	Total
Sales in nos	4,000	3,500	4,500	12,000
Net selling price per unit*	3,46,150	3,46,150	3,46,150	
Sales Revenue (Rs in lakh)	13,846	12,115.25	15,576.75	41,538
Less: Cost of sales (Rs in lakh)(sales unit x cost per unit)	11,428	9,999.50	12,856.50	34,284
Gross Profit (Rs in Lakh)	2,418	2,115.75	2,720.25	7,254

*Net Selling Price Unit = Rs.3,95,600 – 12.5% Commission on Rs.3,95,600

= Rs.3,46,150

PROBLEM NO: 5

a)

(i) Production Budget (in Units) for the year ended 31-3-2016

Particulars	Product M	Product N
Budgeted sales (Units)	28,000	13,000
Add: Increase in Closing stock	320	160
No good Units to be Produced	28,320	13,160
Post Production Rejection rate	4%	6%
No.of units to be Produced	29,500 $\left[\frac{28,320}{0.96}\right]$	14,000 $\left[\frac{13,160}{0.94}\right]$

(ii) Purchase budget (in kgs and value) for Material Z

Particulars	Product M	Product N
No.of Units to be Produced	29,500	14,000
Usage of Material Z per unit of production	5 Kg	6 Kg
Material Needed for Production	1,47,500Kg	84,000 Kg

Materials to be Purchased	1,63,889 Kg [1,47,500 / 0.90]	88,421 Kg [84000 / 0.95]
Total quantity to be Purchased	2,52,310 Kg	
Rate per Kg of Material Z	Rs.36	
Total Purchase Price	Rs.90,83,160	

b) Calculation of Economic Order Quantity for Material Z

$$EOQ = \sqrt{\frac{2 \times 2,52,310Kg \times Rs320}{Rs36 \times 11\%}} = \sqrt{\frac{16,14,78,400}{Rs\,3.96}} = 6,385.72 \text{ Kg}$$

c) Since, the Maximum number of order per year can not be More than 40 orders and the Maximum quantity per order that can be Purchased is 4,000kg. Hence, the total quantity of Material Z that can be available for Production

= 4,000kg x 40 orders = 1,60,000 kg.

Particulars	Product M	Product N
Material needed for Production to maintain the same Production Mix	1,03,929Kg $\left[1,60,000 \times \frac{1,63,889}{2,52,310}\right]$	56,071 Kg $\left[1,60,000 \times \frac{88,421}{2,52,310}\right]$
Less: Process Wastage	10,393 Kg	2,804 Kg
Net Material available for Production	93,536 Kg	53,267 Kg
Units to be Produced	18,707 Units $\left[\frac{93,536Kg}{5Kg}\right]$	8,878 Units $\left[\frac{53,267Kg}{6Kg}\right]$

PROBLEM NO: 6

a)

iv) Production Budget for January to March 2009 (Quantitative)

Particulars	Jan	Feb	Mar	April
Budgeted sales	10,000	12,000	14,000	15,000
Add: Budgeted closing stock (20% of sales of next month)	2,400	2,800	3,000	3,000
	12,400	14,800	17,000	18,000
Less: Opening stock	2,700	2,400	2,800	3,000
Budgeted Output	9,700	12,400	14,200	15,000

Total Budgeted output for the Quarter ended March 31,2009

= (9,700+12,400+14,200)

= 36,300 Units

v) Raw Material Consumption Budget (in quantity)

Month	Budgeted output (Units)	Material 'X' @ 4 kg Per Unit (kg)	Material 'Y' @ 6 Kg Per Unit (kg)
Jan	9,700	38,800	58,200
Feb	12,400	49,600	74,400
Mar	14,200	56,800	85,200
Apr	15,000	60,000	90,000
Total		2,05,200	3,07,800

vi) Raw Materials Purchase Budget (in quantity) for the Quarter ended (31-3-2009)

Particulars	Material x (kg)	Material y (kg)
Raw Material required for Production	1,45,200	2,17,800
Add: Closing stock of Raw Material	30,000	45,000
	1,75,200	2,62,800
Less: Opening Stock of Raw Material	19,000	29,000
Material to be Purchased	1,56,200	2,33,800

b) Material Cost Variances

	SQ	SP	SQ x SP	AQ	AP	AQ x AP	RSQ	RSQ x SP	AQ x SP
X	1,60,000	10	16,00,000	1,65,000	10.20	16,83,000	1,61,200	16,12,000	16,50,000
Y	2,40,000	15	36,00,000	2,38,000	15.10	35,93,800	2,41,800	36,27,000	35,70,000
	4,00,000		**52,00,000**	**4,03,000**		**52,76,800**	**4,03,000**	**52,39,000**	**52,20,000**

Direct Material cost variance = SQ x SP – AQ x AP

= Rs.52,00,000 – Rs.52,76,800

= Rs.76,800 (A)

Material price variance = AQ x SP – AQ x AP

= Rs.52,00,000 – Rs.52,76,800

= Rs.56,800 (A)

Material usage variance = SQ x SP – AQ x SP

= Rs.52,00,000 – Rs52,20,000

= Rs.20,000 (A)

Verification:

Direct Material Cost Variance = Direct Material Usage Variance + Direct Material Price Variance

= 20,000 (A) + 56,800 (A)

= 76,800 (A)

Calculation of Labour Cost Variances:

Budgeted output for the quarter = 36,300 Units

Budgeted direct Labour hours = 36,300 x 3/4 hrs

= 27,225 hours

$$\text{Standard or Budgeted Labour rate per hour} = \frac{\text{Budgeted direct Labour Cost}}{\text{Budgeted direct Labour hours}}$$

$$= \frac{\text{Rs}10,89,000}{27,225\text{hours}}$$

= Rs 40

Standard Labour hours for Actual Output = 40,000 Units x 3/4 hour

= 30,000 hours

SH x SR	AHP x SR	AHP x AR
30,000 x 40	32,000 x 40	13,12,000
12,00,000	12,80,000	

$$\text{Actual Labour hour rate} = \frac{\text{Rs}13,12,000}{32,000\,\text{hours}} = \text{Rs.}41$$

iv) Direct Labour Cost Variance = (Std.Rate x Std.hrs)-(Actual RatexActualhrs)
= (Rs.40 x 30,000) – (Rs.41 x 32,000)
= Rs.12,00,000 – Rs.13,12,000
= Rs.1,12,000 (A)

v) Direct Labour Rate Variance = Actual hrs x (Standard rate – Actual rate)
= 32,000 x (Rs.40 - Rs.41)
= Rs.32,000 (A)

vi) vi) Direct Labour Efficiency Variance = Standard Rate x (Std.hrs – Actual hrs)
= Rs.40 x (30,000 – 32,000)
= Rs.80,000 (A)

Verification:

Direct Labour Cost Variance = Direct Labour Efficiency Variance + Direct Labour rate variance
= Rs 80,000 (A) + Rs 32,000 (A)
= Rs.1,12,000 (A)

PROBLEM NO: 7

Flexible Budget

Activity Level Production (Units)	50% 4000(Rs)	75% 6,000(Rs)	100% 8000 (Rs)
Sales @ Rs.400 per Unit	16,00,000	24,00,000	32,00,000
Variable Costs:			
Direct Materials	3,08,000	4,62,000	6,16,000
Direct Labour	6,40,000	9,60,000	12,80,000
Power	9,000	13,500	18,000
Repairs etc.	8,000	12,000	16,000
Other Variable Cost	3,200	4,800	6,400
Total Variable Costs:	9,68,200	14,52,300	19,36,400
Fixed costs:			
Manufacturing	2,28,000	2,28,000	2,28,000
Administration, selling & Distribution	72,000	72,000	72,000
Total Fixed Costs:	3,00,000	3,00,000	3,00,000
Total costs	12,68,200	17,52,300	22,36,400
Profit (sales-variable cost)-Fixed cost	3,31,800	6,47,700	9,63,600

PROBLEM NO: 8

FLEXIBLE BUDGET

Head of Account	Control basis	70%	80%	90%	100%
Budgeted hours		7,000	8,000	9,000	10,000
		(Rs.)	(Rs.)	(Rs.)	(Rs.)
Variable expenses	V	1,260	1,440	1,620	1,800
Semi-variable expenses	SV	1,200	1,200	1,320	1,440
Fixed expenses	F	1,800	1,800	1,800	1,800
Total expenses		4,260	4,440	4,740	5,040
Recovery rate per hour		0.61	0.55	0.53	0.50

Conclusion:

We notice that the recovery rate at 70% activity is Rs 0.61 per hour. If in a particular Month the factory works 8,000 hours, it will be incorrect to estimate the allowance as Rs 4,880 @ Rs 0.61. The Correct allowance will be Rs 4,440 as shown in the table. If the actual expenses are Rs 4,500 for this level of activity, the Company has not saved any Money but has over spent by Rs 60 (Rs.4,500 – Rs.4,440)

PROBLEM NO: 9

Flexible Budget

Activity Level	50%	75%	100%
Production (units)	3,200	4,800	6,400
	Rs	Rs	Rs
Sales @ Rs 40 per Unit	1,28,000	1,92,000	2,56,000
Variable Costs:			
Direct Materials	24,640	36,960	49,280
Direct Labour	51,200	76,800	1,02,400
Power	720	1,080	1,440
Repairs etc.	850	1,275	1,700
Miscellaneous	270	405	540
Total Variable Cost	77,680	1,16,520	1,55,360
Fixed Costs:			
Manufacturing	20,688	20,688	20,688
Administration, selling and distribution	3,600	3,600	3,600
Total Costs	1,01,968	1,40,808	1,79,648
Profit	26,032	51,192	76,352

PROBLEM NO: 10

Flexible Budget of Department of company 'X'

Expenses	Basis	Level of Activity			
		80%	90%	100%	110%
		Rs.	Rs.	Rs.	Rs.
(1)	(2)	(3)	(4)	(5)	(6)
Sales		600000	675000	750000	825000
Administration Costs:					
Office salaries	Fixed	90,000	90,000	90,000	90,000
General expenses	2%ofsales	12,000	13,500	15,000	16,500
Depreciation	Fixed	7,500	7,500	7,500	7,500
Rates & Taxes	Fixed	8,750	8,750	8,750	8,750
Total administration costs		1,18,250	119750	121250	122750
Selling Costs:					
Salaries	8%ofsales	48000	54000	60000	66000
Travelling expenses	2%ofsales	12000	13,500	15000	16500
Sales office expenses	1%ofsales	6000	6750	7500	8250
General expenses	1%ofsales	6000	6750	7500	8250
Total Selling Costs		72,000	81,000	90,000	99,000
Distribution Costs					
Wages	Fixed	15,000	15,000	15,000	15,000
Rent	1% of sales	6,000	6750	7500	8250
Other expenses	4%ofsales	24,000	27,000	30,000	33,000
Total Distribution cost		45,000	48,750	52,500	56,250
Total Admin.selling & Distribution costs		2,35,250	2,49,500	2,63,750	2,78,000

Note: In the absence of information it has been assumed that office salaries, depreciation, Rates and taxes and wages remain the same at 110% level of activity also. However, in practice some of these costs may change if present capacity is exceeded

PROBLEM NO: 11

Master Budget for the year ending

Sales			Rs
Toughened Glass			6,00,000
Bent Glass			2,00,000
Total sales			**8,00,000**
Less: Cost of Production			
Direct Materials (60% of 8,00,000)		4,80,000	
Direct Wages (20 Workers x 150 x 12Months)		36,000	
Prime cost		5,16,000	
Fixed Factory overhead:			
Works Manager's salary (500 x 12)	6,000		
Foreman's salary (400 x 12)	4,800		
Depreciation	12,600		
Light and Power (assumed Fixed)	3,000	26,400	
Variable Factory overhead:			
Stores and Spares (8,00,000 x 2.5%)	20,000		
Repairs and Maintenance	8,000		
Sundry expenses	3,600	31,600	
Works Cost			**5,74,000**
Gross Profit (sales-works cost)			**2,26,000**
Less: Administration, selling and distribution expenses			36,000
Net Profit			**1,90,000**

PROBLEM NO: 12

Budget Showing Current Position and Position for 2013

	Year-2012			Year-2013			
	A	B	Total (A+B)	A	B	C	Total (A+B+C)
Sales(units)	200000	100000	-	150000	50000	200000	-
(A)Sales (Rs)	400000	350000	750000	300000	175000	350000	825000
Direct Material	100000	75000	175000	75000	37500	80000	192500
Direct wages	50000	50000	100000	37500	25000	50000	112500
Factory overhead	50000	50000	100000	37,500	25000	50,000	112500
Other variable cost	50,000	30,000	80,000	37500	15000	50000	102500
(B) Marginal Cost	250000	205000	455000	187500	102500	230000	520000
(C) contribution (A-B)	1,50,000	1,45,000	2,95,000	1,12,500	72,500	1,20,000	3,05,000
Fixed costs - Factory	1,00,000						1,00,000
- Others	80,000						80,000
(D)Total Fixed Cost	1,80,000						1,80,000
Profit (C-D)	115000						125000

Comments:- Introduction of Product C is Likely to increase profit by Rs 10,000 (i.e From Rs.1,15,000 to Rs.1,25,000) in 2013 as Compared to 2012. Therefore, Introduction of Product C is recommended.

THE END