

Question	Budgetary Cost	Question	Budgetary Cost
1	CW	31	CW
2	HW Typed	32	HW Typed
3	HW Typed	33	CW
4	CW	34	CW
5	CW	35	HW Typed
6	HW Typed	36	HW Typed
7	CW	37	HW Typed
8	HW Typed	38	CW and Typed as well
9	CW as overed as quest 44 in standard costing	39	CW
10	CW	40	HW Typed
11	CW	41	CW
12	Theory Discussed in class	42	CW
13	CW	43	HW Typed
14	CW	44	CW
15	CW	45	CW
16	HW Typed		
17	CW		
18	HW Typed		
19	CW		
20	CW		
21	CW and Typed as well		
22	CW		
23	HW Typed		
24	CW		
25	HW Typed		
26	CW		
27	HW Typed		
28	CW		
29	HW Typed		
30	CW		

Sell

(i)

Sales Budget

Particulars	Chair	Table	Bench
Sale Qty	4200	800	500
x Sale Price	x 50	x 85	x 158
Sales Value	₹ 2,10,000	₹ 68,000	₹ 79,000

Production Budget

Particulars	Chair	Table	Bench.
Sale Qty (units)	4200	800	500
- opening stock of Fg	- 400	- 100	- 50
+ closing stock of Fg	+ 200	+ 300	+ 50
Production Budget	4000	1000	500

Raw Material Consumption Budget.

Particulars	Timber (Cu feet)	upholstery (Sq yd)
For chair 4000 chair	$\times 0.5 = 2000$	$\times 0.25 = 1000$
For Table 1000 Table	$\times 1.2 = 1200$	-
For Benches 500 Bench	$\times 2.5 = 1250$	-
Raw Material Consumption (units)	4450 cu feet	1000 Sq. yds
x Rate per unit	x ₹ 50	x ₹ 20
RM Consumed (in ₹)	₹ 2,22,500	₹ 20,000.

Raw Material Purchase Budget

Particulars	Timber (cu feet)	upholstery (sq yds)
RM Consumption	4450	1000
- op stock of RM	-600	-400
+ cl stock of RM.	+650	+260
RM Purchased units	4500	860
x Rate (Price)	x ₹50	x ₹20
RM Purchased (in ₹)	₹2,25,000	₹17,200

Labour Budget

Particulars	Carpenters	Fitter & finishers
Furniture 4000	$\frac{45}{60} = 3000$ hrs	$\frac{15}{60} = 1000$ hrs
Felt Table 1000	$\frac{60}{60} = 1000$ hrs	$\frac{15}{60} = 250$ hrs
Felt Bench 500	$\frac{75}{60} = 625$ hrs	$\frac{30}{60} = 250$ hrs
Hours worked	4625 hrs	1500 hrs
x Rate	x ₹6/hr	x ₹4.8/hr
Total wages	₹27,750	₹7,200

Sol 14

Statement for Variable Cost per Unit

Particulars	Chair	Table	Bench.
Material			
• Timber	$0.5 \times 50 = ₹25$	$1.2 \times 50 = ₹60$	$2.5 \times 50 = ₹125$
• Upholstery	$0.25 \times 20 = ₹5$	$= ₹0$	$= ₹0$
• Fining & Finishing material	$5\% (5+5) = ₹1.5$	$5\% (60+0) = ₹3$	$5\% (125+0) = ₹6.25$
Labour			
Carpenter	$\frac{45}{60} \times 6 = ₹4.5$	$\frac{60}{60} \times 6 = ₹6$	$\frac{75}{60} \times 6 = ₹7.5$
Finishing	$\frac{15}{60} \times 4.8 = ₹1.2$	$\frac{15}{60} \times 4.8 = ₹1.2$	$\frac{30}{60} \times 4.8 = ₹2.4$
Variable Cost Per U =	₹37.2	₹70.2	₹141.15

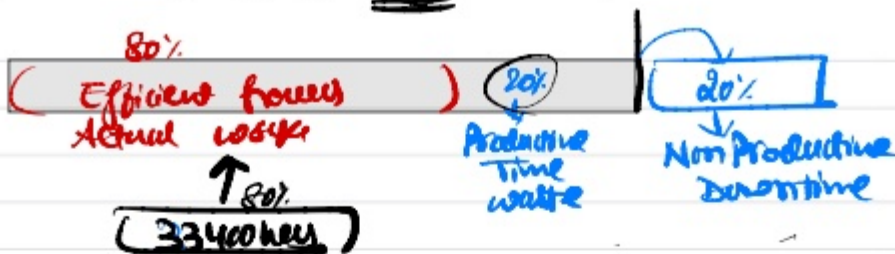
Sol 15

Statement for estimation of Net Income (Profit)

Particulars	Chair	Table	Bench	Total
Sale Price	₹50	₹85	₹158	
- VC	- ₹37.2	- ₹70.2	- ₹141.15	
Cont P.U	₹12.8	₹14.8	₹16.85	
x Units	x 4200	x 800	x 500	
Total Contribution	₹53,760	₹11,840	₹8425	₹74025
less FC	8000000 x 3 months			-24,000
Profit				₹50,025

Recursion Note for Labour @4

Productive (100% fee)



$$A = 3840 \times 5 \text{ hr} = 17400$$

$$B = 4000 \times 4 \text{ hr} = 16000$$

Efficient hrs **33,400 hrs** 80%

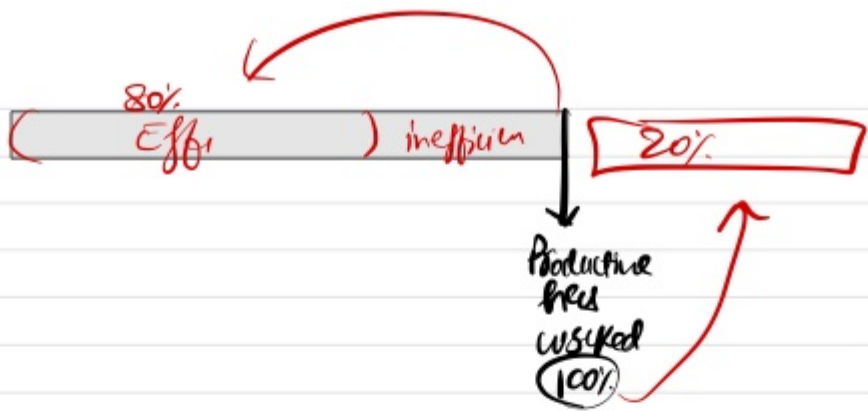
$$+ \text{Productive Time waste} = \left(\frac{33400 \times 20}{80} \right) = \frac{8350 \text{ hrs}}{41750}$$

$$+ \text{Non Productive} = 41750 \times 20\% = 8350$$

Paid hrs = 50,100 hrs

Normal	Overtime
$90 \times 40 \times 12$ hr weeks	6900 (CBIS)
43200 hrs	$\times \text{£}5$
$\times \text{£}5$	$\times 150\%$
<u>216000</u>	<u>51750</u>
+	
2267750	

HW Q4, Q5, Q21 (1), Q25



Q10

Budget period = 12 weeks \times 5 days = 60 days

Sales Budget

(extra 4 pm)

Particulars	A	B
Sale units	3600	4800

Production Budget

Particulars	A	B
Sale units	3600	4800
- op stock of FG	- 1020	- 2400
+ cl stock of FG	$\left(\frac{3600 \times 15}{60}\right) = + 900$	$\left(\frac{4800 \times 20}{60}\right) + 1600$
Production	3480	4000

Raw material Consumption.

Particulars	Raw Material
For A 3480 units \times 5kg	17,400 kg
For B 4000 units \times 3kg	12,000 kg
Raw material Consumed	29,400 kg

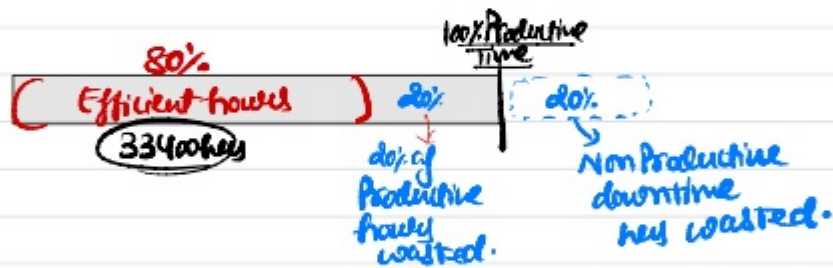
Raw Material Purchase Budget.

Particulars	Raw Material
Raw Material Consumed	29,400
- opening stock of RM	- 4,300
+ closing stock of RM $\left(\frac{29,400}{60} \times 10\right)$	+ 4,900
Raw material purchased qty	30,000 kg.
\times Price	$\times ₹ 12$
Raw material purchase value	₹ 3,60,000

Wage Budget

Particulars	Hours
For Product A = 3480 units x 5 hrs	17,400 hrs
For Product B = 4000 units x 4 hrs	16,000 hrs
Total Effective hours required (80% Efficient)	33,400 hrs
+ Productive time wasted ($\frac{33400 \times 20}{80}$)	8,350 hrs
Total Productive hours paid (100%)	41,750 hrs
+ 20% Non Productive downtime ($41750 \times 20\%$)	8,350 hrs
Total Hours paid to workers	50,100 hrs
→ Normal rate = 43200 hrs x ₹5	₹ 2,16,000
→ overtime rate = $(50,100 - 43200) = 6900 \times ₹5 \times 150\%$	₹ 51,750
Total wage cost	₹ 2,67,750.

QNO 1



Self Note: yani Productive hours mei 80% efficient hours hai
 Productive hours mei 20% waste hours hai
 + Non Productive downtime hours bhi 20% hai
 (These are also wasted.)

→ yani hum labour ko pay karenge for 120% hrs
 Jabki actual work hoga only 80% hrs.

WN 2 Normal hours available = 90 × 40 × 12 = 43200 hrs
without hrs per week weeks

43200 hrs
Normal rate

Sol 5

(i)

Production Budget

Particulars	Q1	Q2	Q3	Q4	Total
Sold units	18,000	22,000	25,000	27,000	92,000
Production					
70% of current	12,600	15,400	17,500	18,900	
30% of next	6,600	7,500	8,100	7,400 (est)	
Production	19,200	22,900	25,600	26,300 (BU)	94,000 (conc)

10(ii)

Total Annual Basis.

$$\begin{aligned}
 \text{Sale qty} &= 92,000 \\
 - \text{stock of year} &- 6,000 \\
 + \text{stock of year} &+ 8,000 \\
 \hline
 \text{Annual Production} &= 94,000
 \end{aligned}$$

(ii) Step 1 Calculation of BEP

$$\begin{aligned}
 \text{Sale Price} &= ₹ 40 \\
 - \text{VC} &= ₹ 34.50 \\
 \hline
 \text{Cont P.U} &= ₹ 5.5
 \end{aligned}$$

$$\text{BEP} = \frac{\text{FC}}{\text{Cont P.U}} = \frac{1,10,000}{5.5} = 40,000 \text{ units}$$

def Note: Yemi jab hum 40,000 units sell karenge in total toh hamara BEP aajayega.

Step 2

$$\begin{aligned}
 \text{Sale of Q1} &= 18,000 \\
 \text{Sale of Q2} &= 22,000 \\
 \hline
 \text{Total Sales} &= 40,000
 \end{aligned}$$

in two qtr

= BEP, do, we are able to achieve BEP at end of 2nd qtr.

Particulars	Flexible Budget			
	At 90%	At 60%	At 70%	At 80%
Units	90,000	60,000	70,000	80,000
Variable Cost				
Material @ 12	10,80,000	7,20,000	8,40,000	9,60,000
Labour @ 8	7,20,000	4,80,000	5,60,000	6,40,000
Expenses @ 5	4,50,000	3,00,000	3,50,000	4,00,000
Prod ⁿ OH @ 24 (40% x 10)	3,60,000	2,40,000	2,80,000	3,20,000
Selling & Dist @ 23 OH (6% x 50%)	2,10,000	1,80,000	2,10,000	2,40,000
Total Variable Cost (A)	28,80,000	19,20,000	22,40,000	25,60,000
Fixed Cost				
Prod ⁿ OH @ 26 (10% x 60%) x 90,000	5,40,000	5,40,000	5,40,000	5,40,000
Admin OH @ 5 x 90,000	4,50,000	4,50,000	4,50,000	4,50,000
Selling OH @ 3 x 90,000	2,70,000	2,70,000	2,70,000	2,70,000
Total Fixed Cost (B)	12,60,000	12,60,000	12,60,000	12,60,000
Total Cost (A) + (B)	41,40,000	31,80,000	35,00,000	38,20,000
Variable Cost P.u	32	32	32	32
Fixed Cost P.u	14	21	18	15.75
Total Cost P.u	46	53	50	47.75

Revenue Budget

Particulars	2021	2022
Sales units x Sale Price	4,29,000 x 23000	+12% = 479,400 23000
Sales Value	96,600,00,000	10,81,92,00,000

Profit & loss estimation (₹ in lakhs)

Particulars	2021	2022
Sales	96,600	10,81,92
Less		
→ Raw Material (con 2)	- 43,470	- 48,686.40
→ Wages		
• Permanent (con 3)	- 47736	- 51316.20
• Casual	- 2386.80	- 2508.47
→ Power (con 5)		
• on Product	- 25.2	- 28.224
• on employees	- 16.8	- 16.8
→ Safety & (con 6)		
Maintenance	- 60	- 67.2
→ Diesel Cost Paid	- 1.2	
→ Hire charges	- 6.0	
→ Reimbursement		(1.38+6) + 5% = 7.749 GST
→ Dep	- 8040	- 15% = 6834
Profit / (Loss)	(5142)	(12,73,043)

Self Note: 2021 mei humne Diesel Cost khud pay ki thi aur islye GST nhi lge. Lekin 2022 mei diesel cost hire company me pay ki hai aur humne uske reimburse krna hai aur islye clono part 5. RCM GST charge hogaya as per question and ICAI (NOT NG).

sol 10
WN 1

sales unit
x SP

2021
4,20,000
₹23000

2022
+12% = 4,70,400
₹23000 + 12%

WN 2



WN 2 RM Consumed

2021
4,20,000
x 2.3
x ₹4500

2022
4,70,400
x 2.3
x ₹4500 + 12%

₹43470 L

₹48686.4 L

2021

2022

WN 3

Employed (6000)

$(6000 \times 85\%) \times 26 \times 12$
day M
x 3000

$(6000 \times 85\%) \times 26 \times 6M \times 3000$
day

→ Permanent (85%)

47736 L

x $(6000 \times 85\%) \times 26 \times 6M \times (3000 + 15\%)$
day

51316.20 L

→ Temporary (15%)

$(6000 \times 15\%) \times 26 \times 12$
day M
x ₹850

$(6000 \times 15\%) \times 26 \times 12$
days M
x ₹893.33

2386.80

2508.47

Q4

Calculating wage rate of casual employee (Temp)

	2021	2022	
Wage rate	₹850	893.33	$\frac{850 \times 173.59}{165.17}$
CPI	165.17	173.59	

Q5 Power = $\frac{₹42,00,000 \text{ (Bill in 2021)}}{7,00,000 \text{ unit}} = ₹6/\text{unit}$

Power

- Production Based
 - Production $(7,00,000 \times 60\%) \times ₹6$
 - $₹25.2L$
 - $25.2L + 12\%$
 - $₹28.224$
- General Abv (non employees)
 - $(7,00,000 \times 40\%) \times ₹6$
 - $₹16.8L$
 - Same → $₹16.8L$

Q6 Safety & Maintenance 60L + 12% = ₹67.20L

Q7 Diesel Cost ₹1,29,000 + 15% = ₹1,38,000

	2021	2022
Diesel Exp	₹1,29,000	1,38,000
Hire charges	₹6,00,000	6,00,000
		₹7,38,000
		+ 5% GST
		₹7,74,900

Dosa Point Tax Dosa Tax ₹110
Zomato Delivery fee ⇒ 20
+ Tax 30
+ 5
2021

Dosa
+ Dosa

457.5%
2022

Q11(A)

Cash Budget

Particulars	Oct	Nov	Dec
Opening Cash Balance	35000	(9100)	(12600)
Add: Receipts			
Cash sales (Same month)	5000	6000	8000
Collection from Debtors (2M later)	15000 (Sept)	18000 (Oct)	20000 (Nov)
Total Cash available (A)	55000	14900	15,400
Cash Payments			
Creditors (2M later)	4000 (Sept)	23000 (Oct)	27000 (Nov)
Paid for Equipment (Net)	16000	x	x
Short term loan	x	x	15000
wages paid	3000	3000	3000
Admin exp	1500	1500	1500
Rent paid (12M)	3600	x	x
Total Cash Payments (B)	64,100	27500	46,500
Closing cash (A) - (B)	(9100)	(12,600)	(31,100)

Q.11 (A)

Income Statement

Particulars	Oct	Nov	Dec
Sales (Cash + Credit)	(5+18) = 23000	(6+20) = 26000	(8+25) = 33000
Less COGS 75%	-17250	-19500	-24750
G.P. 25%	5750	6500	8250
Less Rent	-300	-300	-300
Less Admin exp	-1500	-1500	-1500
Less wages (already covered in COGS)	-3000	-3000	-3000
Less Depreciation (30,000 x 10% x 1/12)	-250	-250	-250
Less loss on exchange of old equipment	-1000	x	x
BV = 15000 - exchange = -14000 loss = 1000			
Net Profit	2700	4450	6200

		X	Y
Std Time	Units	8 hrs	12 hrs
		1200 units	800 units

Actual Days worked in April = 22 days

Actual working hrs in April = $22 \times 8 \times 100 = 17600$ hrs

Standard hours for

Actual output = $8 \text{ hrs} \times 1200 + 12 \text{ hrs} \times 800 = 19200$ hrs

Budgeted Hours = $\frac{186000}{12m} = 15500$ hrs

(i) Capacity ratio = $\frac{AH}{BH} = \frac{17600}{15500} \times 100 = 113.55\%$

(ii) Activity ratio = $\frac{SH}{BH} = \frac{19200}{15500} \times 100 = 123.87\%$

(iii) Efficiency ratio = $\frac{SH}{AH} = \frac{19200}{17600} \times 100 = 109.09\%$

Interrelationship

Capacity ratio \times Efficiency ratio = Activity ratio

$113.55\% \times 109.09\% = 123.87\%$

Q114

Maximum possible hours in Budgeted Period = $8 \times 5 \times 4 \times 60 = 9600$ hrs

Budgeted Hours = $8 \times 5 \times 4 \times 50^*$ = 8000 hrs = BH

Actual Hours = 7500 hrs = AH

Standard Hours = 8800 hrs = SH

(i) Efficiency ratio = $\frac{SH}{AH}$ = 117.33

(ii) Activity ratio = $\frac{SH}{BH}$ = 110

(iii) Standard Capacity usage ratio = $\frac{BH}{\text{Maximum Possible Hours}}$ = 83.33

(iv) Actual Capacity usage ratio = $\frac{AH}{\text{Maximum Possible Hours}}$ = 78.125

(v) Actual usage of Budgeted Capacity = $\frac{AH}{BH}$ = 93.75

Q.11

Statement for Calculation of Profit

Particulars	A	B	C	Total
Sale Price @	130	230	417	
less Variable Cost				
RM @ 10/kg	$10 \times 5 = 50$	$10 \times 2 = 20$	$10 \times 5 = 50$	
Direct M @ 40/kg	$40 \times 0.25 = 10$	0	0	
Skilled labour @ 6/hr	$4 \times 6 = 24$	$6 \times 6 = 36$	$8 \times 6 = 48$	
semi skilled @ 5/hr	$2 \times 5 = 10$	$2 \times 5 = 10$	$3 \times 5 = 15$	
Variable OH	20	40	80	
Variable Cost (b)	114	206	393	
(P.U) Contribution @ (b)	16	24	24	
x Qty sold	$8x$	$2x$	$1x$	
Contribution	$128x$	$48x$	$24x$	$200x$
- Fixed Cost				$-2,00,000$
Profit (given in question)				$1,20,000$

$200x - 2,00,000 = 1,20,000$
 $200x = 3,20,000$
 $x = 1600$

So, qty sold for A = $8x = 8 \times 1600 = 12800$ units
 B = $2x = 2 \times 1600 = 3200$ units
 C = $1x = 1 \times 1600 = 1600$ units

(i)

Sales Budget

Particulars	A	B	C
Qty sold	12,800	3,200	1,600
x Sale Price	x 130	x 230	x 417
Sales Value	₹ 16,64,000	₹ 7,36,000	₹ 6,67,200

(ii)

Production Budget

Particulars	A	B	C
Sale unit	12,800	3,200	1,600
- op stock	- 400	- 100	- 50
+ cl stock	+ 200	+ 300	+ 50
Production	12,600	3,400	1,600

(iii)

Raw Material Consumption Budget ^{or Purchase}

Particulars	Raw Material	Direct Material
For A 12600	x 0.5kg = 6300kg	x 0.25kg = 3150kg
For B 3400	x 1.2kg = 4080kg	x 0 = 0
For C 1600	x 2.5kg = 4000kg	x 0 = 0
Raw Material Consumed	14,380kg	3150kg
+ cl stock of RM	+ 650	+ 260
- op stock of RM	- 600	- 400
Raw material Purchased	14,430kg	3010kg
x Price	x ₹ 100/kg	x 40/kg
RM Purchase Value	₹ 14,43,000	₹ 1,20,400

Q.15)

(iv)

Labour Budget

Particulars	Skilled labour	Semi-skilled labour
For A 12600	x 4 hrs = 50,400	x 2 hrs = 25,200 hrs
For B 3400	x 6 hrs = 20,400	x 2 hrs = 6,800 hrs
For C 1600	x 8 hrs = 12,800	x 3 hrs = 4,800 hrs
Hours required	83,600 hrs	36,800 hrs
÷ Hours of one worker (25 days x 8 hrs)	÷ 200 hrs	÷ 200 hrs
Number of workers required	418	184
Wages paid = 83600 x ₹ 6 = ₹ 5,01,600		36800 x 5 = ₹ 1,84,000

1

$$\frac{1}{200} \times 200 \text{ hrs} = (200 \text{ hrs}) \times n = 83,600 \text{ hrs}$$

$$n = \frac{83,600}{200} = (418)$$

Q117

Production Budget for MM

Particulars	April	May	June	Total
sales units	8000	10,000	12,000	30,000
- op stock	- 2000 (8000 x 25%)	- 2500	- 3000	- 7500
+ cl stock (25% of Next Month's sales)	+ 2500	+ 3000	+ 4000 (16000 x 25%) (July)	+ 9500
Production	8500	10,500	13,000	32000

100% sales

March

April

8000

+ cl stock (8000 x 25%)
2000

Production Budget for HH

Particulars	April	May	June	Total
sales	6000	8000	9000	23000
- op stock	- 1500	- 2000	- 2250	- 5750
+ cl stock (25% of Next m)	+ 2000	+ 2250	+ 3500 (July sales x 25%)	+ 7750
Production	6,500	8250	10,250	25000

Sol 19 Particulars	Sales overhead Budget		March.
	January	Feb.	
<u>Variable exp.</u>			
Counter salesmen Commission 1%	(8000) = 800 (x 1%)	(1,20,000) = 1200 (x 1%)	(140000) = 1400 (x 1%)
Travelling salesman Commission 10%	(10,000) = 1000 (x 10%)	(15000) = 1500 (x 10%)	(20,000) = 2000 (x 10%)
Travelling exp (5%)	(10,000) = 500 (x 5%)	(15000) = 750 (x 5%)	(20,000) = 1000 (x 5%)
Variable exp (A)	2300	3450	4400
<u>Fixed exp</u>			
Advertisement	2500	2500	2500
Salary of sales dept	5000	5000	5000
Exp of sales dept	1500	1500	1500
Counter salaries	6000	6000	6000
Fixed exp (B)	15000	15000	15000
Total Selling OH (A + B)	17300	18450	19400

Qd 20

- Maximum possible hours in Budgeted period = $8 \text{ hrs} \times 5 \text{ days} \times \overset{\text{Maximum}}{\underset{\text{employee weeks}}{50}} \times 4 = 8000$
- Budgeted hours = $8 \text{ hrs} \times 5 \text{ days} \times 40 \times 4 \text{ employee weeks} = 6400$
- Actual hours = 6000 hrs
- Standard hours = 7000 hrs
- Budgeted working days = $5 \times 4 = 20$
(Available)
day weeks
- Actual working days = $20 - 1 = 19$

① Efficiency ratio = $\frac{SH}{AH} = \frac{7000}{6000} \times 100 = 116.67\%$

② Activity ratio = $\frac{SH}{BH} = \frac{7000}{6400} \times 100 = 109.375\%$

③ Calendar ratio = $\frac{\text{Available Days}}{\text{Budgeted Days}} = \frac{19}{20} \times 100 = 95\%$

④ Standard capacity usage ratio = $\frac{\text{Budgeted Hours}}{\text{Maximum Possible Hours}} = \frac{6400}{8000} \times 100 = 80\%$

⑤ Actual capacity usage ratio = $\frac{\text{Actual Hours}}{\text{Maximum Possible Hours}} = \frac{6000}{8000} \times 100 = 75\%$

⑥ Actual usage of budgeted hours (capacity ratio) = $\frac{\text{Actual Hours}}{\text{Budgeted hrs}} = \frac{6000}{6400} = 93.75\%$

Sol. 21 @

$(9700 + 12400 + 14200)$

36300 units

40000 units

40000 units

Particulars

RM

X 4kg per unit

Y 6kg per unit

Labour

Budgeted

36300×4

₹10

36300×6

₹15

$36300 \times \frac{3}{4}$

₹10

₹108900

Std for Actual

40000×4

₹160000

40000×6

₹240000

$40000 \times \frac{3}{4}$

₹30000

₹108000

Actual

165000 kg 10.20

2,38000 kg 15.10

32000 hrs 13,12000

Now Calculate all variances on own.

Q6/22

Master Budget for the year

Particulars

Amount (₹)

- Sales • Toughened glass
- Bent Glass

6,00,000
2,00,000

Material cost = $60\% \times 8,00,000 = 4,80,000$

wages = $20 \times 150 \times 12 = 36,000$

Prime cost = 5,16,000

+ factory O/H

• cost of managers = $500 \times 12 = 6000$

• Foreman's salary = $400 \times 12 = 4800$

• stores & spares = $2.5\% \times 8L = 20000$

• Depreciation = 12,600

• Light & Power = 3,000

• Repair = 8,000

• Other sundries = $(10\% \times 36000) = 3600$

Grass factory cost = 574,000

+ Admin/Selling exp = 36000

Cost of sales = 6,10,000

(6,10,000)

Net Profit

1,90,000

2024

work 1) Product A

$\frac{152000 \times 100}{95}$

152000 kg

Input 'C' 100%

Used 95%
5% wastage

152000 kg

38000 units

$\frac{36860 \times 100}{97}$

Produced
Sold + cl-op
36000 + 860

36860
Good units

3% Defective Rejected

work 2) Product B

$\frac{90000 \times 100}{96}$

93750 kg

Input

Used 96%

vr. wastage

$\frac{90000}{5} =$

18000

Produced

Good units,
Sold + cl-op.
16700 + 400
17100

5% Rejection rate

work 3) Production Budget

Particulars	Product A	Product B
Sales	36000	16700
+ (cl-op stock)	+ 860	+ 400
Good units Produced	97% ⇒ 36,860	95% ⇒ 17,100
Total output	100% = 38000	$\frac{17100 \times 100}{95} = 18000$

(1)(ii)

Raw Material Purchase Budget

Particulars

Raw Material C

$$\text{For Product A} = \frac{(38000 \times 4 \text{ kg})}{95} \times 100 = 160000 \text{ kg}$$

$$\text{For Product B} = \frac{(18000 \times 5 \text{ kg})}{96} \times 100 = 93750 \text{ kg}$$

$$\begin{aligned} \text{Raw material Consumed/Purchased} &= 253750 \text{ kg} \\ \times \text{Rate} & \\ \text{RM Purchased Value} &= ₹ 1,14,18,750. \end{aligned}$$

②

$$A = 253750 \text{ kg}$$

$$O = 250$$

$$C = 9\% \times 45 = 4.05$$

$$EOQ = \sqrt{\frac{2 \times A \times O}{C}} = \sqrt{\frac{2 \times 253750 \times 250}{4.05}} = 55971 \text{ kg}$$

Q126

Production Budget

Particulars	Q1	Q2	Q3	Q4	Total
Sales units	30,000	37,500	41,250	45,000	1,53,750
Production					
Soj of same etc	24,000	30,000	33,000	36,000	
Soj of Next etc	7,500	8,250	9,000	12,250	
Total Production	31,500	38,250	42,000	48,250	1,60,000
				(118)	(1000)

WY(i) For whole year

$$\begin{aligned}
 \text{Sales} &= 153750 \\
 + \text{cl stock} &= +16250 \\
 - \text{op stock} &= -10,000 \\
 \hline
 \text{Total Production} &= 1,60,000.
 \end{aligned}$$

Production Budget (to find op & closing F6)

Particulars	Q1	Q2	Q3	Q4	Total
Sales	30000	37500	41250	45000	153750
+ cl stock	+ 11,500	+ 12250	+ 13,000	+ 16250	+ 16,250
- op stock	- 19,000	- 11,500	- 12250	- 13,000	- 19,000
Production	31,500	38,250	42,000	48,250	1,60,000

(ii) **RM Consumption Budget**

Particulars	Q1	Q2	Q3	Q4	Total
Production x RM usage	31,500 x 2kg	38,250 x 2kg	42,000 x 2kg	48,250 x 2kg	1,60,000 x 2kg
RM usage Consumption	63,000 kg	76,500 kg	84,000 kg	96,500 kg	3,20,000 kg

(iv) **Raw material Purchase Budget**

Particulars	Q1	Q2	Q3	Q4	Total
RM Consumed	63,000	76,500	84,000	96,500	3,20,000
+ cl Stock (Bk)	41,500	1,22,500	+ 1,01,500	+ 5,000	+ 5,000
- op Stock	- 10,000	- 41,500	- 1,22,500	- 1,01,500	- 10,000
RM Purchased x Price	94,500 x 2	1,57,500 x 3	63,000 x 4	0	3,15,000
RM Pur Value	1,89,000	4,72,500	2,52,000		9,13,500

Q6281

Flexible Budget

Particulars Qty	At 50% (old cost) 30,000	At 50% (New cost) 30,000	At 60% (New cost) 36,000
Variable Cost			
Material @ 75		@ 83.5	@ 83.5
labour @ 25		@ 27.5	@ 27.5
Direct exp @ 15		@ 16.5	@ 16.5
Variable OH @ 25		@ 27.5	@ 27.5
Factory OH @ 15		@ 16.5	@ 16.5
(20 x 75%)			
Selling OH @ 8		@ 8.8	@ 8.8
(10 x 80%)			
Total Variable Cost (A)	48,90,000	53,79,000	64,54,800
Fixed Cost			
Factory OH (20 x 25) x 30,000	1,50,000	+15% = 1,72,500	1,72,500
Selling & Dist OH (10 x 20) x 30,000	60,000	+15% = 69,000	69,000
Admin OH (5000) x 30,000	1,50,000	+15% = 1,72,500	1,72,500
Total fixed cost (B)	3,60,000	4,14,000	4,14,000
Total Cost (A+B)	52,50,000	57,93,000	68,68,800

Statement for Profit Calculation

	At 50%	At 60%
Sales @ 200 x 30,000 =	60,00,000	x 36,000 = 72,00,000
less Total Cost	- 57,93,000	- 68,68,800
Profit	₹ 2,07,000	₹ 3,31,200

Sol 30

Flexible Budget (At 85%)

Particulars

Working (Calculation)

Amount

Variable Cost

Material

$$85000 \times 20 = 17,00,000 + 8\% = 18,36,000$$

labour

$$85000 \times 10 = 8,50,000 + 5\% = 8,92,500$$

Factory OH (Variable)

$$85000 \times 2 = 1,70,000 + 5\% = 1,78,500$$

Selling OH (Variable)

$$85000 \times 4 = 3,40,000 + 8\% = 3,67,200$$

Total VC (A)

32,74,200

Fixed Cost

Factory OH fixed

$$₹ 2,00,000 + 10\% = 2,20,000$$

Selling OH fixed

$$₹ 1,00,000 + 15\% = 1,15,000$$

Admin OH (100% fixed)

$$₹ 1,60,000 + 10\% = 1,76,000$$

Total FC (B)

5,11,000

Total Cost (A) + (B)

37,85,200

$$+ \text{Profit} = 20\% \text{ on SP} = \frac{1}{5} \text{ on Sale} = \frac{1}{4} \text{ on Cost}$$

$$\rightarrow ₹ 9,46,300$$

Sales value (for 85000 units)

₹ 47,31,500

	At 55%	At 65%	At 75%
W.N.1 Material Cost	11,00,000 55000	13,00,000 65000	15,00,000 75000
	= ₹2/-	= ₹20/-	= ₹20/-

W.N.2 Labour Cost	55,00,000 55000	65,00,000 65000	75,00,000 75000
	= ₹10/-	= ₹10/-	= ₹10/-

High low method

W.N.3 Factory OH	55000 units ₹ 3,10,000	75000 units ₹ 3,60,000
------------------	---------------------------	---------------------------

Step 1

$$\text{Variable cost P.U.} = \frac{\text{Change in cost}}{\text{Change in units}} = \frac{3,60,000 - 3,10,000}{75,000 - 55,000} = \boxed{\text{₹ 2 Per unit}}$$

Step 2

$$\text{Fixed Cost} = \text{Total Cost} - n \times \text{VC} \cdot \text{P.U.}$$

$$= 3,60,000 - 75,000 \times 2 = \boxed{2,10,000}$$

W.N.4

Selling OH
(High low method)

	55000 units	75000 units
	₹ 3,20,000	₹ 4,00,000

Step 1

$$\text{VC} \cdot \text{P.U.} = \frac{(4,00,000 - 3,20,000)}{(75,000 - 55,000)} = \boxed{\text{₹ 4 P.U.}}$$

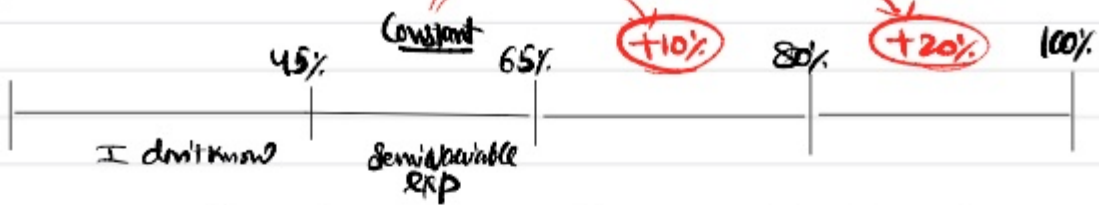
Step 2

$$\text{Fixed Cost} = \text{TC} - n \times \text{VC} \cdot \text{P.U.}$$

$$= 4,00,000 - 75,000 \times 4 = \boxed{\text{₹ 1,00,000}}$$

Q.131
10N (1)

Semi-variable expenses



- If 45% < Production < 65% → semi-variable exp constant.
- If 65% < Production < 80% → semi-variable exp + 10%.
- If 80% < Production < 100% → semi-variable exp + 20%.

Statement for flexible Budget

Particulars	At 50%	At 75%	At 100%
Variable cost			
Material	48,00,000	$\left(\frac{48,00,000 \times 75}{50}\right) = 72,00,000$	$\left(\frac{48,00,000 \times 100}{50}\right) = 96,00,000$
Labour	51,20,000	$\left(\frac{51,20,000 \times 75}{50}\right) = 76,80,000$	$\left(\frac{51,20,000 \times 100}{50}\right) = 1,02,40,000$
Others	7,60,000	$\left(\frac{7,60,000 \times 75}{50}\right) = 11,40,000$	$\left(\frac{7,60,000 \times 100}{50}\right) = 15,20,000$
Semi-variable cost			
Maintenance	5,00,000	+10% = 5,50,000	+20% = 6,00,000
Indirect labour	19,80,000	+10% = 21,78,000	+20% = 23,76,000
sales dept. ad.	5,80,000	+10% = 6,38,000	+20% = 6,96,000
standby admin	5,20,000	+10% = 5,72,000	+20% = 6,24,000
Fixed cost			
wages & Sal	16,80,000	16,80,000	16,80,000
Rent, Rates	11,20,000	11,20,000	11,20,000
Dep	14,00,000	14,00,000	14,00,000
Admin exp	17,80,000	17,80,000	17,80,000
Total cost			

Q133

Flexible Budget.

Particulars	Present	Proposal I	Proposal II
units Sold	2,50,000	4,00,000	5,00,000
Variable Cost			
Material @ ₹5/unit	12,50,000	20,00,000	$(25 \times 1\%) = 24,75,000$
Labour @ ₹2/unit	5,00,000	8,00,000	10,00,000
Factory OH @ ₹3/unit (Variable)	7,50,000	12,00,000	15,00,000
Selling OH @ ₹1/unit (Variable)	2,50,000	4,00,000	$(5 \times 1\%) = 5,25,000$
Total VC (A)	27,50,000	44,00,000	59,00,000
Fixed Cost			
Factory OH (Fixed) (3 × 3,00,000 units)	9,00,000	9,00,000	9,00,000
Additional Fixed Cost	0	4,00,000	$4 \times 2 = 6,00,000$
Selling OH (Fixed) (6 × 3,00,000 units)	6,00,000	6,00,000	6,00,000
Special advertisement	0	2,00,000	0
Total FC (B)	15,00,000	21,00,000	21,00,000
Total Cost (A) + (B)	42,50,000	65,00,000	76,00,000
Sales	$(2,50,000 \times 18)$ 45,00,000	$(4,00,000 \times 18)$ 72,00,000	$(5,00,000 \times 16^*)$ 80,00,000
- Total Cost	- 42,50,000	- 65,00,000	- 76,00,000
Profit	2,50,000	7,00,000	4,00,000.

Q134 (i) For year 2014-15

Budgeted Sales for year 14-15 (Previous Year)

Division	Product X	Product Y	Total
East	$400 \times 9 = ₹ 3600$	$300 \times 21 = 6300$	9900
West	$600 \times 9 = ₹ 5400$	$500 \times 21 = 10500$	15900
Total	₹ 9000	16,800	25800

Actual sales for year 2014-15 (Previous Year)

Division	Product X	Product Y	Total
East	$500 \times 9 = 4500$	$200 \times 21 = 4200$	8700
West	$700 \times 9 = 6300$	$400 \times 21 = 8400$	14700
Total	10,800	12600	23,400

(ii) For year 2015-16 (Estimated)

Price of X = $₹ 9 + 1 = ₹ 10$

Price of Y = $21 - 1 = ₹ 20$

Sales of X in East = $(400 + 10\%) + 60$ (Invoice Additional Increase) = 500 units

Sales of X in West = $(600 + 5\%) + 70$ = 700 units

Sales of Y in East = $(300 + 20\%) + 40$ = 400 units

Sales of Y in West = $(500 + 10\%) + 90$ = 600 units

Budget for year 2015-16 (Next year)

Division	Product X	Product Y	Total
East	$500 \times 10 = 5000$	$400 \times 20 = 8000$	13000
West	$700 \times 10 = 7000$	$600 \times 20 = 12000$	19000
Total	12000	20,000	32000

Q139 (1)

labour is key factor (limiting factor) & constraint.
12000 hrs per month.

Step 1 Particulars	Statement of Ranking A	B
Sale Price	₹60	₹44
- VC		
Raw material	-30	-16
labour	-8	-4
Contribution p. u	₹22	₹24
÷ key factor (labour-hr)	÷ 1 hr	÷ 0.5 hr
Contribution per key factor	₹22/hr	₹48/hr
Rank	II	I

we will like to produce only Product B, but it is not possible as because of market reasons we should produce other good at least 25%.

let us produce Rank I (Shirts) = $1x$ units
So, we will produce Rank II (Shirts) = $0.25x$ units.

	Shirts	Shirts	Total
Production	$0.25x$	$1x$	
x labour hrs	x 1 hr	x 0.5 hr	
labour hrs used =	$0.25x$	+ $0.5x$	= 12000
	$0.75x = 12000$		
	$x = 16000$		

↓ labour hrs available per month

So, Shirts (Rank I) to be produced = 16000 units per month
Shirts (Rank II) to be produced = 4000 units per month
To maintain maximum profits in 1st case.

Qol 39 (ii)

Sales Budget for July, Aug, Sept 2022.

Particulars	July		August		September	
	units	Rs	units	Rs	units	Rs
Sales units	15000	20,000	16,500	22,000	18,150	24,200
× Sale Price	× 60	× 44	× 60	× 44	× 60	× 44
Sales value	9,00,000	8,80,000	9,90,000	9,68,000	10,89,000	10,64,800

Production Budget

Particulars	July		August		September	
	units	Rs	units	Rs	units	Rs
Sales unit	15000	20000	16500	22000	18150	24200
- opening stock	-0	-0	-6600	-8800	-7260	-9680
+ closing stock	6600	8800	7260	9680	7986	10648
(40% of next m)	(16500 × 40%)	(22000 × 40%)	(18150 × 40%)	(24200 × 40%)	(19965 × 40%)	(26620 × 40%)
Production	21,600	28,800	17,160	29,880	18,876	25,168

working Note

sales

October

units	Rs
18150 + 10%	24200 + 10%
19965	26620

Sol 41 (i)

Flexible Budget

Particulars

Product X

Product Y

	Before New P.	After New P.	Before New P.	After New P.
Sales unit x SP	2000 x 140	+10% → 2200 x 140	2500 x 200	+10% = 2750 x 200
Sales Value	2,80,000	3,08,000	5,00,000	5,50,000
less VC				
Raw material @ 30 =	60,000	@ 30 = -66,000	@ 40 = 1,00,000	@ 40 = 1,10,000
labour @ 20 =	40,000	@ 20 = -44,000	@ 14 = 35,000	@ 14 = 38,500
Variable OH @ 15 =	30,000	(15) +2% @ 18 = -39,600	@ 10 = 25,000	(10) +10% @ 11 = 30,250
Contribution	1,50,000	1,58,400	3,40,000	3,71,250
less FC	-50,000	-66,000	-60,000	-77,000
Profit	1,00,000	92,400	2,80,000	2,94,250

Sol 41 (i) (A)

If Proposals are independent.

Then New proposal is not accepted for X, but New proposal is accepted for Y.

because then overall profit will increase by ₹ 14,250
(2,94,250 - 2,80,000)

Sol 41 (i) (B)

If Proposals are dependent on each other which they can be accepted for both products or rejected for both.

Then New Proposal will be accepted for both X & Y

Increase in Profit for Y = 14,250

- Decrease in Profit for X = -7,600

Net Increase in Profit = ₹ 6,650

Q.42 Budget showing current position & position for 20-21

Particulars	Position for 19-20			Position for 20-21 (Kindaku)			
	A	B	Total	A	B	C	Total
Sales units	2,00,000	1,00,000		1,50,000	50,000	2,00,000	
x SP	@ 32	@ 56		@ 32	@ 56	@ 28	
Sales (A)	64	56	120	48	28	56	132
Variable Cost							
Material	@ 8 = 16	@ 12 = 12	28	@ 8 = 12	@ 2 = 6	@ 64 = 12.8	30.8
Labour	@ 4 = 8	@ 8 = 8	16	@ 4 = 6	@ 8 = 4	@ 4 = 8	18
Variable OH (100% of labour)	8	8	16	6	4	8	18
Other Variable Cost	@ 4 = 8	@ 4.8 = 4.8	12.8	@ 4 = 6	@ 4.8 = 2.4	@ 4 = 8	16.4
Total VC (A)	40	32.8	72.8	30	16.4	36.8	83.2
Contribution (A - B)			47.2				48.8
- Fixed Cost							
Factory OH			16				16
Other fixed			12.8				12.8
Profit			18.4				20

Comment: The Profit amount has increased by ₹1,60,000. Thus it indicates that reducing quantities of A & B to produce product C is feasible.

Q144 @

Raw material Consumption Budget (Month by month & Total)

Particulars	Jan	Feb	March	April	Total
units per day	50	55	60	52	
x days	x 25	x 24	x 26	x 25	
Production	1250	1320	1560	1300	5430
x R.M per unit	x 4	x 4	x 4	x 4	x 4
RM Consumed	5000 kg	5280 kg	6240 kg	5200 kg	21720 kg

④ For Total

RM Consumed = 21720 kg
 + cl stock +5100 kg
 - op stock -6020 kg

RM Purchased 20800 (Total)

Raw material Purchased (month wise)

Particulars	Jan	Feb	March	April	Total
RM Purchased	21%	26%	30%	23%	20800
@ kg	4368 kg	5488 kg	6240 kg	4784 kg	
x Rate	x 10	x 12	x 13	x 11	
RM Purchase Value	£43680	£65856	£81120	£52624	

Store Ledger (FIFO)

Month	Receipts			Issues			Balance		
	Qty	@	Amt	Qty	@	Amt	Qty	@	Amt
Jan									
of stock	-	-	-	-	-	-	6020	10.5	63,210
Purch	4368	10	43,680	-	-	-	6020	10.5	63,210
							4368	10	43,680
Issue	-	-	-	5000	10.5	52,500	1020	10.5	10,710
							4368	10	43,680
Feb							1020	10.5	10,710
Purch	5408	12	64,896	-	-	-	4368	10	43,680
							5408	12	64,896
Issue	-	-	-	1020	10.5	10,710	-	-	-
				4260	10	42,600	108	10	1,080
							5408	12	64,896
March							108	10	1,080
Purch	6240	13	81,120	-	-	-	5408	12	64,896
							6240	13	81,120
Issue	-	-	-	108	10	1,080	-	-	-
				5408	12	64,896	-	-	-
				724	13	9,412	5516	13	71,708
April							5516	13	71,708
Purch	4784	11	52,624	-	-	-	4784	11	52,624
Issue	-	-	-	5200	13	67,600	316	13	4,108
							4784	11	52,624
							<u>5100</u>		<u>56,732</u>

24/4/20

Computation of Selling Price Per unit

Particulars	X	Y	Z
Marginal Cost			
Direct material cost	20	20	20
wage cost	16	24	16
variable OH/PU	$4 \times 1 = 4$	$6 \times 1 = 6$	$4 \times 1 = 4$
Total marginal cost	40	50	40
Selling Price	60 (48×1.25) 2	96 (48×2) 2	48 $\leftarrow (40 + 20\%)$
Contribution P.U (SP - VC)	20	46	8

Budget for current situation

Particulars	X	Y	Z	Total
Sold units	250,000	280,000	320,000	
x Cont PU	x 20	x 46	x 8	
Contribution	50,00,000	1,28,80,000	25,60,000	2,04,40,000
less FC overhead				-13,20,000
Total =	52,80,000 - VC	units	rate	x VC rate
		X 250000 x 4 x 1 = 10,00,000		
		Y 280000 x 6 x 1 = 16,80,000		
		Z 320000 x 4 x 1 = 12,80,000		
		<u>39,60,000</u>		
Profit (current situation)				1,91,20,000

Ques 45
(7)

Budget for Next year (SP & VC & Contribution p.u remain same.)

Particulars	X	Y	Z	Total
SP	60	96	48	
- VC	- 40	- 50	- 40	
Cont P.u	20	46	8	
x units	(25000) (+12%) 280000	(280000) (-5%) 266000	(32000) (+15%) 368000	
Contribution	56,00,000	1,22,36,000	29,44,000	2,07,80,000
less FC => Total overheads - Variable Cost				-13,20,000
				$508000 - \left(\begin{array}{l} X \ 280000 \times 4 \times 1 \\ Y \ 266000 \times 6 \times 1 \\ Z \ 368000 \times 4 \times 1 \end{array} \right)$ $\underline{41,88,000}$
Profit				1,94,60,000

Chapter 14: Budget & Budgetary Control Solutions

Solution 1:

1. Production Budget

Particulars	Chairs	Tables	Benches
Budgeted Sales Quantity	4,200 units	800 units	500 units
Add: Closing Stock of Finished Goods	200 units	300 units	50 units
Total	4,400 units	1,100 units	550 units
Less: Opening Stock of Finished Goods	(400 units)	(100 units)	(50 units)
Budgeted Production Quantity	4,000 units	1,000 units	500 units

2. Raw Materials Usage and Purchase Budget

Particulars	Timber	Upholstery
For Chairs (4,000 units)	$4,000 \times 0.5 = 2,000$ cu. ft	$4,000 \times 0.25 = 1,000$ sq yds
For Tables (1,000 units)	$1,000 \times 1.2 = 1,200$ cu. ft	-
For Benches (500 units)	$500 \times 2.5 = 1,250$ cu. ft	-
Budgeted Raw Material Usage	4,450 cu. ft	1,000 sq yds
Add: Required Closing Stock	650 cu. ft	260 sq yds
Total	5,100 cu. ft	1,260 sq yds
Less: Opening Stock of Raw Material	(600 cu. ft)	(400 sq yds)
Budgeted Raw Material Purchase	4,500 cu. ft	860 sq yds
Raw Material Purchase Price	₹ 50 per cu. ft	₹ 20 per sq yd
Budgeted RM Purchase Cost	$(4,500 \times 50) = ₹ 2,25,000$	$(860 \times 20) = ₹ 17,200$
Total Cost of Purchase (Timber + Upholstery)	(Excluding Fixing and Finishing Materials) ₹ 2,42,200	

3. Direct Wages Cost Budget

Particulars	Carpenters	fixer
For Chairs (4,000 units)	$4,000 \times 45/60 = 3,000$ hrs	$4,000 \times 15/60 = 1,000$ hrs
For Tables (1,000 units)	$1,000 \times 60/60 = 1,000$ hrs	$1,000 \times 15/60 = 250$ hrs
For Benches (500 units)	$500 \times 75/60 = 625$ hrs	$500 \times 30/60 = 250$ hrs
Budgeted Direct Labour Hours required	4,625 hrs	1,500 hrs
Wage Rate per hour	₹ 6.00	₹ 4.80
Budgeted Direct Labour Cost	$(4,625 \text{ hours} \times ₹ 6) = ₹ 27,750$	$(1,500 \text{ hours} \times ₹ 4.80) = ₹ 7,200$
Total Direct Labour Cost (₹ 27,750 + ₹ 7,200)	₹ 34,950	

4. Statement of Variable Cost per unit

Particulars	Chairs	Tables	Benches
Materials:			
Timber	$0.5 \times ₹ 50 = ₹ 25.00$	$1.2 \times ₹ 50 = ₹ 60.00$	$2.5 \times ₹ 50 = ₹ 125.00$
Upholstery	$0.25 \times ₹ 20 = ₹ 5.00$		
Fixing & Finishing	$5\% \text{ of } (25+5) = ₹ 1.50$	$5\% \text{ of } ₹ 60 = ₹ 3.00$	$5\% \text{ of } ₹ 125 = ₹ 6.25$
Total (A)	₹ 31.50	₹ 63.00	₹ 131.25
Labour:			
Carpenter	$45/60 \times ₹ 6 = ₹ 4.50$	$60/60 \times ₹ 6 = ₹ 6.00$	$75/60 \times ₹ 6 = ₹ 7.50$
Fixer & Finisher	$15/60 \times ₹ 4.80 = ₹ 1.20$	$15/60 \times ₹ 4.80 = ₹ 1.20$	$30/60 \times ₹ 4.80 = ₹ 2.40$
Total (B)	₹ 5.70	₹ 7.20	₹ 9.90
Total VC (A) + (B)	₹ 37.20	₹ 70.20	₹ 141.15

5. Statement of Budgeted Net Income for the quarter

Particulars	Chairs	Tables	Benches	Total
Selling Price p.u.	₹ 50.00	₹ 85.00	₹ 158.00	
(-) Variable Cost p.u.	(₹ 37.20)	70.20	141.15	
Contribution p.u.	₹ 12.80	₹ 14.80	₹ 16.85	

Budgeted Sales Quantity	4,200 units	800 units	500 units	
Budgeted Total Contribution (Contribution × Budgeted Sales Quantity)	₹ 53,760	₹ 11,840	₹ 8,425	₹ 74,025
(-) Budgeted Fixed Costs				(₹ 24,000)
Budgeted Net Income				₹ 50,025

Solution 2:

1. Administrative overhead is fixed:

After 10% increase = ₹ 1,60,000 × 1.10 = ₹ 1,76,000

Budget Showing Current Position and Position for 2022-23

	Position for 2021-22			Position for 2022-23			
	A	B	Total (A+B)	A	B	C	Total (A+B+C)
Sales (units)	2,00,000	1,00,000	–	1,50,000	50,000	2,00,000	–
(₹)	(₹)	(₹)	(₹)	(₹)	(₹)	(₹)	(₹)
(A) Sales	4,00,000	3,50,000	7,50,000	3,00,000	1,75,000	3,50,000	8,25,000
Direct Material	1,00,000	75,000	1,75,000	75,000	37,500	80,000	1,92,500
Direct wages	50,000	50,000	1,00,000	37,500	25,000	50,000	1,12,500
Factory overhead (variable)	50,000	50,000	1,00,000	37,500	25,000	50,000	1,12,500
Other variable costs	50,000	30,000	80,000	37,500	15,000	50,000	1,02,500
(B) Marginal Cost	2,50,000	2,05,000	4,55,000	1,87,500	1,02,500	2,30,000	5,20,000
(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)			1,15,000				1,25,000

Comments: Introduction of Product C is likely to increase profit by ₹ 10,000 (i.e. from ₹ 1,15,000 to ₹ 1,25,000) in 2022-23 as compared to 2021-22. Therefore, introduction of product C is recommended.

Solution 3:

(i) Preparation of Production Budget (in units)

	October	November	December	January
Demand for the month (Nos.)	40,000	35,000	45,000	60,000
Add: 20% of next month's demand	7,000	9,000	12,000	13,000
Less: Opening Stock	(9,500)	(7,000)	(9,000)	(12,000)
Vehicles to be produced	37,500	37,000	48,000	61,000

(ii) Preparation of Purchase budget for Part-X

	October	November	December
Production for the month (Nos.)	37,500	37,000	48,000
Add: 40% of next month's production	14,800 (40% of 37,000)	19,200 (40% of 48,000)	24,400 (40% of 61,000)
	52,300	56,200	72,400
No. of units required for production	2,09,200 (52,300 × 4 units)	2,24,800 (56,200 × 4 units)	2,89,600 (72,400 × 4 units)
Less: Opening Stock	(48,000)	(59,200) (14,800 × 4 units)	(76,800) (19,200 × 4 units)

No. of units to be purchased	1,61,200	1,65,600	2,12,800
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(iii) Budgeted Gross Profit for the Quarter October to December

	October	November	December	Total
Sales in nos.	40,000	35,000	45,000	1,20,000
Net Selling Price per unit* (₹)	14,57,070	14,57,070	14,57,070	
Sales Revenue (₹ in lakh)	5,82,828	5,09,974.50	6,55,681.50	17,48,484
Less: Cost of Sales (₹ in lakh) (Sales unit × Cost per unit)	4,57,120	3,99,980	5,14,260	13,71,360
Gross Profit (₹ in lakh)	1,25,708	1,09,994.50	1,41,421.50	3,77,124

* Net Selling price unit = ₹ 17,14,200 – 15% commission on ₹ 17,14,200 = ₹ 14,57,070.

Solution 4:

Production Budget

Particulars	Product A	Product B
Sales (For 12 × 5 = 60 days)	3,600 units	4,800 units
Add: Closing Stock (For 15 and 20 days)	$3,600 \times \frac{15}{60} = 900$ units	$4,800 \times \frac{20}{60} = 1,600$ units
Total	4,500 units	6,400 units
Less: Opening Stock	1,020 units	2,400 units
Budgeted Production	3,480 units	4,000 units
Raw Materials required per unit	5 kg	3 kg
Budgeted Raw Materials usage	$3,480 \times 5 = 17,400$ kg	$4,000 \times 3 = 12,000$ kg
Direct Labour Hours required per unit	5 hours	4 hours
Standard Hours for budgeted production	$3,480 \times 5 = 17,400$ kg	$4,000 \times 4 = 16,000$ kg

Material Purchase Budget

Particulars		
Budgeted Raw Materials Usage (For 60 days)	{17,400 kg + 12,000 kg}	29,400 kg
Add: Closing Stock (For 10 days consumption)	$\{29,400 \times \frac{10}{60}\}$	4,900 kg
Total		34,300 kg
Less: Opening Stock of Raw Materials		4,300 kg
Budgeted Purchases		30,000 kg
Cost of Materials to be purchased at ₹ 12 per kg		₹ 3,60,000

Labour Hours and Cost Budget

Particulars		
Standard Hours for Budgeted Production	{17,400 hours + 16,000 hours}	33,400 hours
Revised Hours for Production at 80% efficiency	$\{\frac{33,400}{80\%}\}$	41,750 hours
Add: Non-Productive Downtime	{20% of 41,750}	8,350 hours
Hours Required to be worked/paid for		50,100 hours
Less: Normal Working Hours	{90 workers × 60 days × 8 hours}	43,200 hours
Balance Overtime Hours required		6,900 hours
Total Wages Payable	{(43,200 hours × ₹ 8) + (6,900 hours × ₹ 12)}	₹ 4,28,400

Solution 5:

(i) **Production Budget for the year 2012 by Quarters**

		I	II	III	IV	Total
	Sales demand(Unit)	18,000	22,000	25,000	27,000	92,000
I	Opening Stock	6,000	7,200	8,100	8,700	30,000
II	70% of Current Quarter's Demand	12,600	15,400	17,500	18,900	64,400
III	30% of Following Quarter's Demand	6,600	7,500	8,100	7,400*	29,600
IV	Total Production(II&III)	19,200	22,900	25,600	26,300	94,000
V	Closing Stock (1+IV- Sales)	7,200	8,100	8,700	8,000	32,000

*Balancing Figure

(ii) Break Even Point = Fixed Cost/ PV Ratio
 = 220000/13.75% = 1600000 or 40000 units

P/V Ratio = (40 - 34.50 = 5.50)/40 × 100 = 13.75%

(Or, Break Even Point = Fixed Cost/ Contribution = 2,20,000/5.50 = 40,000 Units)

Total sales in the quarter II is 40000 equal to BEP means BEP achieved in II quarter.

Solution 6:

Flexible Budget of Department.....of Company 'X' (In ₹)

Expenses	Basis	Level of activity			
		80%	90%	100%	110%
Sales		6,00,000	6,75,000	7,50,000	8,25,000
Administration costs:					
Office salaries	Fixed	90,000	90,000	90,000	90,000
General expenses	2% of sales	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	1,19,750	1,21,250	1,22,750
Selling costs:					
Salaries	8% of sales	48,000	54,000	60,000	66,000
Travelling expenses	2% of sales	12,000	13,500	15,000	16,500
Sales office expenses	1% of sales	6,000	6,750	7,500	8,250
General expenses	1% of sales	6,000	6,750	7,500	8,250
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	6,750	7,500	8,250
Other Expenses	4% of Sales	24,000	27,000	30,000	33,000
Total Distribution Cost		45,000	48,750	52,500	56,250
Total Administration, 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.

Solution 7:

Particulars	90%	60%	70%	80%
Units	₹ 90,000	₹ 60,000	₹ 70,000	₹ 80,000
Direct Material ₹ 12	₹ 10,80,000	₹ 7,20,000	₹ 8,40,000	₹ 9,60,000
Direct Labour ₹ 8	₹ 7,20,000	₹ 4,80,000	₹ 5,60,000	₹ 6,40,000
Direct Expenses ₹ 5	₹ 4,50,000	₹ 3,00,000	₹ 3,50,000	₹ 4,00,000
Variable Production Overhead ₹ 4	₹ 3,60,000	₹ 2,40,000	₹ 2,80,000	₹ 3,20,000
Variable Selling Overhead ₹ 3	₹ 2,70,000	₹ 1,80,000	₹ 2,10,000	₹ 2,40,000
Total Variable Cost	₹ 28,80,000	₹ 19,20,000	₹ 22,40,000	₹ 25,60,000
Variable Cost per unit (A)	₹ 32	₹ 32	₹ 32	₹ 32
Fixed Production Overheads	₹ 5,40,000	₹ 5,40,000	₹ 5,40,000	₹ 5,40,000
Fixed Administrative Overheads	₹ 4,50,000	₹ 4,50,000	₹ 4,50,000	₹ 4,50,000
Fixed Selling Overheads	₹ 2,70,000	₹ 2,70,000	₹ 2,70,000	₹ 2,70,000
Total Fixed Cost	₹ 12,60,000	₹ 12,60,000	₹ 12,60,000	₹ 12,60,000
Fixed Cost per unit (B)	₹ 14	₹ 21	₹ 18	₹ 15.75
Total Cost per unit (A) + (B)	₹ 46	₹ 53	₹ 50	₹ 47.75

Solution 8:

Head of Account	Control basis	70%	80%	90%	100%
Budgeted		7,000	8,000	9,000	10,000
		(₹)	(₹)	(₹)	(₹)
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 ₹ 0.61 per hour. If in a particular month the factory works 8,000 hours, it will be incorrect to estimate the allowance as ₹ 4,880 @ ₹ 0.61. The correct allowance will be ₹ 4,440 as shown in the table. If the actual expenses are ₹ 4,500 for this level of activity, the company has not saved any money but has over-spent by ₹ 60 (₹ 4,500 – ₹ 4,440).

Solution 11:

Cash Budget for the months of October, November and December (In ₹)

Particulars	October	November	December
Opening Balance	35,000	(9,100)	(12,600)
Add: Receipts/Inflows:			
Collection from Debtors	15,000	18,000	20,000
Cash Sales	5,000	6,000	8,000
Total Receipts (A)	55,000	14,900	15,400
Payments/Outflows:			
Payment to Creditors	40,000	23,000	27,000
Wages	3,000	3,000	3,000
Administration Expenses	1,500	1,500	1,500
Rent Advance	3,600	Nil	Nil
Loan Creditors	Nil	Nil	15,000
Purchase of Equipment	16,000	Nil	Nil
Total Payments (B)	64,100	27,500	46,500
Closing Balance (A) – (B)	(9,100)	(12,600)	(31,100)

Income statement for the months October, November and December (In ₹)

Particulars	October	November	December	Total
Sales: Cash Sales	5,000	6,000	8,000	19,000
Credit Sales	18,000	20,000	25,000	63,000
Total Sales	23,000	26,000	33,000	82,000
Less: Cost of Goods Sold of Goods Sold (at 75%) (bal.fig)	17,250	19,500	24,750	61,500
Gross Profit (at 25%)	5,750	6,500	8,250	20,500
Less: Rent (₹ 3,600 ÷ 12 months)	300	300	300	900
Administration Expenses	1,500	1,500	1,500	4,500
Depreciation (30,000 × 10%/12)	250	250	250	750
Loss on Sale of Old Equipment	1,000	Nil	Nil	1,000
Net Profit	2,700	4,450	6,200	13,350

Note: Cost of Goods Sold includes Wages ₹ 1,500 per month. The balance constitutes Materials Consumed (i.e. Opening Stock + Purchases – Closing Stock)

Solution 13:

Standard hours produced

Particulars	Product X	Product Y	Total
Output (units)	1,200	800	
Hours per unit	8	12	
Standard hours	9,600	9,600	19,200
Actual hours worked (100 workers × 8 hours × 22 days)			17,600
Budgeted hours per month (1,86,000/12)			15,500

$$\text{Capacity Ratio} = \frac{\text{Actual hours}}{\text{Budgeted hours}} \times 100 = \frac{17,600}{15,500} \times 100 = 113.55\%$$

$$\text{Efficiency Ratio} = \frac{\text{Standard hours produced}}{\text{Actual hours}} \times 100 = \frac{19,200}{17,600} \times 100 = 109.09\%$$

$$\text{Activity Ratio} = \frac{\text{Standard hours produced}}{\text{Budgeted hours}} \times 100 = \frac{19,200}{15,500} \times 100 = 123.87\%$$

Relationship : Activity ratio = Efficiency ratio × Capacity ratio

$$\text{Or } 123.87 = \frac{103.09 \times 113.55}{100}$$

Solution 14:

- Efficiency Ratio = $\frac{\text{Standard hours}}{\text{Actual hours}} \times 100 = \frac{8,800}{7,500} \times 100 = 117.33\%$
- Activity Ratio = $\frac{\text{Standard hours}}{\text{Budgeted hours}} \times 100 = \frac{8,800}{8,000} \times 100 = 110\%$
- Standard Capacity Usage Ratio = $\frac{\text{Budgeted hours}}{\text{Max. possible hours in th budgeted period}} \times 100 = \frac{8,000}{9,600} \times 100 = 83.33\%$
- Actual Capacity Usage Ratio = $\frac{\text{Actual hours worked}}{\text{Max. possible hours in a period}} \times 100 = \frac{7,500}{9,600} \times 100 = 78.125\%$
- Actual usage of Budgeted capacity Ratio = $\frac{\text{Actual working hours}}{\text{Budgeted hours}} \times 100 = \frac{7,500}{8,000} \times 100 = 93.75\%$

Working Notes:

- Maximum Capacity in a budget period = 60 Employees × 8 Hrs. × 5 Days × 4 Weeks = 9,600 Hrs.
- Budgeted Hours (Hrs) = 50 Employees × 8 Hrs. × 5 Days × 4 Weeks = 8,000 Hrs.
- Actual Hrs. = 7,500 Hrs. (given)
- Standard Hrs. for Actual Output = 8,800 Hrs.

Solution 15:

1. Computation of Budgeted Sales Quantities

Particulars	Product A	Product B	Product C
Selling Price per unit	₹ 130	₹ 230	₹ 417
Less: Variable Costs per unit			
Raw Materials at ₹ 100 per kg	0.5 × 100 = ₹50 0.25 × 40 = ₹10	1.2 × 100 = ₹120	2.5 × 100 = ₹250
Direct Materials at ₹ 40 per kg		Nil	Nil
Skilled Labour at ₹ 6 per hour	4 × 6 = ₹ 24	6 × 6 = ₹ 36	8 × 6 = ₹ 48
Unskilled Labour at ₹ 5 per hour	2 × 5 = ₹ 10	2 × 5 = ₹ 10	3 × 5 = ₹ 15
Variable Overheads	₹ 20	₹ 40	₹ 80
Total Variable Costs per unit	₹ 114	₹ 206	₹ 393
Contribution per unit	₹ 16	₹ 24	₹ 24
Sales Mix Ratio	8	2	1
Total Weighted Contribution (Contribution per unit × Sales Mix Ratio)	16 × 8 = ₹ 128	24 × 2 = ₹ 48	24 × 1 = ₹ 24
To earn Profit of ₹ 1,20,000, Desired Contribution = Desired Profit + Fixed OH = ₹ 1,20,000 + ₹ 2,00,000 = ₹ 3,20,000, to be Apportioned in ratio of Total Weighted Contribution	₹ 2,04,800	₹ 76,800	₹ 38,400
Required Sales Quantity to earn above profit (₹ 2,04,800/₹ 16)	12,800 units	3,200 units	1,600 units

2. Sales Budget

Particulars	Product A	Product B	Product C	Total
Budgeted Quantity	12,800 units	3,200 units	1,600 units	17,600 units
Budgeted Price	₹ 130	₹ 230	₹ 417	
Budgeted Sales Value (Budgeted Quantity × Budgeted Price)	₹ 16,64,000	₹ 7,36,000	₹ 6,67,200	₹ 30,67,200

3. Production Budget

Particulars	Product A	Product B	Product C
Budgeted Sales Quantity	12,800 units	3,200 units	1,600 units
Add: Closing Stock	200 units	300 units	50 units
Total	13,000 units	3,500 units	1,650 units
Less: Opening Stock	(400 units)	(100 units)	(50 units)
Budgeted Production Quantity	12,600 units	3,400 units	1,600 units

4. Raw Material Usage Budget

Particulars	Product A	Product B	Product C	Total
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Budgeted Production				
Raw Material required per unit	12,600	3,400	1,600	17,600
Total Raw Materials Required (Budgeted Prod. × Raw Material required per unit)	units	units	units	units
Direct Materials required per unit	0.50 kg	1.20 kg	2.50 kg	14,380 kg
Total Direct Materials Required (Budgeted Production × Direct Materials per unit)	6,300 kg	4,080 kg	4,000 kg	3,150 kg
	0.25 kg	-	-	-
	3,150 kg	-	-	-

5. Materials Purchase Budget

Particulars	Raw Materials	Direct Materials	Total
Budgeted Material Usage	14,380 kg	3,150 kg	
Add: Closing Stock	650 kg	260 kg	
Total	15,030 kg	3,410 kg	
Less: Opening Stock	(600 kg)	(400 kg)	
Budgeted Purchase Quantity	14,430 kg	3,010 kg	
Price of Materials	₹ 100 per kg	₹ 40 per kg	
Cost of Material Purchase	₹ 14,43,000	₹ 1,20,400	₹ 15,63,400

6. Direct Labour Budget (Notes: Hours per worker = 25 × 8 = 200)

Particulars	Product A	Product B	Product C	Total
Budgeted Production	12,600 units	3,400 units	1,600 units	17,600 units
Skilled Labour hours per unit	4	6	8	
Total Skilled DLH required (Budgeted Production × Skilled Labour hours per unit)	50,400	20,400	12,800	83,600
Cost of Skilled Labour at ₹ 6 p.h (Total Skilled DLH required × ₹ 6)	₹ 3,02,400	₹ 1,22,400	₹ 76,800	₹ 5,01,600
Skilled Workers Required = Total Skilled DLH required ÷ 200	252	102	64	418
Semi-Skilled Labour hours per unit	2	2	3	
Total Semi-Skilled DLH req. (Total Skilled DLH req. ÷ Semi-Skilled Lab hrs per unit)	25,200	6,800	4,800	36,800
Cost of Semi-Skilled Labour at ₹ 5 p.h (Total Semi-Skilled DLH required × ₹ 5)	₹ 1,26,000	₹ 34,000	₹ 24,000	₹ 1,84,000
Semi-Skilled Workers Required = Total Semi-Skilled DLH required ÷ 200	126	34	24	184
Total Lab. Cost = Cost of Skilled Lab. at ₹ 6 p.h + Cost of Semi-Skilled Lab. at ₹ 5 p.h	₹ 4,28,400	₹ 1,56,400	₹ 1,00,800	₹ 6,85,600
Total Workforce = Skilled Workers Required + Semi-Skilled Workers Required	378	136	88	602

Solution 16:

Expense Budget

Particulars	15,000 unit	18,000 unit
Direct Material	7,50,000	9,00,000
	(15,000 × 50)	(18,000 × 50)
Direct labour	3,00,000	3,60,000
	(15,000 × 20)	(18,000 × 20)
Variable Overhead	2,25,000	2,70,000
	(15,000 × 15)	(18,000 × 15)
Direct Expenses	90,000	1,08,000
	(15,000 × 6)	(18,000 × 6)
Selling Expenses Fixed	60,000	60,000
	(20,000 × 3)	(20,000 × 3)
Selling Expenses Variable	1,80,000	2,16,000
	(15,000 × 12)	(18,000 × 12)
Factory Expenses Fixed	1,40,000	1,40,000

	(20,000 × 7)	(20,000 × 7)
Administration Expenses Fixed	80,000	80,000
	(20,000 × 4)	(20,000 × 4)
Distribution Expenses Fixed	36,000	36,000
	(20,000 × 1.8)	(20,000 × 1.8)
Distribution Expenses Variable	1,53,000	1,83,600
	(15,000 × 10.20)	(18,000 × 10.20)
Total Expenses	20,14,000	23,53,600

Solution 18:

1. Number of days in budget period = 4 weeks × 5 days = 20 days
 Number of units to be produced

	Product-A (units)	Product-B (units)
Budgeted Sales	2,400	3,600
Add: Closing stock	480	900
$(\frac{2,400 \text{ units}}{20 \text{ Days}} \times 4 \text{ days})$ $(\frac{3,600 \text{ units}}{20 \text{ days}} \times 5 \text{ days})$	400	200
Less: Opening stock	2,480	4,300

(i) Material Purchase Budget

	Material-X (Kg.)	Material-Y (Kg.)
Material required: Product-A	12,400	9,920
Product-B	(2,480 units × 5 kg.) 12,900	(2,480 units × 4 kg.) 25,800
	(4,300 units × 3 kg.)	(4,300 units × 6 kg.)
Add: Closing stock $\frac{25,300 \text{ kgs}}{20 \text{ Days}} \times 10 \text{ days}$	25,300	35,720
$\frac{35,720 \text{ kgs}}{20 \text{ Days}} \times 6 \text{ days}$	12,650	10,716
	1,000	500
Less: Opening stock	36,950	45,936
Quantity to be purchased	₹ 4	₹ 6
Rate per kg. of Material		
Total Cost	₹ 1,47,800	₹ 2,75,616

(ii) Wages Budget

	Product-A (Hours)	Product-B (Hours)
Units to be produced	2,480 units	4,300 units
Standard hours allowed per unit	3	5
Total Standard Hours allowed	7,440	21,500
Productive hours required for production	7,440 hours = 9,300	21,500 hours = 26,875
	80%	80%
Add: Non-Productive down time	1,860 hours. (20% of 9,300 hours)	5,375 hours. (20% of 26,875 hours)
Hours to be paid	11,160	32,250

Total Hours to be paid = 43,410 hours (11,160 + 32,250)
 Hours to be paid at normal rate = 4 weeks × 40 hours × 180 workers
 Hours to be paid at premium rate = 28,800 hours
 = 43,410 hours – 28,800 hours = 14,610 hours
 Total wages to be paid = 28,800 hours × ₹ 25 + 14,610 hours × ₹ 37.5
 = ₹ 7,20,000 + ₹ 5,47,875 = ₹ 12,67,875

Solution 19:

Sales Overhead Budget (For the month January, February and March)

Month	January	February	March
Estimated Sales	₹90,000	₹1,35,000	₹1,60,000
Variable Overheads:			
Commission to counter salesmen @1% on their sales	₹800	₹1,200	₹1,400
Travelling salesmen's commission @10% on their sales	₹1,000	₹1,500	₹2,000
Travelling salesmen's expenses @5% on their sales	₹500	₹750	₹1,000
Total Variable overheads(A)	₹2,300	₹3,450	₹4,400
Fixed Overheads:			
Advertisement	₹2,500	₹2,500	₹2,500
Salaries of Sales Department	₹ 5,000	₹ 5,000	₹ 5,000
Expenses of Sales Department	₹ 1,500	₹ 1,500	₹ 1,500
Salaries etc. of counter salesmen	₹ 6,000	₹ 6,000	₹ 6,000
Total Fixed Overheads(B)	₹ 15,000	₹ 15,000	₹ 15,000
Total Sales Overheads (A) + (B)	₹ 17,300	₹ 18,450	₹ 19,400

Solution 20:

Maximum Capacity in a budget period

= 50 Employees × 8 HRS × 5 Days × 4 Weeks = 8,000 HRS

Budgeted Hours 40 Employees × 8 HRS × 5 Days × 4 Weeks = 6,400 HRS

Actual HRS = 6,000 HRS (given)

Standard HRS for Actual Output = 7,000 HRS

Budget No. of Days = 20 Days = 20 Days (4 Weeks × 5 Days)

Actual No. of Days = 20 - 1 = 19 Days

- Efficiency Ratio = $\frac{\text{Standard hours}}{\text{Actual hours}} \times 100 = \frac{7,000}{6,000} \times 100 = 116.67\%$
- Activity Ratio = $\frac{\text{Standard hours}}{\text{Budgeted hours}} \times 100 = \frac{7,000}{6,400} \times 100 = 109.375\%$
- Calendar Ratio = $\frac{\text{Available working days}}{\text{Budgeted working days}} \times 100 = \frac{19}{20} \times 100 = 95\%$
- Standard Capacity Usage Ratio = $\frac{\text{Budgeted hours}}{\text{Max. possible hours in the budgeted period}} \times 100 = \frac{6,400}{8,000} \times 100 = 80\%$
- Actual Capacity Usage Ratio = $\frac{\text{Actual hours worked}}{\text{Max. possible hours in a period}} \times 100 = \frac{6,000}{8,000} \times 100 = 75\%$
- Actual usage of Budgeted capacity Ratio = $\frac{\text{Actual working hours}}{\text{Budgeted hours}} \times 100 = \frac{6,000}{6,400} \times 100 = 93.75\%$

Solution 21:

1. (a) Production Quantity Budget (In units)

Particulars	Jan	Feb	March	April
Budgeted sales	10,000	12,000	14,000	15,000
Add: CI stock of FG=20% of next month sales	12,000 *20%=2,400	14,000*20%=2,800	15,000*20%=3,000	15,000*20%=3,000
Total	12,400	14,800	17,000	18,000
Less: Opening stock of FG	(2,700)	(2,400)	(2,800)	(3,000)
Budgeted Production	9,700	12,400	14,200	15,000

Note: Since Material Consumption is to be calculated till April, Production Budget is also prepared for April.

(b) Raw Material Consumption Quantity Budget

Particulars	Jan	Feb	March	April
Budgeted Production	9,700 units	12,400 units	14,200 units	15,000 units
Material X required at 4 kg pu [Budgeted Production × 4 kg]	38,800 kg	49,600 kg	56,800 kg	60,000 kg
Material Y required at 6 kg pu [Budgeted Production × 6 kg]	58,200 kg	74,400 kg	85,200 kg	90,000 kg

(b) Raw Materials Purchase Quantity Budget

Particulars	Raw Material X			Raw Material Y		
	Jan	Feb	March	Jan	Feb	March
Budgeted RM Usage	38,800 kg	49,600 kg	56,800 kg	58,200 kg	74,400 kg	85,200 kg
Add: Closing Stock of RM = 50% of next month usage	49,600 ÷ 2 = 24,800 kg	56,800 ÷ 2 = 28,400 kg	60,000 ÷ 2 = 30,000 kg	74,400 ÷ 2 = 37,200 kg	85,200 ÷ 2 = 42,600 kg	90,000 ÷ 2 = 45,000 kg
Total	63,600 kg	78,000 kg	86,800 kg	95,400 kg	1,17,000 kg	1,30,200 kg
Less: Opening Stock of RM	19,000 kg	24,800 kg	28,400 kg	29,000 kg	37,200 kg	42,600 kg
Budgeted Purchase	44,600 kg	53,200 kg	58,400 kg	66,400 kg	79,800 kg	87,600 kg

2. Calculation of Material Variances

Material	Standard for Actual			Actual		
	Quantity	Rate	Amount (₹)	Quantity	Rate	Amount (₹)
X	40,000 × 4 = 1,60,000	10	16,00,000	1,65,000	10.20	16,83,000
Y	40,000 × 6 = 2,40,000	15	36,00,000	2,38,000	15.10	35,93,800
Total	4,00,000		52,00,000	4,03,000		52,76,800

(a) Material Cost Variance = Standard Cost – Actual Cost

$$X = ₹ 16,00,000 - ₹ 16,83,000 = ₹ 83,000 (A)$$

$$Y = ₹ 36,00,000 - ₹ 35,93,800 = ₹ 6,200 (F)$$

$$₹ 76,800 (A)$$

Material Price Variance = (Standard Rate – Actual Rate) × Actual Quantity

$$X = (10 - 10.20) \times 1,65,000 = ₹ 33,000 (A)$$

$$Y = (15 - 15.10) \times 2,38,000 = ₹ 23,800 (A)$$

$$₹ 56,800 (A)$$

Material Usage Variance = (Standard quantity for Actual output – Actual Quantity) × Standard Rate

$$X = (1,60,000 - 1,65,000) \times 10 = ₹ 50,000 (A)$$

$$Y = (2,40,000 - 2,38,000) \times 15 = ₹ 30,000 (F)$$

$$₹ 20,000 (A)$$

Verification:

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

$$= ₹ 20,000 (A) + ₹ 56,800 (A)$$

$$= ₹ 76,800 (A)$$

(c) Calculation of Labour Variances:

Budgeted output for the quarter = 36,300 units

Budgeted direct labour hours = 36,300 × ¾ hours = 27,225 hours

$$\text{Standard or Budgeted labour rate per hour} = \frac{\text{Budgeted direct labour cost}}{\text{Budgeted direct labour hours}}$$

$$= \frac{₹ 10,89,000}{27,225 \text{ hours}} = ₹ 40$$

Standard labour hours for actual output = 40,000 units × ¾ hour = 30,000 hours

$$\text{Actual labour hour rate} = \frac{₹ 13,12,000}{32,000 \text{ hours}} = ₹ 41$$

Direct Labour Efficiency Variance = Standard Rate × (Standard hours – Actual hours)

$$= ₹ 40 \times (30,000 - 32,000)$$

$$= ₹ 80,000 (A)$$

Direct Labour Rate Variance = Actual hours × (Standard Rate – Actual Rate)

$$= 32,000 \times (40 - 41)$$

$$= ₹ 32,000 (A)$$

Direct Labour Cost Variance = (Standard rate × Standard hours) – (Actual rate × Actual hours)

$$= (40 \times 30,000) - (41 \times 32,000)$$

$$= 12,00,000 - 13,12,000$$

= 1,12,000 (A)

Verification:

Direct Labour Cost Variance = Direct Labour Efficiency Variance + Direct Labour Rate Variance

= ₹ 80,000 (A) + ₹ 32,000 (A)

= 1,12,000 (A)

Solution 22:

Master budget for the year ending

Sales			(₹)
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 × ₹ 150 × 12months)		36,000	
Prime Cost		5,16,000	
Fixed Factory Overhead:			
Works manager's salary (500 × 12)	6,000		
Foreman's salary (400 × 12)	4,800		
Depreciation	12,600		
Light and power (assumed fixed)	3,000	26,400	
Variable Factory Overhead:			
Stores and spares	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: Adm., selling and distribution expenses			36,000
Net Profit			1,90,000

Solution 23:

1. Production Budget for product P: (in bags) Budgeted Production = Sales + Desired Closing Stock – Available Opening Stock = 50,000 + 11,000 – 15,000 = 46,000 bags

2. Raw Materials Budget

Particulars	Material Q	Material R	Empty Bags
Raw Materials required	2.5 kgs per bag	7.5 kgs per bag	1 bag
Budgeted Usage	46,000 × 2.5 = 1,15,000 kg	46,000 × 7.5 = 3,45,000 kg	46,000 × 1 = 46,000 bags
Add: Desired Closing Stock	26,000 kg	47,000 kg	28,000 bags
Total	1,41,000 kg	3,92,000 kg	74,000 bags
Less: Opening Stock	32,000 kg	57,000 kg	37,000 bags
Budgeted Purchase Quantity	1,09,000 kg	3,35,000 kg	37,000 bags
Purchase Price	₹ 1.20 per kg	₹ 0.20 per kg	₹ 0.80 per bag
Cost of Purchase	₹ 1,30,800	₹ 67,000	₹ 29,600
Total Cost of Purchase [Materials (Q + R) + Empty Bags]	₹ 2,27,400		

3. Computation of Variable Manufacturing Costs per bag

Particulars	₹
Direct Materials {Q – 2.5 kgs × ₹ 1.20 per kg}	₹ 3.00
{R – 7.5 kgs × ₹ 0.20 per kg}	₹ 1.50
Cost of Empty Bag {1 bag × ₹ 0.80}	0.80
Direct Labour {9 minutes × ₹ 5 per hour = $\frac{9}{60} \times ₹ 5$ }	0.75
Variable Manufacturing OH	0.45
Total Variable Manufacturing Costs per bag	6.50

4. Budgeted Net Income: (for 50,000 bags sold)

Particulars	Par Bag (₹)	Total (₹)
Sales Revenue	9.00	4,50,000
Less: Variable Costs: Manufacturing	6.50	3,25,000
Selling & Administration (5% of Sale price)	0.45	22,500
Contribution	2.05	1,02,500
Less: Fixed Costs (Manufacturing + Selling & Administration)		55,000
Budgeted Net Profit		47,500

Solution 24:

(i) (A) Production Budget (in units) for the year ended 31st March 2018

Particulars	Product A	Product B
Budgeted sales (units)	36,000	16,700
Add: increase in closing stock	860	400
No. of good units to be produced	36,860	17,100
Post production rejection rate	3%	5%
No. of units to be produced	38,000	18,000
	<u>36,860</u>	<u>17,100</u>
	0.97	0.95

(B) Purchase budget (in kgs and value) for Material C

Particulars	Product A	Product B
No. of units to be produced	38,000	18,000
Usage of Material C per unit of production	4 kg.	5 kg.
Material needed for production	1,52,000 kg	90,000 kg
Materials to be purchased	1,60,000 kg.	93,750 kg
Total quantity to be purchased	2,53,750 kg	
Rate per kg. of Material C	₹ 45	
Total Purchase Price	₹ 1,14,18,750	

(ii) Calculation of Economic Order Quantity for Material C

$$EOQ = \sqrt{\frac{2 \times 2,53,750 \times ₹250}{45 \times 9\%}} = \sqrt{\frac{12,68,75,000}{4.05}} = 5,597 \text{ kg. (approx)}$$

Solution 25:

(i) Production Budget (month wise) for the first quarter of the year 2015 – 16:

Particulars	April	May	June
Product xml			
Current month sales	8,000	10,000	12,000
+ Closing stock (25% of next month)	2,500 (10,000 x 25%)	3,000 (12,000 x 25%)	4,000 (16,000 x 25%)
- Opening stock	(2,000)	(2,500)	(3,000)
Production for the month	8,500	10,500	10,500
Product yml			
Month sales	6,000	8,000	9,000
+ Closing stock (25% of next month)	2,000 (8,000 x 25%)	2,250 (9,000 x 25%)	3,500 (14,000 x 25%)
- Opening stock	(1,500)	(2,000)	(2,250)
	6,500	8,250	10,250

(ii) Production cost budget (for first quarter) of the year 2015 – 16:

Particulars	Xml	Yml
Total production for the quantity (units)	32,000	25,000
	(8,500 + 10,500 + 13,000)	(6,500 + 8,250 + 10,250)
Direct material per unit	220	280

Direct labour per unit	130	120
Direct manufacturing exp.	2 (4,00,000 / 2,00,000)	3.33 (5,00,000 / 1,50,000)
Total cost per unit	352	403.33
Total production cost	1,12,64,000 (32,000 x 352)	1,00,83,250 (25,000 x 403.33)

Note:

- 1) Direct manufacturing expenses given is assumed as for to be budgeted production i.e., 2,00,000 & 1,50,000 for xml and yml given in the question.
- 2) There are no opening stock of finished goods at the beginning of the year 2015 – 16.

Solution 26:

(1) Production Budget

Particulars	I	II	III	IV	Total
Sales	30,000	37,500	41,250	45,000	1,53,750
+ cl. stock	11,500	12,250	13,000	16,250	16,250
- op. stock	10,000	11,500	12,250	13,000	10,000
Produced	31,500	38,250	42,000	48,200	1,60,000
80% of CY	24,000	30,000	33,000		
+ 20% of NY	+ 7,500	8,250	9,000		

- Year ka opening first Quarter ka bhi opening hota hai.
- Year ka closing last quarter ka bhi closing hota hai.

(2) Raw material consumption budget

Particulars	I	II	III	IV	Total
Produced units x 2 kg	31,500 x 2	38,250 x 2	42,000 x 2	48,250 x 2	1,60,000 x 2
RM consumed	63,000	76,500	84,000	96,500	3,20,000

(3) Raw material purchase budget

Particulars	I	II	III	IV	Total
Consumed	63,000	76,500	84,000	96,500	3,20,000
+ Cl. stock	41,500	1,22,500	1,01,500	5,000	5,000
- op. stock	10,000	41,500	1,22,500	1,01,500	10,000
Purchased	94,500	1,57,500	63,000	-	3,25,000
	30%	50%	20%		
x Rate	x 2	x 3	x 4		
	1,89,000	4,72,500	2,52,000		9,13,500

Store ledger (FIFO)

Quarter	Particulars	Receipts			Issues			Balance		
		Qty.	@	Amount	Qty.	@	Amount	Qty.	@	Amount
I	Op. stock	-	-	-	-	-	-	10,000	2	20,000
	Purchase	94,500	2	1,89,000	-	-	-	10,000	2	20,000
								94,500	2	1,89,000
	Issues (consumes)				10,000	2	20,000			
					53,000	2	1,06,000	41,500	2	83,000
II	Purchase	1,57,500	3	4,72,500				1,57,500	3	4,72,500
	Issues (consumes)				41,500	2	83,000			
					35,000	3	1,05,000	1,22,500	3	3,67,500
III	Purchase	63,000	4	2,52,000				63,000	4	2,52,000
	Issues (consumes)				84,000	3	2,52,000	38,500	3	1,15,500
								63,000	4	2,52,000

	Issues (consumes)				38,500	3	1,15,500			
	Issues (consumes)				58,000	4	2,32,000	5,000	4	20,000

Solution 27:

(i) Production Budget of 'X' for the Second Quarter

Particulars	Bags (Nos.)
Budgeted Sales	1,50,000
Add: Desired Closing stock	33,000
Total Requirements	1,83,000
Less: Opening stock	(45,000)
Required Production	1,38,000

(ii) Raw-Materials Purchase Budget in Quantity as well as in ₹ for 1,38,000 Bags of 'X'

Particulars	'Y' Mtr.	'Z' Mtr.	Empty Bags Nos.
Production Requirements	2.5	7.5	1.0
Per bag of 'X'	3,45,000	10,35,000	1,38,000
Requirement for Production	(1,38,000 × 2.5)	(1,38,000 × 7.5)	(1,38,000 × 1)
Add: Desired Closing Stock	78,000	1,41,000	84,000
Total Requirements	4,23,000	11,76,000	2,22,000
Less: Opening Stock	(96,000)	(1,71,000)	(1,11,000)
Quantity to be purchased	3,27,000	10,05,000	1,11,000
Cost per mtr./Bag	₹ 160	₹ 30	₹ 110
Cost of Purchase (₹)	5,23,20,000	3,01,50,000	1,22,10,000

(iii) Computation of Budgeted Variable Cost of Production of 1 Bag of 'X'

Particulars	(₹)
Raw – Material	
Y 2.5 mtr @160	400.00
Z 7.5 mtr @30	225.00
Empty Bag	110.00
Direct Labour (₹ 70× 9 minutes / 60 minutes)	10.50
Variable Manufacturing Overheads	60.00
Variable Cost of Production per bag	805.50

Solution 28:

Expense Budget

	50%	60%
Units	30,000	36,000
x Sales price	x 200	x 200
	60,00,000	72,00,000
Less: Expenses	22,50,000	29,70,000
Material		
Wages	7,50,000	9,90,000
Variable O/H	7,50,000	9,90,000
D.E.	4,50,000	5,94,000
Factory Expense		
Variable	4,50,000	5,94,000
Fixed	1,50,000	2,07,000
Selling Expense		
Variable	2,40,000	3,16,800
Fixed	60,000	82,800
Office Expense		
Fixed	1,50,000	2,07,000

Profit	7,50,000	2,48,400
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Solution 29:

(i) Calculation of Budgeted profit for the FY 2019-20

	60,000 units	
	Per unit (₹)	Amount (₹)
Sales (A)	800.00	4,80,00,000
Variable Costs:		
- Direct Material	300.00	1,80,00,000
- Direct Wages	100.00	60,00,000
- Variable Overheads	100.00	60,00,000
- Direct Expenses	60.00	36,00,000
- Variable factory expenses (75% of ₹ 80 p.u.)	60.00	36,00,000
- Variable Selling & Dist. exp. (80% of ₹ 40 p.u.)	32.00	19,20,000
Total Variable Cost (B)	652.00	3,91,20,000
Contribution (C) = (A - B)	148.00	88,80,000
Fixed Costs:		
- Office and Admin. exp. (100%)	--	12,00,000
- Fixed factory exp. (25%)	--	12,00,000
- Fixed Selling & Dist. exp. (20%)	--	4,80,000
Total Fixed Costs (D)	--	28,80,000
Profit (C - D)	--	60,00,000

(ii) Expense Budget of P Ltd. for the FY 2020-21 at 50% & 60% level

	60,000 units		72,000 units	
	Per unit (₹)	Amount (₹)	Per unit (₹)	Amount (₹)
Sales (A)	880.00	5,28,00,000	880.00	6,33,60,000
Variable Costs:				
- Direct Material	360.00	2,16,00,000	360.00	2,59,20,000
- Direct Wages	120.00	72,00,000	120.00	86,40,000
- Variable Overheads	120.00	72,00,000	120.00	86,40,000
- Direct Expenses	72.00	43,20,000	72.00	51,84,000
- Variable factory expenses (75% of ₹ 80 p.u.)	72.00	43,20,000	72.00	51,84,000
- Variable Selling & Dist. exp. (80% of ₹ 40 p.u.)	38.40	23,04,000	38.40	27,64,800
Total Variable Cost (B)	782.40	4,69,44,000	782.40	5,63,32,800
Contribution (C) = (A - B)	97.60	58,56,000	97.60	70,27,200
Fixed Costs:				
- Office and Admin. exp. (100%)	--	13,80,000	--	13,80,000
- Fixed factory exp. (25%)	--	13,80,000	--	13,80,000
- Fixed Selling & Dist. exp. (20%)	--	5,52,000	--	5,52,000
Total Fixed Costs (D)	--	33,12,000	--	33,12,000
Profit (C - D)	--	25,44,000	--	37,15,200

Solution 30:

Statement of Flexible Budget, Profit and Contribution at 85% Capacity Level (85,000 units) (In ₹)

Particulars	Cost based on previous year	Increase in Cost	Total Cost
Variable Costs:			

BUDGETARY COSTING SOLUTION

Direct Materials	17,00,000	8% of ₹ 17,00,000	18,36,000
Direct Labour	8,50,000	1,36,000	8,92,500
Variable Factory Overheads	1,70,000	5% of ₹ 8,50,000	1,78,500
Variable Selling Overheads	3,40,000	42,500 5% of ₹ 1,70,000 8,500 8% of ₹ 3,40,000 27,200	3,67,200
Total Variable Costs (A)			32,74,200
Fixed Costs:			
Fixed Factory Overheads Fixed	2,00,000	10% of ₹ 2,00,000	2,20,000
Selling Overheads Administrative	1,00,000	20,000	1,15,000
Overheads	1,60,000	15% of ₹ 1,00,000 15,000 10% of ₹ 1,60,000 16,000	1,76,000
Total Fixed Costs (B)			5,11,000
Total Costs (A) + (B)			37,85,200
Add: Profit (20% of sales = 25% on Costs)			9,46,300
Sales Revenue			47,31,500
Less: Total Variable Costs			32,74,200
Contribution			14,57,300

Working Notes:

Computation of Fixed and Variable OH

(In ₹)

Capacity in % and unit	55% (55,000 units)	65% (65,000 units)	75% (75,000 units)	85% (85,000 units)
Direct Materials	11,00,000	13,00,000	15,00,000	17,00,000
Direct Labour	5,50,000	6,50,000	7,50,000	8,50,000
Variable Factory OH (`3,30,000-`3,10,000)÷10,000 units=`2 p.u.	1,10,000	1,30,000	1,50,000	1,70,000
Variable Selling OH (`3,30,000-`3,10,000)÷10,000 units=`2 p.u.	2,20,000	2,60,000	3,00,000	3,40,000
Fixed Factory OH (Total Factory OH - Variable Factory OH)	2,00,000	2,00,000	2,00,000	2,00,000
Fixed Selling OH (Total Selling OH - Variable Selling OH)	1,00,000	1,00,000	1,00,000	1,00,000

Solution 32:

(1) Statement of Cost

	For first 6 months	For further 3 months	For remaining 3 months	Total
	6,00,000 x 6/12 x 50% = 1,50,000 units	6,00,000 x 3/12 x 75% = 1,12,500 units	6,00,000 x 3/12 = 1,50,000 units	4,12,500 units
Direct Material	90,00,000	67,50,000	90,00,000	2,47,50,000
Direct labour	45,00,000	33,75,000	45,00,000	1,23,75,000
Indirect – Variable Expenses	22,50,000	16,87,500	22,50,000	61,87,500
Indirect – Fixed Expenses	32,75,000	16,37,500	16,37,500	65,50,000
Indirect Semi-variable expenses				
- For first six months @ 5,00,000 per annum	2,50,000			

- For further three months @ 6,50,000* per annum		1,62,500		
- For further three months @ 8,50,000** per annum			2,12,500	6,25,000
Total Cost	1,92,75,000	1,36,12,500	1,76,00,000	5,04,87,500
Desired Profit				25,00,000
Sales value				5,29,87,500
Average Sales price per Toy				128.45

* ₹ 5,00,000+ [3 times (from 60% to 75%) x 50,000] = ₹ 6,50,000

** ₹ 6,50,000+ [1 time (from 75% to 80%) x 50,000] + [2 times (from 80% to 100%) x 75,000] = ₹ 8,50,000

(2) (a) Company Should accept the offer as it is above its targeted sales price of ₹ 128.45 per toy.

(b) Company Should accept the offer as it is above its targeted sales price of ₹ 128.45 per toy.

Solution 33:

Statement of flexible budget and profit per quarter at 2,50,000, 4,00,000 and 5,00,000 units of output levels per quarter

Particulars	Present	Proposal I	Proposal II
Units (to be sold)	2,50,000	4,00,000	5,00,000
Sales revenue (A)	₹ 45,00,000 (2,50,000 units × ₹ 18)	₹ 72,00,000 (4,00,000 units × ₹ 18)	₹ 80,00,000 (5,00,000 units × ₹ 16)
Variable costs:			
Direct materials	12,50,000 (2,50,000 units × ₹ 5)	20,00,000 (4,00,000 units × ₹ 5)	24,75,000 (5,00,000 unit × ₹4.95)
Direct labour @ 2/- per unit	5,00,000	8,00,000	10,00,000
Factory overheads @ 3/- per unit	7,50,000	12,00,000	15,00,000
Selling & Administration overheads	2,50,000 (2,50,000 units × Re.1)	4,00,000 (4,00,000 units × Re.1)	5,25,000 (5,00,000 unit × ₹1.05)
Total Variable Costs (B)	27,50,000	44,00,000	55,00,000
Contribution (C) = [(A) – (B)]	17,50,000	28,00,000	25,00,000
Fixed Costs:			
Factory Overhead	9,00,000	9,00,000	9,00,000
Selling & Administration overheads	6,00,000	6,00,000	6,00,000
Increase in fixed costs	-	4,00,000	6,00,000*
Advertisements costs	-	2,00,000	-
Total fixed costs (D)	15,00,000	21,00,000	21,00,000
Profit [(C) – (D)]	2,50,000	7,00,000	4,00,000

*Under proposal II the fixed factory costs were increased by ₹ 2,00,000 more over proposal I.

Solution 34:

Statement showing Sales Budget for 2015 – 16:

Division	Product X			Product Y			Total
	Qty.	Rate (₹)	Amount (₹)	Qty.	Rate (₹)	Amount (₹)	
East	500 (1)	10	5,000	400 (3)	20	8,000	13,000
West	700 (2)	10	7,000	600 (4)	20	12,000	19,000
Total	1,200		12,000	1,000		20,000	32,000

Workings:

(1) 400 x 110% + 60

= 500 units

(2) 600 x 105% + 70

= 700 units (3)

300 x 120% + 40

= 400 units

(4) 500 x 110% + 50 = 600 units

Statement showing Sales Budget for 2014 – 15:

Division	Product X			Product Y			Total
	Qty.	Rate (₹)	Amount (₹)	Qty.	Rate (₹)	Amount (₹)	
East	400	9	3,600	300	21	6,300	9,900
West	600	9	5,400	500	21	10,500	15,900
Total	1,000		9,000	800			25,800

Statement showing Actual sales for 2014 – 15:

Division	Product X			Product Y			Total
	Qty.	Rate (₹)	Amount (₹)	Qty.	Rate (₹)	Amount (₹)	
East	500	9	4,500	200	21	4,200	8,700
West	700	9	6,300	400	21	8,400	14,700
Total	1,200		10,800	6000		12,600	23,400

Solution 35:

Indirect manufacturing cost	Nature of cost (1)	Expenses for a normal month (₹) (2)	Planned expenses	Expenses as per flexible budget (₹) (4)	Actual expenses (₹) (5)	Difference (₹) (6) = (5) - (4)
Salary of foreman	Fixed	1,000	1,000	1,000	1,000	Nil
Indirect labour (WN 1)	Variable	720	900	540	600	60
Indirect material (WN 2)	Variable	800	1,000	600	700	100
Repair and maintenance (WN 3)	Semi -	600	650	550	600	50
	Variable					
Power (WN 4)	Semi - Variable	800	875	725	740	15
Tools consumed (WN 5)	Variable	320	400	240	300	60
Rates and taxes	Fixed	150	150	150	150	Nil
Depreciation	Fixed	800	800	800	800	Nil
Insurance	Fixed	100	100	100	100	Nil
		5,290	5,875	4,705	4,990	285

Conclusion: The above statement of flexible budget shows that the concern's expenses in the month of January have increased by ₹ 285 as compared to flexible budget. Under such circumstances assuming the expenses are controllable and based on the financial perspective the Foreman of the company may not be entitled for any performance bonus for the month of January.

Working notes:

- Indirect labour cost per unit ₹ 720 / 8,000 ₹ = ₹ 0.09 Indirect labour for 6,000 units = 6,000 × ₹ 0.09 = ₹ 540.
- Indirect material cost per unit 800 / 8,000 ₹ = ₹ 0.10
Indirect material for 6,000 units = 6,000 × ₹ 0.10 = ₹ 600
- According to high and low point method of segregating semi-variable cost into fixed and variable components, following formulae may be used.

$$\text{Variable cost of repair and maintenance per unit} = \frac{\text{Change in expensive level}}{\text{Change in output level}} = \frac{650 - 600}{2,000} = 0.025$$

For 8,000 units

Total Variable cost of repair and maintenance = ₹ 200

Fixed repair & maintenance cost = ₹ 400

Hence at 6,000 units output level, total cost of repair and maintenance

should be = ₹ 400 + ₹ 0.025 × 6,000 units = ₹ 400 + ₹ 150 = ₹ 550

4. Variable cost of power per unit = $\frac{875 - 800}{2,000 \text{ units}} = 0.0375$

For 8,000 units

Total variable cost of power = ₹ 300

Fixed cost = ₹ 500

Hence, at 6,000 units output level, total cost of power

should be = ₹ 500 + ₹ 0.0375 × 6,000 units = ₹ 500 + ₹ 225 = ₹ 725

5. Tools consumed cost for 8,000 units = ₹ 320

Hence, tools consumed cost for 6,000 units = (₹ 320/8,000 units) × 6,000 units = ₹ 240

Solution 36:

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

$$75\% = \frac{\text{Actual hours}}{6,000 \text{ units} \times 4 \text{ hour per unit}}$$

$$0.75 = \frac{\text{Actual hours}}{24,000 \text{ hours}}$$

Actual Hours = 18,000 hours

Efficiency Ratio = $\frac{\text{Actual Output in term of Standard Hours}}{\text{Actual working hours}} \times 100$

$$= \frac{5,000 \text{ units} \times 4 \text{ hours per unit}}{18,000 \text{ hours}} \times 100$$

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

Activity Ratio = $\frac{\text{Actual Output in term of Standard Hours}}{\text{Budgeted output in terms of standard hours}} \times 100$

$$= \frac{20,000 \text{ units}}{6,000 \text{ units} \times 4 \text{ hour per unit}} \times 100$$

$$= \frac{20,000 \text{ units}}{24,000 \text{ units}} \times 100 = 83.33\%$$

Solution 37:

Maximum Capacity in a budget period

= 50 Employees × 8 Hrs. × 5 Days × 4 Weeks = 8,000 Hrs.

Budgeted Hours

40 Employees × 8 Hrs. × 5 Days × 4 Weeks = 6,400 Hrs.

Actual Hrs. = 6,000 Hrs. (given)

Standard Hrs. for Actual Output = 7,000 Hrs.

Budget No. of Days = 20 Days = 20 Days (4 Weeks × 5 Days)

Actual No. of Days = 20 - 1 = 19 Days

$$1. \text{ Efficiency Ratio} = \frac{\text{Standard Hrs.}}{\text{Actual Hrs.}} \times 100 = \frac{7,000 \text{ hours}}{6,000 \text{ hours}} \times 100 = 116.67\%$$

$$2. \text{ Activity Ratio} = \frac{\text{Standard Hrs.}}{\text{Budgeted Hrs.}} \times 100 = \frac{7,000 \text{ hours}}{6,400 \text{ hours}} \times 100 = 109.375\%$$

$$3. \text{ Calendar Ratio} = \frac{\text{Available working days}}{\text{Budgeted working days}} \times 100 = \frac{19 \text{ Days}}{20 \text{ Days}} \times 100 = 95\%$$

$$4. \text{ Standard Capacity Usage Ratio} = \frac{\text{Budgeted hours}}{\text{Max. possible in the budgeted period}} \times 100$$

$$= \frac{6,400 \text{ hours}}{8,000 \text{ hours}} \times 100 = 80\%$$

$$5. \text{ Actual Capacity Usage Ratio} = \frac{\text{Actual hours worked}}{\text{Max. possible working hours in a period}} \times 100$$

$$= \frac{6,000 \text{ hours}}{6,400 \text{ hours}} \times 100 = 75\%$$

$$6. \text{ Actual Usage of Budgeted Capacity Ratio} = \frac{\text{Actual working hours}}{\text{Budgeted Hours}} \times 100$$

$$= \frac{6,000 \text{ hours}}{6,400 \text{ hours}} \times 100 = 93.75\%$$

Solution 38:

1. Statement showing contribution

Sub assemblies	ABC (₹)	MCB (₹)	DP (₹)	Total (₹)
Selling price per unit (p.u.): (A)	520	500	350	
Marginal cost p.u.				
Components				
- Base Board	60	60	60	
- IC08	160	40	40	
- IC12	48	120	48	
- IC26	16	48	64	
Labour				
- Grade A	40	30	20	
- Grade B	64	48	32	
Variable production overhead	36	24	24	
Total marginal cost p.u. : (B)	474	370	288	
Contribution p.u. : (C) = (A) - (B)	96	130	62	
Sales ratio: (D)	3	4	2	
Contribution x sales ratio: [(E) = (C) x (D)]	288	520	124	932

2. Desired Contribution for the forthcoming month December, 20X9

Particulars	(₹)
Fixed overheads	7,57,200
Desired profit	12,00,000
Desired contribution	19,57,200

3. Sales mix required i.e. number of batches for the forthcoming month December, 20X9

Sales mix required = Desired contribution / contribution × Sales ratio

= ₹ 19,57,200 / 932 (Refer to Working notes 1 and 2)

= 2,100 batches

Budgets for December, 20X2

(a) Sales budget in quantity and value

Sub-assemblies	ACB	MCB	DP	Total
Sales (quantity) (2,100 x 3:4:2) (Refer to working note 3)	6,300	8,400	4,200	
Selling price p.u. (₹)	520	500	350	
Sale value (₹)	32,76,000	42,00,000	14,70,000	89,46,000

(b) Production budget in quantity

Sub-assemblies	ACB	MCB	DP
Sales	6,300	8,400	4,200
Add: Closing stock (Opening stock less 10%)	720	1,080	2,520
Total quantity required	7,020	9,480	6,720
Less: Opening stock	800	1,200	2,800
Production	6,220	8,280	3,920

(c) Component usage budget in quantity

Sub-assemblies	ACB	MCB	DP	Total
Production	6,220	8,280	3,920	-
Base board (1 each)	6,220	8,280	3,920	18,420
Component IC08 (8:2:2)	49,760 (6,220x 8)	16,560 (8,280x 2)	7,840 (3,920 x 2)	74,160
Component IC12 (4:10:4)	24,880 (6,220x4)	82,800 (8,280x10)	15,680 (3,920x 4)	1,23,360
Component IC26 (2:6:8)	12,440 (6,220x2)	49,680 (8,280x6)	31,360 (3,920x 8)	93,480

(d) Component Purchase budget in quantity and value

Sub-assemblies	Base Board	IC08	IC12	IC26	Total
Usage in production	18,420	74,160	1,23,360	93,480	

Add: Closing stock (Opening stock less 10%)	1,440	1,080	5,400	3,600	
	19,860	75,240	1,28,760	97,080	
Less: Opening stock	1,600	1,200	6,000	4,000	
Purchase (Quantity)	18,260	74,040	1,22,760	93,080	
Purchase price (₹)	60	20	12	8	
Purchase value (₹)	10,95,600	14,80,800	14,73,120	7,44,640	47,94,160

(e) Manpower budget showing the number of workers and the amount of wages payable

Sub-Assemblies	Budgeted production	Grade A		Grade B		Total
		Hours per unit	Total hours	Hours per unit	Total hours	
ACB	6,220	8	49,760	16	99,520	
MCB	8,280	6	49,680	12	99,360	
DP	3,920	4	15,680	8	31,360	
(A) Total hours			1,15,120		2,30,240	
(B) Hours per man per month			200		200	
(C) Number of workers per month : (A/B)			576		1,152	
(D) Wage rate per month (₹)			1,000		800	
(E) Wages payable (₹) : (C × D)			5,76,000		9,21,600	14,97,600

Solution 40:

(i) Product-wise Profitability Statement for the FY 2019-20:

Particulars	Product-X (₹)	Product-Y (₹)	Total (₹)
Output (units)	8,000	4,000	
Selling price per unit	600	550	
Sales value	48,00,000	22,00,000	70,00,000
Direct material	11,20,000 (₹ 140×8,000)	6,30,000 (₹ 157.50×4,000)	17,50,000
Direct wages	7,20,000 (₹ 90×8,000)	5,30,000 (₹ 132.5×4,000)	12,50,000
Variable factory overheads	5,47,200 (76%of 7,20,000)	4,02,800 (76%of 5,30,000)	9,50,000
Other variable costs	3,20,000 (₹ 40×8,000)	2,80,000 (₹ 70×4,000)	6,00,000
Contribution	20,92,800	3,57,200	24,50,000
Fixed factory overheads	-	-	12,00,000
Other fixed costs	-	-	4,00,000
Profit			8,50,000

(ii) Preparation of Budget for the FY 2020-21:

Particulars	Product-X (₹)	Product-Y (₹)	Total (₹)
Output (units)	6,400 (8,000×80%)	3,600 (4,000×90%)	
Selling price per unit	480 (600×80%)	440 (550×80%)	
Sales value	30,72,000	15,84,000	46,56,000
Direct material	8,96,000 (₹ 140×6,400)	5,67,000 (₹ 157.50×3,600)	14,63,000
Direct wages per unit	6,91,200 (₹ 108×6,400)	5,72,400 (₹ 159×3,600)	12,63,600
Variable factory overheads	5,25,312 (76%of 6,91,200)	4,35,024 (76%of 5,72,400)	9,60,336
Other variable costs	2,56,000	2,52,000	5,08,000

	(₹ 40×6,400)	(₹ 70×3,600)	
Contribution	7,03,488	(2,42,424)	4,61,064
Fixed factory overheads	-	-	12,00,000
Other fixed costs (110% of ₹ 4,00,000)	-	-	4,40,000
Profit/ (Loss)			(11,78,936)

Solution 41:

(i) Statement of Flexible Budget for the both the products:

Particulars	Product X (₹)		Product Y (₹)	
	Before new proposal	After new proposal	Before new proposal	After new proposal
Sales unit	2,000	2,200 (110% of 2,000)	2,500	2,750 (110% of 2,500)
Sales price per unit	140	140	200	200
Sales Value (A)	2,80,000	3,08,000	5,00,000	5,50,000
Variable cost:				
Raw material	60,000 (30 x 2,000)	66,000 (30 x 2,200)	1,00,000 (40 x 2,500)	1,10,000 (40 x 2,750)
Direct labour	40,000 (20 x 2,000)	44,000 (20 x 2,200)	35,000 (14 x 2,500)	38,500 (14 x 2,750)
Variable overhead	30,000 (15 x 2,000)	39,600 (15 x 120% x 2,200)	25,000 (10 x 2,500)	30,250 (10 x 110% x 2,750)
Total variable cost (B)	1,30,000	1,49,600	1,60,000	1,78,750
Fixed cost (C)	50,000	66,000	60,000	77,000
Profit (A - (B+C))	1,00,000	92,400	2,80,000	2,94,250

(ii) Advise:

- If both the products are independent then the proposal for Product-Y is accepted as the profit for the Product-Y is increased to ₹ 2,94,250 from ₹ 2,80,000.
- If both the products are not independent then the proposal for both the products is accepted as profit for both the products will increase to ₹ 3,86,650 from ₹ 3,80,000.

Solution 42:

Budget Showing Current Position and Position for 2020-21

	Position for 2019-20			Position for 2020-21			
	A	B	Total (A+B)	A	B	C	Total (A+B+C)
Sales (units)	2,00,000	1,00,000	-	1,50,000	50,000	2,00,000	-
	(₹)	(₹)	(₹)	(₹)	(₹)	(₹)	(₹)
(A) Sales	64,00,000	56,00,000	1,20,00,000	48,00,000	28,00,000	56,00,000	1,32,00,000
Direct Material	16,00,000	12,00,000	28,00,000	12,00,000	6,00,000	12,80,000	30,80,000
Direct wages	8,00,000	8,00,000	16,00,000	6,00,000	4,00,000	8,00,000	18,00,000
Factory overhead (variable)	8,00,000	8,00,000	16,00,000	6,00,000	4,00,000	8,00,000	18,00,000
Other variable costs	800,000	4,80,000	12,80,000	6,00,000	240,000	8,00,000	16,40,000
(B) Marginal Cost	40,00,000	32,80,000	72,80,000	30,00,000	16,40,000	36,80,000	83,20,000
(C) Contribution (A-B)	24,00,000	23,20,000	47,20,000	18,00,000	11,60,000	19,20,000	48,80,000
Fixed costs							
- Factory			16,00,000				16,00,000
- Others			12,80,000				12,80,000
(D) Total fixed cost			28,80,000				28,80,000

Profit (C – D)	18,40,000	20,00,000
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Comments: Introduction of Product C is likely to increase profit by ₹ 1,60,000 (i.e. from ₹ 18,40,000 to ₹ 20,00,000) in 2020-21 as compared to 2019-20 even if the demand for Product A & B falls. Therefore, introduction of product C is recommended.

Solution 43:

Workings

Statement showing “Total Variable Cost for the year”

Particulars	Amount (₹)
Estimated Sales Revenue	1,51,20,000
Less: Desired Profit Margin on Sale @ 20%	30,24,000
Estimated Total Cost	1,20,96,000
Less: Fixed Selling and Distribution Overheads	34,56,000
Total Variable Cost	86,40,000

Statement showing “Variable Cost per Unit”

Particulars	Variable Cost p.u. (₹)
Direct materials:	
A: 6 Kg. @ ₹ 80 per Kg.	480
B: 3 Kg. @ ₹ 50 per Kg.	150
Labour Cost:	
Machine Shop: 4 hrs. @ ₹ 70 per hour	280
Assembly Shop: 2 hrs. @ ₹ 35 per hour	70
Factory Overheads: 20% of (₹ 280 + ₹ 70)	70
Variable Selling & Distribution Expenses	30
Total Variable Cost per unit	1,080

Calculation of number of units of product proposed to be sold and selling price per unit:

Number of units sold = Total Variable cost/Variable cost per unit
 = ₹ 86,40,000 / ₹1,080 = ₹ 8,000 units

Selling price per unit = Total Sales Value/ Number of Units Sold
 = ₹ 1,51,20,000 / 8,000 units = ₹ 1,890

Production Budget (Units)

Particulars	Units
Budgeted Sales	8,000
Add: Closing Stock	3,000
Total requirements	11,000
Less: Opening Stock	(2,500)
Required Production	8,500

Materials Purchase Budget (Kg.)

Particulars	Material A	Material B
Requirement for production	51,000 (8,500 units x 6 kg.)	25,500 (8,500 units x 3 kg.)
Add: Desired Closing Stock	8,000	5,500
Total Requirements	59,000	31,000
Less: Opening Stock	(7,500)	(4,000)
Quantity to be purchased	51,500	27,000