

MANAGEMENT ACCOUNTING [G3] – GRADUATION LEVEL

MARKS

Question No. 2

Effect on the net operating income of the Cosmetics Division:

(a) Contribution margin lost if the Conditioner is dropped:

Lost from the Conditioner	14,000,000	0.5
Lost from the Shampoo (48,000,000 * 0.12)	5,760,000	01
Total lost contribution margin	19,760,000	0.5
Less: avoidable fixed costs (18,000,000 – 7,400,000)	10,600,000	0.5
Decrease in overall net operating income.	9,160,000	0.5

(b) Frames should be processed further or sell at split-off point:

Sales value after further processing	5,100,000	0.5
Sales value after split-off point	3,400,000	0.5
Incremental revenue from further processing	1,700,000	01
Cost of further processing	1,105,000	01
Profit from further processing	595,000	01

The Rs. 850,000 in allocated common costs (1/3 of 2,550,000) will be the same regardless of which alternative is selected, and hence is not relevant to the decision.

The division should processed frames further instead of selling at split-off point. 01

(c) Preference for the acceptance of orders:

	Carrying Cot	Stroller	Sleeping Cart	
Direct materials required per unit	600	360	960	0.5
Cost per Kg	120	120	120	0.5
Kilograms required per unit	5	3	8	1.5
Contribution margin per unit	560	840	1,280	
Contribution margin per Kg of materials used.	112	280	160	1.5

Since, Stroller uses minimum amount of material and provides us maximum contribution per kgs, therefore, demand of stroller fulfilled first, then Sleeping cart and finally for Baby Carrying Cot. 01

Question No. 3

(a) The Contribution margin per unit on the first 60,000 units is:

	Per unit	
Selling price	212	
Less: variable expenses	136	
Contribution margin	76	0.75

The Contribution margin per unit on above 60,000 units is:

	Per unit	
Selling price	212	
Less: variable expenses	148	
Contribution margin	64	0.75

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Thus, for the first 60,000 units sold, the total amount of contribution margin generated would be:

60,000 * Rs. 76 per unit = Rs. 4,560,000. 01

Since the fixed cost for the first 60,000 unit total Rs. 6,800,000, Rs. 4,560,000 contribution margin above is not enough to permit the company to break-even. Therefore, in order to break even, more than 60,000 units will have to be sold. The fixed costs that will have to be covered by the additional sales are:

	Rupees	
Fixed cost on the first 60,000 units	6,800,000	0.25
Less: contribution margin from the first 60,000 units	<u>4,560,000</u>	0.25
Remaining uncovered fixed costs	2,240,000	0.5
Add: monthly rental cost of additional space	<u>340,000</u>	0.5
Total fixed costs to be covered by remaining sales.	<u>2,580,000</u>	0.5

Additional sales units required to cover these fixed costs would be:

Total remaining fixed cost / unit contribution margin on added units = 2,580,000 / 64 = 40,313 units 01

Therefore, a total of 100,313 units (60,000 + 40,313) must be sold for the company to break-even. 0.5

Break-even sales in Rupees 100,313 * 212 = Rs. 21,266,356 01

(b) Units needed to make monthly targeted profit of Rs. 1,530,000

Target profit / unit contribution margin 1,530,000 / 64 = 23,906 units. 01

Thus, the company must sell 23,906 units above the break-even point to earn a targeted profit of Rs. 1,530,000 each month. Thus, the company must sold 124,219 units (100,313 + 23,906) each month to achieve the targeted profit. 01

(c) Units sales required to earn a return of 30% on Company's investment in fixed costs:

If a bonus of Rs.13 per unit is paid for each unit sold in excess of the break-even point, then the contribution margin on these units will drop from Rs. 64 to Rs.51 per unit. 01

The desired monthly profit would be:

(Rs 6,800,000 + Rs. 340,000) * 30% = Rs. 2,142,000 01

Targeted profit / unit contribution margin = Rs. 2,142,000 / Rs 51 = 42,000 units 01

Therefore, the company must sell 42,000 units above the break-even point to earn a profit of Rs. 2,142,000 each month. Therefore, company must sell total 142,313 units (100,313 + 42,000) to achieve the 30% targeted return on investments. 01

Question No. 4

(a) Annual cost saving from manufacturing of X-ray tubes:

	Rs. / unit	Total (Rs.)	
Cost to purchase X-ray tubes from outside supplier (3,512*140,000 tubes)	3,512	491,680,000	0.5
Incremental costs of manufacturing the X-ray tubes			
Direct material	1,125	157,500,000	0.5
Direct labour and variable overhead (925+425-400)	<u>950</u>	<u>133,000,000</u>	0.5
Total incremental costs	<u>2,075</u>	<u>290,500,000</u>	0.5
Costs savings from manufacturing (3,512-2,075)	1,437	201,180,000	0.5
Income Tax @ 30%	<u>431.10</u>	<u>(60,354,000)</u>	0.5
After tax annual cost savings from manufacturing	1005.90	140,826,000	01

No fixed overhead is included because it is not incremental cost.

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(b) Discounted Cash Flow Analysis:

	Cash flows	PV Factor	Present Values	
Annual cost savings	140,826,000	3.517	495,285,042	1
Tax shield on depreciation (W-1)				
Year - 01	67,968,750	0.885	60,152,344	0.5
Year - 02	17,929,688	0.783	14,038,946	0.5
Year - 03	15,240,234	0.693	10,561,482	0.5
Year - 04	12,954,199	0.613	7,940,924	0.5
Year - 05	11,011,069	0.543	5,979,010	0.5
Sale proceeds from disposal of machine	225,000,000	0.543	122,175,000	1
Tax impact on disposal (W-2)	(5,103,940)	0.543	(2,771,439)	1
Initial investments	(625,000,000)	1.000	(625,000,000)	1
Net-present value (NPV)			88,361,309	0.5
It is worthwhile to invest in the new machine as it generates a positive NPV.				0.5

Workings:**W-1:**

	Rupees					
	Year-1	Year-2	Year-3	Year-4	Year-5	
Cost of machine	625,000,000					
25% initial allowance.	156,250,000					
Normal dep	70,312,500	59,765,625	50,800,781	43,180,664	36,703,564	
Total dep	226,562,500	59,765,625	50,800,781	43,180,664	36,703,564	2.5
Tax shield 30%	67,968,750	17,929,688	15,240,234	12,954,199	11,011,069	

W-2:

	Rupees
Cost of machine	625,000,000
Less: Accumulated depreciation	417,013,134
Carrying value for tax	207,986,866
Sale Proceeds	225,000,000
Gain / (Loss) on sale	17,013,134
Tax impact on disposal	(5,103,940)

Question No. 5**(a) Total cost of direct material and conversion:**

Direct material cost:

	Rupees
Material R 1	5,625,000
Material R 2	17,750,000
Material R 3	11,375,000
Total cost of direct material.	34,750,000

01

Company's total direct labour cost is Rs. 3,356,850 for 31,970 labour hours of work (Rs. 3,356,850/ Rs105 per hour).

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	Rupees	
Direct labour	3,356,850	0.5
Overhead applied (31,970 * 345)	<u>11,029,650</u>	0.1
Total conversion cost	<u>14,386,500</u>	0.5

(b) Cost of goods completed during the month:

	Units	Stage of completion	Equivalent Units Direct material	Equivalent Units Conversion	
Work in process Feb 01	5,000	85%			
Units started during the month	30,000				
Total units account for	<u>35,000</u>				0.25
Units completed and transferred during the month of February.	29,000	100%	29,000	29,000	
Work in process, Feb 28	6,000	50%	<u>6,000</u>	<u>3,000</u>	0.5
Total units accounted for	<u>35,000</u>				0.25
Total equivalent units.			35,000	32,000	0.5

	Direct cost	material	Conversion cost	Total costs	
Work in process, February 01		5,750,000	1,598,500	7,348,500	0.75
Cost incurred during the month		34,750,000	14,386,500	49,136,500	0.75
Total cost to account for		40,500,000	15,985,000	56,485,000	0.75
Equivalent units		35,000	32,000		
Cost per equivalent unit		1157	500	1,657	0.75
Cost of goods completed (29,000*1,657)				<u>48,053,000</u>	0.5

(c) Cost of ending work-in-process inventory:

	Rupees	
Direct material (6,000 * 1,157)	6,942,000	1
Conversion cost (3,000 * 500)	1,500,000	1
Total cost	<u>8,442,000</u>	1

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Question No. 6

(a) Functional budgeting and budgeted profit or loss account:

(i) Parts received and usage budget in units and value:

Product	Part - A100	Part - B200	
Tail light (units)	290,500	207,500	0.5
Fog light (units)	151,500	202,000	0.5
(A) Total Units	442,000	409,500	0.5
(B) Price per unit	190	270	
Total Value (rupees) (AxB)	83,980,000	110,565,000	0.75

Workings:

Budgeted sales (units and value):

Product	Units	Price	Value	
Tail light	40,000	7,500	300,000,000	0.50
Fog light	48,000	4,500	216,000,000	0.50
Total			516,000,000	0.25

Note: these 1.25 marks can be merged with requirement (iv) below.

Budgeted production in units:

Product	Sales	Stock increase	Production	
Tail light	40,000	1,500	41,500	0.75
Fog light	48,000	2,500	50,500	0.75

(ii) Direct labour budget in hours and value:

Product	Manufacturing	Assembly	Total	
Tail light	17,291.67 hours	6,916.67 hours		0.5
Fog light	15,150 hours	10,100 hours		0.5
	32,441.67	17,016.67		0.5
Value	Rs. 24,331,252.50	Rs. 15,315,003	Rs. 39,646,255.50	0.5

(iii) Departmental manufacturing overhead recovery rate:

	Manufacturing	Assembly	
Total overhead cost per month	Rs. 92,625,000	Rs. 30,600,000	0.5
Total direct labour hours	32,441.67	17,016.67	0.5
Overhead rate per direct labour hours	Rs. 2,855.12	Rs. 1,798.20	0.1

(iv) Selling overhead recovery rate:

Total overhead cost per month	Rs. 51,600,000	0.5
Total sales value for the month	Rs. 516,000,000	0.5
Selling overhead rate	10%	0.1

(v) Closing stock budget:

Product	Units	Costs	Value	
Tail light	1,500	Rs. 4,631.83	Rs. 6,947,745	0.75
Fog light	2,500	Rs. 3,271.18	Rs. 8,177,950	0.75
Total			Rs. 15,125,695	0.5

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(b) Standard unit cost for the month of February 2018:

		Working	Product Tail light unit cost	Working	Fog light unit cost	
Material	A100	(7 * Rs. 190)	1,330	3 * Rs. 190	570	0.5
	B200	(5 * Rs. 270)	1,350	4 * Rs. 270	1,080	0.5
Labour	Manufacturing	25 / 60 * 750	312.5	18 / 60 * 750	225	0.5
	Assembly	10 / 60 * 900	150	12 / 60 * 900	180	0.5
M'fg overhead	Manufacturing	25 / 60 * -2855.12	1,189.63	18 / 60 * -2855.12	856.54	0.5
	Assembly	10 / 60 * 1,798.20	299.70	12 / 60 * 1,798.20	359.64	0.5
Manufacturing cost			Rs. 4,631.83		Rs. 3,271.18	0.5
Selling overhead (10% of selling price)			Rs. 750		Rs. 450	
Total cost			Rs. 5,381.83		Rs. 3,721.18	01
Selling price			Rs. 7,500		Rs. 4,500	0.5
Profit			Rs. 2,118.17		Rs. 778.82	01

(c) Budgeted Profit and Loss Account:

	Rupees	
Parts / Components	194,545,000	0.5
Direct labour	39,646,256	0.5
Manufacturing overhead	123,225,000	0.25
Sub-total	357,416,256	0.25
Less: closing stock	15,125,695	0.25
Cost of sales	342,290,561	0.25
Selling overhead	51,600,000	0.25
Total cost	393,890,561	0.25
Sales	516,000,000	0.25
Net profit	122,109,439	0.25

Question No. 7

Variance Analysis:

- (a) Material price variance:
 (standard price – actual price) * actual quantity
 (350 - 460) * 22,500 = Rs. 2,47,5000 A 01
- Material usage variance:
 (standard quantity – actual quantity) * standard price
 (1,500 * 14 = 21,000) – 22,500) * 350 = Rs. 525,000 A 01
- (b) Labour rate variance:
 (standard rate – actual rate) * actual hours
 (Rs. 315 – Rs. 395) * 10,200 = Rs. 816,000 A 01
- Labour efficiency variance:
 (standard production hours – actual production hours) * standard rate
 (1,500 * 7 = 10,500) – 10,200) * Rs. 315 = Rs. 94,500 F 01

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- (c) Fixed overhead expenditure variance:
(budgeted fixed overheads – actual fixed overheads)
(1,100 * Rs. 546 = Rs. 600,600) – 703, 500 = Rs. 102,900 A 01
- (d) Volume efficiency variance:
(standard hours – actual hours) * Fixed overhead applied rate
(1,500 * 7 = 10,500) – 10,200 * Rs. 78 = Rs. 23,400 F 01
- Volume capacity variance:
(actual hours – budgeted hours) * FOAR
(10,200 – 7,700) * Rs. 78 = Rs. 195,000 F 01
- (e) Variable overhead efficiency variance:
(standard hours – actual hours) * VOAR
(10,500 – 10,200 = 300) * Rs. 150 = Rs. 45,000 F 01
- Variable overhead expenditure variance:
(flexed budgeted variable overhead – actual variable overhead)
(10,200 * 150 = Rs. 1,530,000) – Rs. 1,237,500 = Rs. 292,500 F 01

Question No. 8

- (a) Maximum production from each machine:

Product X

Machine 1	(156 hrs / 0.25 hrs / unit) = 624 units	0.5
Machine 2	(245 hrs / 0.50 hrs / unit) = 490 units	0.5

Product Y

Machine 1	(156 hrs / 0.30 hrs / unit) = 520 units	0.5
Machine 2	(245 hrs / 0.55 hrs / unit) = 445 units	0.5
The bottleneck is Machine 2.		01

- (b) Throughput accounting ratio:

TA ratio = Throughput contribution / conversion cost
Throughput contribution = selling price – material cost

Product X TA ratio	Rs. 3,600 – Rs. 1,420) / Rs. 900 = 2.42	01
Product Y TA ratio	Rs. 3,900 – Rs. 1,675) / Rs. 1,125 = 1.98	01

- (c) Production plan for the next period:

Throughput contribution	Rs.2,180	Rs.2,225	0.5
Time on bottleneck hours	0.50 hrs	0.55 hrs	0.5
Contribution / bottleneck hours	Rs 4,360	Rs. 4,045	0.5
Rank	1st	2nd	0.5
Production 245 / 0.5 hrs = 490 units			01

THE END