RELEVANT COST AND REVENUE FOR DECISION MAKING

MAKE OR BUY

QUESTION 1

(a) The Hat Company manufactures a part for use in its production of hats. When 10,000 items are produced, the costs per unit are:

Direct materials	$0.60
Direct manufacturing labor	3.00
Variable manufacturing overhead	1.20
Fixed manufacturing overhead	1.60
Total	$6.40

Tash Company has offered to sell to The Hat Company 10,000 units of the part for $6.00 per unit. The plant facilities could be used to manufacture another item at a savings of $9,000 if The Hat accepts the offer. In addition, $1.00 per unit of fixed manufacturing overhead on the original item would be eliminated.

Required:

(i) What is the relevant per unit cost for the original part?

(8 Marks)

(ii) Which alternative is best for The Hat Company and by how much?

(12 Marks)

(b) What are opportunity costs? Explain why opportunity costs are not recorded in strategic management accounting systems.

QUESTION 2

Southwestern Company needs 1,000 motors in its manufacture of automobiles. It can buy the motors from Jinx Motors for $1,250 each. South western's plant can manufacture the motors for the following costs per unit:

Direct materials	$ 500
Direct manufacturing labour	250
Variable manufacturing overhead	200
Fixed manufacturing overhead	350
Total	$1,300

If Southwestern buys the motors from Jinx, 70% of the fixed manufacturing overhead applied will not be avoided.

Required:

a. Should the company make or buy the motors? (10 marks)

b. What additional factors should Southwestern consider in deciding whether or NOT to make or buy the motors? (10 marks)

c. Explain why sunk costs are not considered relevant when choosing among alternatives with example. (5 marks)

QUESTION 3

The Multiproducts Company currently purchases a component for $30 each.

The company has excess capacity and is considering the possibility of making the component. The Cost Accounting Department estimates that the following costs would be incurred to make each unit of the component:

Direct materials	$ 8
Direct labor	10
Variable overhead	8
Total manufacturing cost	$26 per unit

Additionally, if Multiproducts decides to make the component, additional foremen, custodial personnel, and material handlers are required at a total cost of $150,000 per year.

(a) Assuming the company uses 40,000 components annually, prepare an analysis to determine if the company should make or buy the component.
(b) At what annual volume of components would the company change its make or buy decision?

QUESTION 4

Lewis Auto Company manufactures a part for use in its production of automobiles. When 10,000 items are produced, the costs per unit are:

Direct materials	$ 12
Direct manufacturing labor	60
Flexible manufacturing support	24
Fixed manufacturing support	32
Total	$128

Monty Company has offered to sell Lewis Auto Company 10,000 units of the part for $120 per unit. The plant facilities could be used to manufacture another part at a saving of $180,000 if Lewis Auto accepts the supplier's offer. In addition, $20 per unit of fixe manufacturing support on the original part would be eliminated.

Required:
Which alternative is best for Lewis Auto Company? Compute the financial difference between the alternatives?

QUESTION 5

Mother Hubbard Company purchases 8,000 units of a part that it needs for production of its product. Notification has just been received from the supplier that a price increase will take effect shortly which will bring the price of each part to $25. Mother Hubbard Company is considering using some idle facilities to produce the part. The production costs to produce the needed 5,000 parts are as follows:

Direct materials $17,500

Direct labor 30,000

Variable factory overhead 14,000

Fixed factory overhead 33,500

The idle facilities could also be rented out at an annual rent of $99,000. All the factory overhead costs are avoidable.

Required:

Determine if Mother Hubbard Company should continue to buy the part or produce it in-house.

QUESTION 6

Bull Company manufactures a part for its production cycle. The costs per unit for 5,000 units of this part are as follows:

Direct materials $3

Direct labor 5

Variable factory overhead 4

Fixed factory overhead 2

Total costs $14

The fixed factory overhead costs are unavoidable. Assume that Bull Company has been offered 5,000 units of the part from another producer for $14 each. The facilities currently used could be used to make 5,000 units of a product that would contribute $5 a unit to fixed expenses. No additional fixed costs would be incurred. Bull Company should make or buy?: Why?

QUESTION 7

Kennedy Company manufactures a part for its production cycle. The costs per unit for 10,000 units of this part are as follows:

Direct materials $20

Direct labor 15

Variable factory overhead 16

Fixed factory overhead 10

Total costs $61

The fixed factory overhead costs are unavoidable. Assume that Kennedy Company can buy 10,000 units of the part from another producer for $60 each. The facilities currently used to make the part could be rented out to another manufacturer for $100,000 a year. Kennedy Company should make or buy? Why ?

QUESTION 8

For many years, Condor Company has produced a small part that it uses in the production of its standard line of equipment. The company's cost of producing one part, based on a production level of 50,000 parts per year, is:

	Cost Per Part
Direct materials	$ 8.00
Direct labor	5.00
Variable overhead	10.00
Fixed overhead	12.00
Total	$35.00

An outside supplier has offered to supply the part to Condor for $29 per part. Condor has determined that 40% of the fixed overhead represents salaries and other costs which can be eliminated if the parts are purchased.

Required:

Prepare an analysis to determine whether Condor should accept the supplier's offer.

QUESTION 9

East Cost Company manufactures a variety of engines for use in heavy equipment. The company has always produced all the necessary parts for its engines, including all the carburettors. An outside supplier has offered to produce and sell one type of carburettor to Cosi Ltd., for a cost of £35.00 per unit. To evaluate this offer, the company has gathered the following information relating to its own cost of producing the carburettor internally:

	Per Unit	15,000 units per year
Direct material	£14.00	£210,000
Direct labour	£10.00	£150,000
Variable manufacturing overhead	£3.00	£45,000
Fixed manufacturing overhead, traceable	£6.00*	£90,000
Fixed manufacturing overhead. Allocated	£9.00	£135,000
Total cost	£42.00	£630,000

*One-third supervisory salaries; two-thirds depreciation of special equipment (no resale value).

Required:

a) If the company has no alternative use for the facilities that are now being used to produce the carburettors, should the outside supplier's offer be accepted? Show all computations (15 marks).

b) Suppose that, if the carburettors were purchased, the company could use the freed capacity to launch a new product. The segment margin of the new product would be £150,000 per year. Should the company accept the offer to buy the carburettors for £35.00 per unit? Show all computations. (5 marks)

c) Define and explain incremental cost, and opportunity cost. (5 marks)

KEEP OR DROP

QUESTION 1

The Transporter Company produces material handling equipment for use in commercial manufacturing. As part of its operations, Transporter has three distinct product lines: belts, conveyors, and elevators. The company is currently considering the elimination of the belt product line. The belt line's sales average $850,000 annually. Variable manufacturing costs and variable selling costs total $320,000 and $140,000, respectively. Fixed costs total $450,000, of which $120,000 are considered to be unavoidable.

(a) Prepare an analysis to determine the profit increase or decrease that would result if production of belts is discontinued.

(b) Should the company drop the belt line?

QUESTION 2

The management accountant for the Shimran Chocolate Company has prepared the following income statement for the most current year:

	Chocolate	Other Candy	Fudge	Total
Sales	$40,000	$25,000	$35,000	$100,000
Cost of goods sold	26,000	15,000	19,000	60,000
Contribution margin	14,000	10,000	16,000	40,000
Delivery and ordering costs	2,000	3,000	2,000	7,000
Rent (per sq. foot used)	3,000	3,000	2,000	8,000
Allocated corporate costs	5,000	5,000	5,000	15,000
Corporate profit	$4,000	$(1,000)	$7,000	$10,000

a. Do you recommend discontinuing the Other Candy product line? Why or why not?

b. If the Chocolate product line had been discontinued, corporate profits for the current year would have decreased by what amount?

b. If the Chocolate product line were discontinued, corporate profits would immediately decrease by what amount?

QUESTION 3

ROM Company sells two items, product A and product B. The company is considering dropping product B. It is expected that sales of product A will increase by 405 as a result. Dropping product B will allow the company to cancel its monthly equipment rental costing $100 per month. The other existing equipment will be used for additional production of product A. One employee earning $200 per month can be terminated if product B production is dropped. Clinton's other fixed costs are allocated and will continue regardless of the decision made. A condensed, budgeted monthly income statement with both products follows:

	Product A	Product B	Total
Sales	$10,000	$ 8,000	$18,000
Direct materials	2,500	2,000	4,500
Direct labor	2,000	1,200	3,200
Equipment rental	300	2,600	2,900
Other allocated overhead	1,000	2,100	3,100
Operating income	$4,200	$ 100	$ 4,300

Required:

Prepare an incremental analysis to determine the financial effect of dropping product B.

SPECIAL ORDER

QUESTION 1

(a) Olympic Camera Company has received a special order for photographic equipment it does not normally produce. The company has excess capacity and the order could be manufactured without reducing production of the firm's regular products.

Discuss the *relevance* of each of the following items in computation of the costs of the special order.

(i). Equipment to be used in producing the order has a book value of $2,000. The equipment has no other use for Lansing Company. If the order is not accepted, the equipment will be sold for $1,500. If the equipment is used in producing the order, it can be sold in three months for $800.

(5 Marks)

(ii). If the special order is accepted, the operations will require some of the storage space in the company's plant. If the space is used for this purpose, the company will rent storage space temporarily in a nearby warehouse at a cost of $18,000. The building depreciation allocated to the storage space to be used in producing the special order is $12,000.

(5 Marks)

(iii). If the special order is accepted, it will require a subassembly. Lansing Camera can purchase the subassembly for $24.00 per unit from an outside supplier or make it for $30.00 per unit. The $30.00 per unit was determined as follows:

Direct material	$10.00
Direct labor.....	6.00
Variable overhead.....	6.00
Allocated fixed overhead.....	8.00
Total unit of subassembly.....	30.00

(8 Marks)

(b) Explain the meaning of opportunity cost and give two examples of such cost.

(7 Marks)

QUESTION 2

Easy Power Company supplies batteries to major mobile phone companies. Dimetry Company, a customer from Russia proposes to buy 10,000 batteries at $9 each next year. Customer promises that this special order is to be exported to Russia and will not be sold elsewhere.

Easy Power's factory has a maximum production capacity of 100,000 batteries. Due to business uncertainty, it is only planning to make 80,000 batteries with a unit selling price of $25 for next year. Due to excess capacity of 20,000 batteries, no additional fixed overheads will be incurred even if the Russia order is accepted.

The costs per battery are:

Direct materials	$ 2.50
Direct labour	$ 1.80
Variable overheads	$ 0.50
Fixed overheads	$ 3.20
Total	$ 8.00

Required:

(a) Should Easy Power Company, accept or reject the special order of 10,000 batteries to Dimetry? How much is the total benefit to the company, if any?

(5 marks)

(b) What is your advice to Easy Power Company if the Dimetry now wants to order 20,000 batteries instead of 10,000, but is requesting $1 discount off the original offered unit price? How much is the total benefit to the company, if any? (4 marks)

(c) A Mongolian customer, Arban Company found out that Easy Power Company is supplying batteries to Russia, he made an offer of $8 to buy 10,000 units.
Advise if Easy Power Company should take this order, if the shipping charges is a fixed amount of $1,000 per shipment. Is there any qualitative factor to consider before accepting this order?

(6 marks)

(d) Easy Power is planning to maximise its profit based on its current production capacity. It is considering to continue its current production level and accepting one order from Dimetry Company and/or another from Arban Company. Calculate the total benefits from the best two special orders, make your selection after considering your answers from parts a, b and c.

(5 marks)

(e) What are relevant costs and sunk costs to Easy Power Company? Explain with examples.

(5 marks)

[Total 25 marks]

LIMITING FACTORS

QUESTION 1

NRK Mufflers manufactures three different product lines, Model X, Model Y, and Model Z. Considerable market demand exists for all models. The following per unit data apply:

	Model X	Model Y	Model Z
Selling price	$160	$180	$200
Direct materials	60	60	60
Direct labor ($20 per hour)	30	30	40
Variable support costs ($10 per machine-hour)	10	20	20
Fixed support costs	40	40	40

a. For each model, compute the contribution margin per unit.
b. For each model, compute the contribution margin per machine-hour.
c. If there is excess capacity, which model is the most profitable to produce? Why?
d. If there is a machine breakdown, which model is the most profitable to produce? Why?
e. How can NRK encourage her sales people to promote the more profitable model?

QUESTION 2

How does a manager go about choosing which of three products to produce and sell when each product uses a single machine with a limited capacity?

QUESTION 3

	Per case			
	Large Candles	Small Candles		
Price	$ 20.00	$ 12.50	Fixed Cost	$ 6,000
Variable Cost	$ 12.00	$ 6.50		
CM	$ 8.00	$ 6.00		

All candles must be chilled in a fridge in order for the candles to set properly. The company only has one fridge. Because of the size of the large candles, the company can cool 6 cases of large candles per hour. It can cool 9 cases of small candles per hour. The company can sell as many candles as it can produce. The fridge can be used 180 hours per month.

What is the optimal product mix in units? How much profit will the company make if it produces the optimal product mix?

What if the company can sell no more than 1,350 cases of either type of candle? What is the optimal product mix in units? Now much profit will the company make if it produces the optimal product mix?

REPLACEMENT OF EQUIPMENT

QUESTION 1

East Cost Railroad is considering the purchase of a powerful, high-speed wheel polishing to replace a standard wheel polishing that is now in use. Selected information on the two machines is given below:

	Current machine	New machine
Purchase cost new	£20,000	£30,000
Estimated useful life new Annual	5 years	5 years
operating costs	£15,000	£7,000
Annual straight-line depreciation to date	£4,000	-
Salvage value now	£9,000	-

In trying to decide whether to purchase the new equipment, the managing director has prepared the following analysis:

Book value of the old machine	£14,000
Less salvage value	£9,000
Net loss from disposal	£5,000

Required:

a) Prepare a summary profit statement covering the next five years, assuming:
   (i) That the new equipment is not purchased. (5 marks)
   (ii) That the new equipment is purchased. (5 marks)

b) Determine the desirability of purchasing the new equipment using only relevant costs in your analysis. (5 marks)

c) Define and explain opportunity and sunk cost. (5 marks)

d) Explain how opportunity cost enters into the make or buy decision. (5 marks)

[Total 25 marks]

QUESTION 2

Xiao Man, a Pizzeria manager, replaced the convection oven just six months ago. Today, Turbo Ovens Manufacturing announced the availability of a new convection oven that cooks more quickly with lower operating expenses. Pat is considering the purchase of this faster, lower-operating cost convection oven to replace the existing one they recently purchased. Selected information about the two ovens is given below:

	Existing	**New Turbo Oven**
Original cost	$60,000	$50,000
Accumulated depreciation	$ 5,000	—
Current salvage value	$40,000	—
Remaining life	5 years	5 years
Annual operating expenses	$10,000	$ 7,500
Disposal value in 5 years	$ 0	$ 0

Required:

a. What costs are sunk?
b. What costs are relevant?
c. What are the net cash flows over the next 5 years assuming the Pizzeria purchases the new convection oven?
d. What other items should Xiao Man, as manager of the Pizzeria, consider when making this decision?

QUESTION 3

Why is the depreciation of old equipment irrelevant to decision making?