COMM 305 Final Theory Review

Chapter 7: Incremental Analysis

Relevant information
- 2 criteria: 1. It must be different across alternatives
2. It must affect the future
note* fixed costs and sunk costs are usually irrelevant

Sunk costs: money you've already spent, and cannot get back

6 Applications

1. Accept an order at special price

- Selling a large quantity of your product at a discounted price
- Question you need to ask yourself before accepting: Are you at capacity? Can you produce that many units in a short-term period?
- If you are at capacity: reject the offer.
- If you are not at capacity: consider the offer. If the total variable costs exceed the profits, reject the offer.

Example:
Capacity = 100,000 units. (Reg. $10/unit for 1 unit vs. Discount $8/unit for 30,000 units)

If I am currently selling 100,000 units at regular price, I reject the discount offer. I would be taking sales away (opportunity cost) from my current customers who are already paying $10 in order to make $8. I lost profit.
If I am currently selling 60,000 units at regular price, I have an excess of 40,000 that I can make, so I consider the offer.

Since 60,000 + 30,000 does not exceed 100,000 units, my fixed costs remain the same and I only need to consider variable costs.
If the VC of producing 1 unit is less than $8, then I will make a profit and I can accept the offer at a discount. If the VC is more than $8, I reject the offer because it will result in a net loss of profit.

- If you are not at capacity, but you do not have enough units to cover the offer, you will have to calculate the opportunity costs.

Example
Capacity is 100,000 units. You are currently making 80,000. The offer is for 30,000.
You will have to take 10,000 units away from regular customers. What is the opportunity cost? (The contribution margin of sales that I am giving up).

Reg. Price: $10 , Variable cost: $7
Regular sales opportunity cost: $3 per unit x 10,000 = $30,000

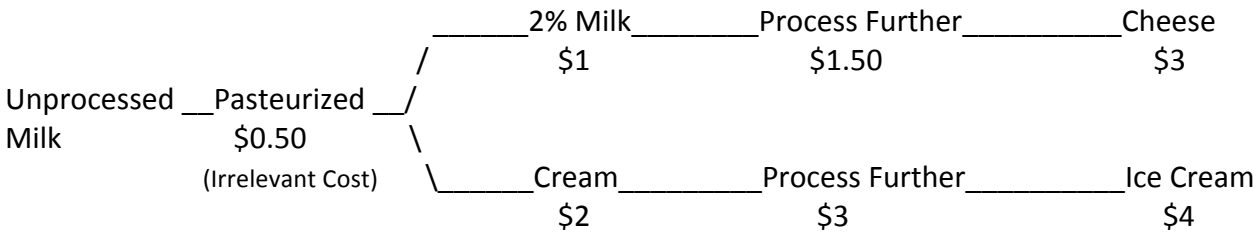
Discount Cost: 30,000 x $7 VC =	210,000
+ Opportunity cost: 10,000 x $3=	30,000
	240,000

At a discount, if sales < 240,000, I reject the offer. If sales > 240,000, I accept the offer.

2. Make or Buy

	Status Quo	Alternative
	Make	Buy
Avoidable Fixed Costs	xxx	0
Opportunity Costs	(xxx)	

3. Sell As Is, or Process Further



What is the ideal product mix?

The Additional Revenue for Cheese: $3 - $1 = $2
Cost to Process further: $1.50
Profit: $0.50
Decision: Process Further

The Additional Revenue for Ice Cream: $4 - $2 = 2$
Cost to Process Further: $3
Profit: ($1)
Decision: Do Not Process Further

Ideal Product Mix: Sell Cheese and Cream

4. Retain or Replace Equipment

Must do the analysis over the ENTIRE useful life of both machines

Costs that can be given on the exam:
Cost of Old Machine – sunk cost (irrelevant)
Book Value of Old Machine – no connection to market value (irrelevant)
Salvage Value – market value (the only number relevant to realistic cash flows)

1-Salvage Value of Old Machine Today
2-Salvage Value of the Old Machine at the End of its Life
3-Salvage Value of the New Machine at the End of its Life

Keep Old	Buy New
	1
2	
	3

5. Eliminate an Unprofitable Segment

A segment is a product line that is not making the company money

	Product A	Product B
Revenue	$500,000	$100,000
VC	($200,000)	($60,000)
CM	$300,000	$40,000
FC $200,000 total*	($100,000)	($100,000)
Net Income	$200,000	($60,000)

Overall profit with A and B: 200,000 – 60,000 = 140, 000

If I eliminate B

Revenue	$500,000	
VC		($200,000)
CM	$300,000	
FC	($200,000)	
Net Income	$100,000	

Solution: Do not Eliminate B because Net income is less than if we were to keep A and B

In the exam, they may ask: Is it more profitable to do Product A and B or Product A and C?

6. Allocate Limited Resources

How to make the best of your limitations? What is the most profitable arrangement given your limits?
There will also be a demand limitation.

Limited Resource: 300 Labour Hours
Step 1: Find CM (Price – VC)
Step 2: Factor In how much each product consumes of the limited resource (be careful with min: 15 min = 0.25h)
Step 3: Divide
Step 4: Rank from most profitable to least profitable
Step 5: Factor in Demand Limitation
Step 6: Keep a Tally as you calculate

	A	B	C
CM	10	20	30
LM/U	0.25	1	3
CM/LR	40	20	10
Rank	(1)	(2)	(3)
Demand Limitation (units)	100	200	100

	Tally
Product A	300
100 x 0.25 = 25 hours	(25)
	275
Product B	275
200 x 1 = 200 hours	(200)
	75
Product C	
since I only have 75 hours left	75 / 3 = 25 units can be made

Notes:
- If we run out of hours at product B, it would be perfectly acceptable to not make Product C
- If, for example, the demand limitation for Product C was only 20 units, we would not exceed that amount. We would simply be left with 15 extra hours of labour. (20 x 3 = 60) → 75 – 60 = 15

Chapter 8: Alternative Costing

Absorption Costing ABS	**Normal Costing** NC	**Variable Costing** VC	**Throughput Costing** TP
DM	DM	DM	DM
DL	DL	DL	*DL**
VMOH	VMOH	VMOH	*VMOH**
FMOH actual	FMOH predetermined	*FMOH**	*FMOH**

Notes****

Sales
-COGS → unit cost x units sold
Gross Profit
- Expenses
Net Income

When calculating COGS, we are using the unit cost from our calculations of product costs (DM, DL, VMOH, FMOH)
- In Variable Costing, FMOH is not calculated as a product cost; therefore it must be considered a period cost.
- In TP Costing, DL, VMOH and FMOH are not calculated as product costs; therefore they must also be period costs.
- So, they are included in the expenses when we are solving for Net Income and are not calculated as units for COGS

Income Statements Differ

Absorption Costing
Sales
-COGS → unit cost x units sold
Gross Profit
- Expenses
Net Income

Normal Costing
Sales
-COGS
+/- Adj. for over/under applied overhead
Gross Profit
-Expenses
Net Income

Variable Costing
Sales
-VCOGS
-V Selling & Admin
Contribution Margin
- Fixed Costs → Fixed Selling & Admin and FMOH
Net Income

Throughput Costing
Sales
-TP COGS
Throughput Contribution Margin
- Expenses → DL, VMOH, FMOH, Variable S&A, Fixed S&A
Net Income

Remember:
COGS = Beg. Inventory
+ COGM
- End. Inventory
COGS (unadjusted)
+ Unfavourable Volume Variance / - Favourable Volume Variance → Rate x (Budgeted Volume – Actual Volume)*
COGS (Adjusted)

*If BV > AV = Unfavourable
BV < AV = Favourable

Cost Reconciliation
Comparing one type of costing to another (see examples from past exams for more)

1. Difference between units produced & units sold
2. Which direction are units going? Putting into ending inventory or taking from beginning inventory?
3. What is the difference in unit costs? ($)

Example Solving a reconciliation between ABS and VC
Per unit cost for ABS is $10, for VC is $8
→ both have DM, DL, VMOH, therefore the difference is FMOH
1. 5,000 Units
2. Taking out of beginning inventory
3. $2 FMOH/unit x 5,000 units = $10,000 difference

Chapter 9: Pricing

External Pricing → Selling arms length: selling outside the company
There are two applications:

1. Mark-up percentage: how much do I increase my costs to get to my price?
   Cost + (Cost x MU %) or Cost (1 + MU%)

$$MU\% = \frac{\text{ROI/unit + anything not included in cost*}}{\text{Cost*}}$$

*Cost:
Full Cost Plus Pricing: Product + Period
Absorption Cost Plus Pricing: DM + DL + VMOH + FMOH
Variable Cost Plus Pricing: DM + DL + VMOH + VSIA

2. Time & Materials: selling labour and parts

Labour (Labour Rate[1] x # of hours)	$xxx → [1]all costs related to labour / # of hours you expect to invoice for the year = $/hr.
Materials (Cost[2] of materials)	$xxx
Materials Loading Charge (%[3] x Cost[2])	$xxx → [3]all costs related to materials (excluding cost of materials) / Cost of materials = %
Total Invoice	$xxx

Internal Pricing
Transfer Pricing → When one department transfers to another within the same company

The buyer sets a maximum price: if he can buy 1 unit for $10 in the open market, he will not buy internally unless they are selling the same unit for less than $10.
The seller sets a minimum transfer price*

*MTP = VC of internal transfer[1] + Opportunity Cost[2]

[1]VC External can differ from VC Internal because VC External may include the cost of selling → it does not cost anything to sell to your own company

[2]The CM that you are giving up
CAPACITY (Ch. 7) Are they giving up a sale in order to sell internally? If at capacity, OC exists.

Note: Capacity can be reached and you will have 2 MTP calculations for which you will find the weighted average

Example: Capacity = 10,000 units
Request = 10,000 units
Currently Selling Externally: 4,000 units (OC)
VC Internal = $5/unit

MTP when Not at Capacity = 5 + 0 = 5 x 6,000 = 30,000
MTP when At Capacity = 5 + 4 = 9 x 4,000 = 36,000

$MTP_{(weighted\ Avg.)}$: $\frac{30,000 + 36,000}{10,000}$ = $6.6/unit

Policy Price: Upper management can force both departments to buy and sell at the same specific rate (Example: $7/unit). This does not override what the min or max prices *are*.

Chapter 10: Budgets

1. Sales Budget
2. Production Budget (Manufacturer) / Purchase Budget (Merchandiser)
   - Sales
   - Desired Ending Inventory (%)
   - (Beginning Inventory)
   - # of Units produced or purchased

Note: Merchandisers end here, manufacturers have to go on

3. Direct Materials Budget (Manufacturer)
   - V # of Units to produce
   - x Q QTY of DM to produce 1 unit
   - Quantity of DM needed for production
   - + Desired Ending
   - - Beginning
   - Quantity of DM to Purchase
   - x Price/unit of DM
   - $ of DM Purchases

Direct Labour Budget
- V # of Units to produce
- Q QTY (hours) of DL to produce 1 unit
- P price/hour (wage)
- $ Total DL Cost

Cash Budget
- Beg. Cash Balance
- + Cash Receipts → Collections of sales, sold assets
- Cash Available
- - Cash Dispersed → Payments for purchases, expenses, dividends *paid,* assets purchased
- Excess/Deficiency of Cash → Compared to a Minimum Cash Balance
- +/- Financing → Borrowing^{+}, repayment^{-}, interest^{-}
- Ending Cash Balance

	January	February	March
January $100,000	0.40 x 0.98 + 0.10 x 0.60 x 100,000 + x 100,000	0.50 x 0.60 x 100,000	0.35 x 0.60 x 100,000
February $200,000		0.40 x 0.98 + 0.10 x 0.60 x 200,0000 + x 200,000	0.50 x 0.60 x 200,000
March $300,000			0.40 x 0.98 + 0.10 x 0.60 x 300,0000 + x 300,000

Collections
40% of sales are cash & take 2% discount
Of credit sales (60%)
-10% collected in month of sale
-50% collected in second month
-35% collected in third month
-5% is uncollectable

Chapter 11:

Management by Exception: When I am going to evaluate my managers, I am only going to look in those places that are variances. (Big positive or big negative variances)

2 Criteria for which variances to look at:

1. Materiality: Is it a big enough amount to matter, to affect my decisions?
2. Controllability: only judge variances that we can control (i.e. a manager has no control over the FC of rent)
   →Responsibility Accounting → Controllable fixed costs

Responsibility Centres

1. Cost Centre → Incurs costs (cannot but judged on profitability) →Judged on Cost Control
2. Profit Centre → Incurs costs and generates revenue → Judged on profitability based on COMA[1]

   Sales
   - VC
   Contribution Margin
   - Controllable FC
   Controllable Margin[1]
3. Investment Centre → Incur costs, generates revenue, and responsible for capital acquisitions → Judged on ROI

   Controllable Margin / Investment (Average Operating Assets) = ROI

Formulas to Know

ROI = COMA/AOA = COMA/Sales X Sales/AOA
^Profit Margin ^Asset/Inventory Turnover

Residual Income = COMA – Minimum Rate of Return x AOA)

Chapter 11/12: Flexible Budgets

Master Budget
V x Q x P → Volume (# of Units made) x Quantity (Input used to make 1 unit) x Price (Price of one unit of Q)
Q X P → Standard Cost of 1 Unit

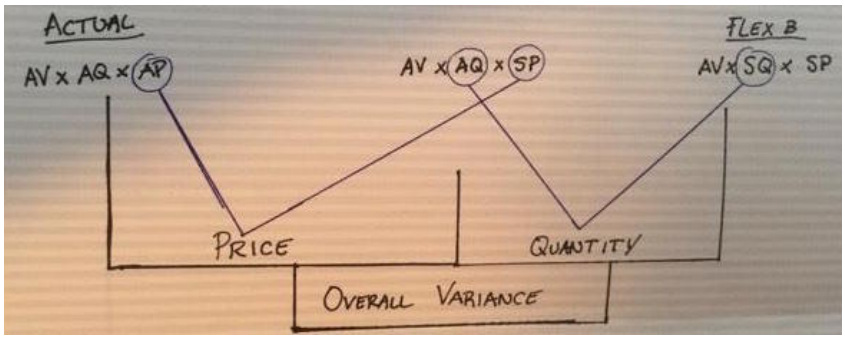
Flex Budget: Using the same equation used to calculate the Master Budget, but change Price.

Example
Budget: 60,000
Actual: 50,000
Variance: 10,000 Favorable
Flex B: 8,000

V x Q x P = Volume
10,000 x (Q x P) = 60,000
(Q x P) = 6

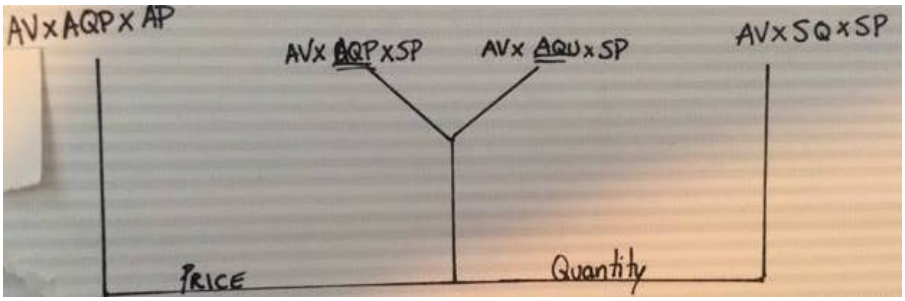
New Volume = 8,000
8,000 x 6 = 48,000 is the new Budget
Actual: 50,000
New Variance: 2,000 Unfavourable

Chapter 12 asks: why 2,000 Unfavourable? What part of the 2,000 variance is caused by a variance in Q and what part is due to a variance in P?



If DM Purchased =/= DM Used:

Actual Q Purchased	Actual Q Used
AQP	AQU



FMOH