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| --- | --- | --- | --- | --- | --- |
|  |  | Question Type | Difficulty | LO5: Transfer prices (App 11A) | Professional exam adapted |
|  | 1 | T/F | E | x |  |
|  | 2 | T/F | M | x |  |
|  | 3 | T/F | E | x |  |
|  | 4 | T/F | M | x |  |
|  | 5 | T/F | E | x |  |
|  | 6 | T/F | M | x |  |
|  | 7 | Conceptual M/C | M | x |  |
|  | 8 | Single Part M/C | E | x |  |
|  | 9 | Single Part M/C | M | x |  |
|  | 10 | Single Part M/C | M | x |  |
|  | 11 | Single Part M/C | H | x |  |
| APP11A-Ref1 | 12-13 | Multipart M/C | M | x |  |
| APP11A-Ref2 | 14-16 | Multipart M/C | M-H | x |  |
| APP11A-Ref3 | 17-19 | Multipart M/C | E-H | x |  |
| APP11A-Ref4 | 20-22 | Multipart M/C | M-H | x |  |
| APP11A-Ref5 | 23-25 | Multipart M/C | M-H | x |  |
|  | 26 | Problem | H | x |  |
|  | 27 | Problem | H | x |  |
|  | 28 | Problem | M | x |  |

Appendix 11A

Transfer Pricing

**True / False Questions**

|  |  |
| --- | --- |
| 1. | A transfer price is the price charged when a company provides goods or services to an outside company.    True    False |

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| --- | --- |
| 2. | Opportunity cost should be ignored in setting the transfer price.    True    False |

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| 3. | One disadvantage of using the actual cost of a product as the transfer price is that it does not provide a strong incentive for the producing division to control its costs.    True    False |

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| --- | --- |
| 4. | When a division is operating at full capacity, the transfer price to other divisions should not include opportunity costs.    True    False |

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| --- | --- |
| 5. | The selling division in a transfer pricing situation should want the transfer price to cover at least the variable cost per unit plus the lost contribution margin per unit on outside sales.    True    False |

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| --- | --- |
| 6. | Setting transfer prices at full cost can lead to good decisions because, among other reasons, full cost takes into account opportunity costs.    True    False |

**Multiple Choice Questions**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. | In setting a transfer price, which of the following should not be considered?      |  |  | | --- | --- | | A. | Fixed production costs of the buying division. |  |  |  | | --- | --- | | B. | Production capacity of the selling division. |  |  |  | | --- | --- | | C. | Product demand from outside customers. |  |  |  | | --- | --- | | D. | Costs eliminated by internal transfers. | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. | The Western Division of Pryto Corporation sells Part D to other companies for $78.50 per unit. According to the company's cost accounting system, the costs to Western Division to make a unit of Product D are:      The Southern Division of Pryto Corporation uses a part much like Part D in one of its products. The Southern Division can buy this part from an outside supplier for $78.25 per unit. However, the Southern Division could use Part D instead of this part that it purchases from outside suppliers. What is the most that the Southern Division would be willing to pay the Western Division for Product D?      |  |  | | --- | --- | | A. | $78.50 per unit |  |  |  | | --- | --- | | B. | $76.00 per unit |  |  |  | | --- | --- | | C. | $74.00 per unit |  |  |  | | --- | --- | | D. | $78.25 per unit | |

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| 9. | Division X makes a part that it sells to customers outside of the company. Data concerning this part appear below:      Division Y of the same company would like to use the part manufactured by Division X in one of its products. Division Y currently purchases a similar part made by an outside company for $70 per unit and would substitute the part made by Division X. Division Y requires 5,000 units of the part each period. Division X can already sell all of the units it can produce on the outside market. What should be the lowest acceptable transfer price from the perspective of Division X?      |  |  | | --- | --- | | A. | $75 |  |  |  | | --- | --- | | B. | $66 |  |  |  | | --- | --- | | C. | $16 |  |  |  | | --- | --- | | D. | $50 | |

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| 10. | Using the formula in the text, if the lowest acceptable transfer price from the viewpoint of the selling division is $90 and the opportunity cost per unit on outside sales is $40, then the variable cost per unit must be:      |  |  | | --- | --- | | A. | $90 |  |  |  | | --- | --- | | B. | $40 |  |  |  | | --- | --- | | C. | $130 |  |  |  | | --- | --- | | D. | $50 | |

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| 11. | The North Division of Barter Company makes and sells a single product, which is a part used in manufacturing trucks. The annual production capacity is 35,000 units and the variable cost of each unit is $24. Presently the North Division sells 32,000 units per year to outside customers at $40 per unit. The South Division of Barter Company would like to buy 15,000 units a year from North to use in its production. There would be no savings in variable costs from transferring the units internally rather than selling them externally. The lowest acceptable transfer price from the standpoint of the North Division should be closest to:      |  |  | | --- | --- | | A. | $36.80 |  |  |  | | --- | --- | | B. | $24.00 |  |  |  | | --- | --- | | C. | $32.00 |  |  |  | | --- | --- | | D. | $40.00 | |

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|  | Division A makes a part with the following characteristics:      Division B, another division of the same company, would like to purchase 5,000 units of the part each period from Division A. Division B is now purchasing these parts from an outside supplier at a price of $28 each. |

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| 12. | Suppose that Division A has ample idle capacity to handle all of Division B's needs without any increase in fixed costs and without cutting into sales to outside customers. If Division A refuses to accept the $28 price internally and Division B continues to buy from the outside supplier, the company as a whole will be:      |  |  | | --- | --- | | A. | worse off by $40,000 each period. |  |  |  | | --- | --- | | B. | worse off by $20,000 each period. |  |  |  | | --- | --- | | C. | better off by $10,000 each period. |  |  |  | | --- | --- | | D. | worse off by $30,000 each period. | |

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| 13. | Suppose that Division A is operating at capacity and can sell all of its output to outside customers at its usual selling price. If Division A agrees to sell the parts to Division B at $28 per unit, the company as a whole will be:      |  |  | | --- | --- | | A. | better off by $20,000 each period. |  |  |  | | --- | --- | | B. | worse off by $10,000 each period. |  |  |  | | --- | --- | | C. | worse off by $40,000 each period. |  |  |  | | --- | --- | | D. | There will be no change in the profits of the company as a whole. | |

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|  | Division 1 of Ace Company makes and sells wheels that can either be sold to outside customers or transferred to Division 2. The following data are available from last month:  Division 1:      Division 2:      If Division 1 sells the wheels to Division 2, Division 1 can avoid $2 per unit in sales commissions. |

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| 14. | Suppose that Division 1 sells 7,500 units per month to outside customers. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division if Division 2 requires 5,000 units per month from Division 1?      |  |  | | --- | --- | | A. | $33 per unit |  |  |  | | --- | --- | | B. | $35 per unit |  |  |  | | --- | --- | | C. | $47 per unit |  |  |  | | --- | --- | | D. | $50 per unit | |

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| 15. | What is the maximum price per wheel that Division 2 should be willing to pay Division 1 if a transfer were to take place?      |  |  | | --- | --- | | A. | $33 per unit |  |  |  | | --- | --- | | B. | $35 per unit |  |  |  | | --- | --- | | C. | $47 per unit |  |  |  | | --- | --- | | D. | $50 per unit | |

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| 16. | Suppose that Division 1 sells 11,500 units each month to outside customers. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?      |  |  | | --- | --- | | A. | $47.00 per unit |  |  |  | | --- | --- | | B. | $43.50 per unit |  |  |  | | --- | --- | | C. | $37.50 per unit |  |  |  | | --- | --- | | D. | $34.73 per unit | |

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|  | Division T of Clocker Company makes a timer which it sells for $30 to outside customers. The division has supplied the following data concerning the timer:      Division S of Clocker Company is currently buying 5,000 similar timers each month from an overseas supplier at $27 each. Division S would like to acquire its timers from Division T if the price is right. |

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| 17. | Suppose Division T is operating at capacity and can sell all of the timers it produces to outside customers at its usual selling price. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?      |  |  | | --- | --- | | A. | $30 per timer |  |  |  | | --- | --- | | B. | $27 per timer |  |  |  | | --- | --- | | C. | $25 per timer |  |  |  | | --- | --- | | D. | $15 per timer | |

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| 18. | Suppose Division T is operating at capacity and can sell all of the timers it produces to outside customers at its usual selling price. If Division T meets the price of the overseas supplier and sells 5,000 timers to Division S each month, the effect on the monthly net operating income of the company as a whole will be:      |  |  | | --- | --- | | A. | increase of $15,000 |  |  |  | | --- | --- | | B. | decrease of $15,000 |  |  |  | | --- | --- | | C. | decrease of $60,000 |  |  |  | | --- | --- | | D. | increase of $10,000 | |

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| 19. | Suppose that Division T can sell only 10,000 timers to outside customers. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?      |  |  | | --- | --- | | A. | $24 per timer |  |  |  | | --- | --- | | B. | $27 per timer |  |  |  | | --- | --- | | C. | $30 per timer |  |  |  | | --- | --- | | D. | $15 per timer | |

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|  | The DVD Division of Sound Company makes and sells compact DVD players (DVDP) that it presently sells to outside customers. Budgeted costs next month for the DVD Division are as follows:      MaxiSound, another division of Sound Company, would like to buy 1,000 of the DVDPs from the DVD Division. An outside supplier has offered to sell similar DVDPs to MaxiSound for $170 each. |

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| 20. | Assume that DVD Division's monthly production capacity is 2,800 units. If the DVD Division sells 1,000 DVDPs to MaxiSound for $170 each, the monthly effect on the profits of DVD Division will be a:      |  |  | | --- | --- | | A. | $15,000 decrease |  |  |  | | --- | --- | | B. | $42,000 decrease |  |  |  | | --- | --- | | C. | $50,000 increase |  |  |  | | --- | --- | | D. | no change | |

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| 21. | Assume the DVD Division's monthly production capacity is 4,000 units. If the DVD Division sells 1,000 DVDPs to MaxiSound for $170 each, the monthly effect on the profits of DVD Division will be a:      |  |  | | --- | --- | | A. | $65,000 increase |  |  |  | | --- | --- | | B. | $50,000 increase |  |  |  | | --- | --- | | C. | $185,000 increase |  |  |  | | --- | --- | | D. | $170,000 increase | |

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| 22. | Assume that DVD Division's monthly production capacity is 3,200 units. If the DVD Division sells 1,000 DVDPs to MaxiSound for $170 each, the effect on the monthly profits of Sound Company as a whole will be a:      |  |  | | --- | --- | | A. | $9,000 decrease |  |  |  | | --- | --- | | B. | $74,000 decrease |  |  |  | | --- | --- | | C. | $20,000 increase |  |  |  | | --- | --- | | D. | $11,000 increase | |

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|  | The Red River Division of Alto Company produces and sells bags of pottery clay which can either be sold to outside customers or transferred to the White Mountain Division of Alto Company. The following data are available for the last year:          By selling to the White Mountain Division, the Red River Division will avoid $3 per bag in selling costs. |

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| 23. | If Red River can sell only 10,000 bags annually to outside customers, according to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?      |  |  | | --- | --- | | A. | $20 per bag |  |  |  | | --- | --- | | B. | $16 per bag |  |  |  | | --- | --- | | C. | $11 per bag |  |  |  | | --- | --- | | D. | $14 per bag | |

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| 24. | If Red River can sell 15,000 bags annually to outside customers, according to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?      |  |  | | --- | --- | | A. | $20 per bag |  |  |  | | --- | --- | | B. | $16 per bag |  |  |  | | --- | --- | | C. | $11 per bag |  |  |  | | --- | --- | | D. | $14 per bag | |

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| 25. | What is the maximum transfer price the White Mountain Division should be willing to pay?      |  |  | | --- | --- | | A. | $20 per bag |  |  |  | | --- | --- | | B. | $16 per bag |  |  |  | | --- | --- | | C. | $11 per bag |  |  |  | | --- | --- | | D. | $14 per bag | |

**Essay Questions**

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| 26. | Division B has asked Division A of the same company to supply it with 4,000 units of part K932 this year to use in one of its products. Division B has received a bid from an outside supplier for the parts at a price of $31.00 per unit. Division A has the capacity to produce 10,000 units of part K932 per year. Division A expects to sell 8,000 units of part K932 to outside customers this year at a price of $36.00 per unit. To fill the order from Division B, Division A would have to cut back its sales to outside customers. Division A produces part K932 at a variable cost of $18.00 per unit. The cost of packing and shipping the parts for outside customers is $3.00 per unit. These packing and shipping costs would not have to be incurred on sales of the parts to Division B.  **Required:**  a. What is the range of transfer prices within which both the Divisions' profits would increase as a result of agreeing to the transfer of 4,000 parts this year from Division B to Division A? b. Is it in the best interests of the overall company for this transfer to take place? Explain. |

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| 27. | Krenski Corporation has a Parts Division that does work for other Divisions in the company as well as for outside customers. The company's Equipment Division has asked the Parts Division to provide it with 10,000 special parts each year. The special parts would require $12.00 per unit in variable production costs. The Equipment Division has a bid from an outside supplier for the special parts at $31.00 per unit. In order to have time and space to produce the special part, the Parts Division would have to cut back production of another part-the TW3 that it presently is producing. The TW3 sells for $35.00 per unit, and requires $13.00 per unit in variable production costs. Packaging and shipping costs of the TW3 are $3.00 per unit. Packaging and shipping costs for the new special part would be only $2.00 per unit. The Parts Division is now producing and selling 50,000 units of the TW3 each year. Production and sales of the TW3 would drop by 10% if the new special part is produced for the Equipment Division.  **Required:**  a. What is the range of transfer prices within which both the Divisions' profits would increase as a result of agreeing to the transfer of 10,000 special parts per year from the Parts Division to the Equipment Division? b. Is it in the best interests of Krenski Corporation for this transfer to take place? Explain. |

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| 28. | Division A makes watzits. The company has sufficient capacity to make 70,000 watzits per year. The company expects to sell 65,000 watzits this year. Division B uses watzits in their production and has total needs of 20,000 watzits this year. Division B is presently buying watzits from an outside supplier for $11.25 each. The cost to Division A to make the watzits are $5.00 for direct materials, $2.00 for direct labor, $2.50 for variable manufacturing overhead, and $1.50 for fixed manufacturing overhead. Direct labor is a variable cost. Division A sells watzits on the outside market for $11.50 each.  **Required:**  a. Assuming that Division B buys its entire 20,000 requirement of watzits from Division A, is it possible for Division A and Division B to agree to a mutually acceptable transfer price and if so, within what range would that transfer price be? b. Assuming that Division B buys only 5,000 watzits from Division A, is it possible for Division A and Division B to agree to a mutually acceptable transfer price and if so, within what range would that transfer price be? |

Appendix 11A Transfer Pricing Answer Key

**True / False Questions**

|  |  |
| --- | --- |
| 1. | A transfer price is the price charged when a company provides goods or services to an outside company.    **FALSE** |

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| *AACSB: Reflective Thinking AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Remember Difficulty: 1 Easy Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| --- | --- |
| 2. | Opportunity cost should be ignored in setting the transfer price.    **FALSE** |

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| *AACSB: Reflective Thinking AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Understand Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

|  |  |
| --- | --- |
| 3. | One disadvantage of using the actual cost of a product as the transfer price is that it does not provide a strong incentive for the producing division to control its costs.    **TRUE** |

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| *AACSB: Reflective Thinking AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Understand Difficulty: 1 Easy Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| --- | --- |
| 4. | When a division is operating at full capacity, the transfer price to other divisions should not include opportunity costs.    **FALSE** |

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| *AACSB: Reflective Thinking AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Understand Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

|  |  |
| --- | --- |
| 5. | The selling division in a transfer pricing situation should want the transfer price to cover at least the variable cost per unit plus the lost contribution margin per unit on outside sales.    **TRUE** |

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| *AACSB: Reflective Thinking AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Remember Difficulty: 1 Easy Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

|  |  |
| --- | --- |
| 6. | Setting transfer prices at full cost can lead to good decisions because, among other reasons, full cost takes into account opportunity costs.    **FALSE** |

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| *AACSB: Reflective Thinking AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Understand Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

**Multiple Choice Questions**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. | In setting a transfer price, which of the following should not be considered?      |  |  | | --- | --- | | **A.** | Fixed production costs of the buying division. |  |  |  | | --- | --- | | B. | Production capacity of the selling division. |  |  |  | | --- | --- | | C. | Product demand from outside customers. |  |  |  | | --- | --- | | D. | Costs eliminated by internal transfers. | |

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| *AACSB: Reflective Thinking AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Understand Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. | The Western Division of Pryto Corporation sells Part D to other companies for $78.50 per unit. According to the company's cost accounting system, the costs to Western Division to make a unit of Product D are:      The Southern Division of Pryto Corporation uses a part much like Part D in one of its products. The Southern Division can buy this part from an outside supplier for $78.25 per unit. However, the Southern Division could use Part D instead of this part that it purchases from outside suppliers. What is the most that the Southern Division would be willing to pay the Western Division for Product D?      |  |  | | --- | --- | | A. | $78.50 per unit |  |  |  | | --- | --- | | B. | $76.00 per unit |  |  |  | | --- | --- | | C. | $74.00 per unit |  |  |  | | --- | --- | | **D.** | $78.25 per unit | |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 1 Easy Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9. | Division X makes a part that it sells to customers outside of the company. Data concerning this part appear below:      Division Y of the same company would like to use the part manufactured by Division X in one of its products. Division Y currently purchases a similar part made by an outside company for $70 per unit and would substitute the part made by Division X. Division Y requires 5,000 units of the part each period. Division X can already sell all of the units it can produce on the outside market. What should be the lowest acceptable transfer price from the perspective of Division X?      |  |  | | --- | --- | | **A.** | $75 |  |  |  | | --- | --- | | B. | $66 |  |  |  | | --- | --- | | C. | $16 |  |  |  | | --- | --- | | D. | $50 |   Because there is an opportunity cost, the selling division should not accept any transfer price less than its selling price to outsiders of $75 per unit. |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10. | Using the formula in the text, if the lowest acceptable transfer price from the viewpoint of the selling division is $90 and the opportunity cost per unit on outside sales is $40, then the variable cost per unit must be:      |  |  | | --- | --- | | A. | $90 |  |  |  | | --- | --- | | B. | $40 |  |  |  | | --- | --- | | C. | $130 |  |  |  | | --- | --- | | **D.** | $50 |   From the perspective of the selling division, profits would increase as a result of the transfer if and only if: Transfer price > Variable cost per unit + Opportunity cost per unit = $90 per unit Variable cost per unit + $40 per unit = $90 per unit Variable cost per unit = $90 per unit - $40 per unit = $50 per unit |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| 11. | The North Division of Barter Company makes and sells a single product, which is a part used in manufacturing trucks. The annual production capacity is 35,000 units and the variable cost of each unit is $24. Presently the North Division sells 32,000 units per year to outside customers at $40 per unit. The South Division of Barter Company would like to buy 15,000 units a year from North to use in its production. There would be no savings in variable costs from transferring the units internally rather than selling them externally. The lowest acceptable transfer price from the standpoint of the North Division should be closest to:      |  |  | | --- | --- | | **A.** | $36.80 |  |  |  | | --- | --- | | B. | $24.00 |  |  |  | | --- | --- | | C. | $32.00 |  |  |  | | --- | --- | | D. | $40.00 |   Available capacity for outside sales = Capacity - Internal sales = 35,000 units - 15,000 units = 20,000 units Lost outside sales = Total outside demand - Available capacity for outside sales = 32,000 units - 20,000 units = 12,000 units  From the perspective of the selling division, profits would increase as a result of the transfer if and only if: Transfer price > Variable cost per unit + Opportunity cost per unit Transfer price > Variable cost per unit + (Total contribution margin on lost sales ÷ Number of units transferred) Total contribution margin on lost sales = 12,000 units × ($40 per unit - $24 per unit) = $192,000 Transfer price > $24 per unit + ($192,000 ÷ 15,000 units) = $24.00 per unit + $12.80 per unit = $36.80 per unit |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 3 Hard Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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|  | Division A makes a part with the following characteristics:      Division B, another division of the same company, would like to purchase 5,000 units of the part each period from Division A. Division B is now purchasing these parts from an outside supplier at a price of $28 each. |

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| 12. | Suppose that Division A has ample idle capacity to handle all of Division B's needs without any increase in fixed costs and without cutting into sales to outside customers. If Division A refuses to accept the $28 price internally and Division B continues to buy from the outside supplier, the company as a whole will be:      |  |  | | --- | --- | | **A.** | worse off by $40,000 each period. |  |  |  | | --- | --- | | B. | worse off by $20,000 each period. |  |  |  | | --- | --- | | C. | better off by $10,000 each period. |  |  |  | | --- | --- | | D. | worse off by $30,000 each period. |   Because there is ample excess capacity, there is no opportunity cost. Instead of incurring a cost of $20 per unit if the transfer were made internally, the company would have to incur a cost of $28 per unit to purchase from an outside supplier. Therefore, the company would be worse off by $40,000 per period = ($28 per unit - $20 per unit) × 5,000 units per period. |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| 13. | Suppose that Division A is operating at capacity and can sell all of its output to outside customers at its usual selling price. If Division A agrees to sell the parts to Division B at $28 per unit, the company as a whole will be:      |  |  | | --- | --- | | A. | better off by $20,000 each period. |  |  |  | | --- | --- | | **B.** | worse off by $10,000 each period. |  |  |  | | --- | --- | | C. | worse off by $40,000 each period. |  |  |  | | --- | --- | | D. | There will be no change in the profits of the company as a whole. |   Instead of being able to sell the units for $30 per unit on the outside market, the company would save $28 per unit transferring them internally. The net effect is a reduction of $10,000 per period = ($30 per unit - $28 per unit) × 5,000 units per period. |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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|  | Division 1 of Ace Company makes and sells wheels that can either be sold to outside customers or transferred to Division 2. The following data are available from last month:  Division 1:      Division 2:      If Division 1 sells the wheels to Division 2, Division 1 can avoid $2 per unit in sales commissions. |

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| 14. | Suppose that Division 1 sells 7,500 units per month to outside customers. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division if Division 2 requires 5,000 units per month from Division 1?      |  |  | | --- | --- | | **A.** | $33 per unit |  |  |  | | --- | --- | | B. | $35 per unit |  |  |  | | --- | --- | | C. | $47 per unit |  |  |  | | --- | --- | | D. | $50 per unit |   In this situation there is no opportunity cost because there is ample idle capacity to fill the order from Division 2.  From the perspective of the selling division, profits would increase as a result of the transfer if and only if: Transfer price > Variable cost per unit + Opportunity cost per unit Transfer price > ($35 per unit - $2 per unit) + $0 per unit = $33 per unit |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| 15. | What is the maximum price per wheel that Division 2 should be willing to pay Division 1 if a transfer were to take place?      |  |  | | --- | --- | | A. | $33 per unit |  |  |  | | --- | --- | | B. | $35 per unit |  |  |  | | --- | --- | | **C.** | $47 per unit |  |  |  | | --- | --- | | D. | $50 per unit |   Division 2 would not be willing to pay more than $47 per unit, the amount it would have to pay an outside supplier for the wheels. |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| 16. | Suppose that Division 1 sells 11,500 units each month to outside customers. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?      |  |  | | --- | --- | | A. | $47.00 per unit |  |  |  | | --- | --- | | B. | $43.50 per unit |  |  |  | | --- | --- | | **C.** | $37.50 per unit |  |  |  | | --- | --- | | D. | $34.73 per unit |   Available capacity for outside sales = Capacity - Internal sales = 15,000 units - 5,000 units = 10,000 units Lost outside sales = Total outside demand - Available capacity for outside sales = 11,500 units - 10,000 units = 1,500 units Total contribution margin on lost sales = CM per unit × Lost outside sales = ($50 per unit - $35 per unit) × 1,500 units = $22,500  From the perspective of the selling division, profits would increase as a result of the transfer if and only if: Transfer price > Variable cost per unit + Opportunity cost per unit Transfer price > Variable cost per unit + (Total contribution margin on lost sales ÷ Number of units transferred) Transfer price > ($35 per unit - $2 per unit) + ($22,500 ÷ 5,000 units) = $33.00 per unit + $4.50 per unit = $37.50 per unit |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 3 Hard Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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|  | Division T of Clocker Company makes a timer which it sells for $30 to outside customers. The division has supplied the following data concerning the timer:      Division S of Clocker Company is currently buying 5,000 similar timers each month from an overseas supplier at $27 each. Division S would like to acquire its timers from Division T if the price is right. |

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| 17. | Suppose Division T is operating at capacity and can sell all of the timers it produces to outside customers at its usual selling price. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?      |  |  | | --- | --- | | **A.** | $30 per timer |  |  |  | | --- | --- | | B. | $27 per timer |  |  |  | | --- | --- | | C. | $25 per timer |  |  |  | | --- | --- | | D. | $15 per timer |   Total contribution margin on lost sales = CM per unit × Lost outside sales = ($30 per timer - $15 per timer) × 5,000 timers = $75,000  From the perspective of the selling division, profits would increase as a result of the transfer if and only if: Transfer price > Variable cost per unit + Opportunity cost per unit Transfer price > Variable cost per unit + (Total contribution margin on lost sales ÷ Number of units transferred) Transfer price > $15 per timer + ($75,000 ÷ 5,000 timers) = $15 per time + $15 per timer = $30 per timer |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 1 Easy Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| 18. | Suppose Division T is operating at capacity and can sell all of the timers it produces to outside customers at its usual selling price. If Division T meets the price of the overseas supplier and sells 5,000 timers to Division S each month, the effect on the monthly net operating income of the company as a whole will be:      |  |  | | --- | --- | | A. | increase of $15,000 |  |  |  | | --- | --- | | **B.** | decrease of $15,000 |  |  |  | | --- | --- | | C. | decrease of $60,000 |  |  |  | | --- | --- | | D. | increase of $10,000 |   Total contribution margin on lost sales = CM per unit × Lost outside sales = ($30 per timer - $15 per timer) × 5,000 timers = $75,000  Savings from purchasing internally rather than buying the timer from the overseas supplier = ($27 per timer × 5,000 timers) - ($15 per timer × 5,000 timers) = $60,000  Overall profits would decline by $15,000, the difference between total contribution margin on lost sales and the savings from purchasing internally rather than buying the timer from the overseas supplier. |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| 19. | Suppose that Division T can sell only 10,000 timers to outside customers. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?      |  |  | | --- | --- | | **A.** | $24 per timer |  |  |  | | --- | --- | | B. | $27 per timer |  |  |  | | --- | --- | | C. | $30 per timer |  |  |  | | --- | --- | | D. | $15 per timer |   Available capacity for outside sales = Capacity - Internal sales = 12,000 timers - 5,000 timers = 7,000 timers Lost outside sales = Total outside demand - Available capacity for outside sales = 10,000 timers - 7,000 timers = 3,000 timers Total contribution margin on lost sales = CM per unit × Lost outside sales = ($30 per timer - $15 per timer) × 3,000 timers = $45,000  From the perspective of the selling division, profits would increase as a result of the transfer if and only if: Transfer price > Variable cost per unit + Opportunity cost per unit Transfer price > Variable cost per unit + (Total contribution margin on lost sales ÷ Number of units transferred) Transfer price > $15 per timer + ($45,000 ÷ 5,000 timers) = $15 per time + $9 per timer = $24 per timer |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 3 Hard Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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|  | The DVD Division of Sound Company makes and sells compact DVD players (DVDP) that it presently sells to outside customers. Budgeted costs next month for the DVD Division are as follows:      MaxiSound, another division of Sound Company, would like to buy 1,000 of the DVDPs from the DVD Division. An outside supplier has offered to sell similar DVDPs to MaxiSound for $170 each. |

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| 20. | Assume that DVD Division's monthly production capacity is 2,800 units. If the DVD Division sells 1,000 DVDPs to MaxiSound for $170 each, the monthly effect on the profits of DVD Division will be a:      |  |  | | --- | --- | | **A.** | $15,000 decrease |  |  |  | | --- | --- | | B. | $42,000 decrease |  |  |  | | --- | --- | | C. | $50,000 increase |  |  |  | | --- | --- | | D. | no change |   The cost would be higher by $15,000 if the DVDPs are transferred internally rather than purchased from an outside supplier. |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| 21. | Assume the DVD Division's monthly production capacity is 4,000 units. If the DVD Division sells 1,000 DVDPs to MaxiSound for $170 each, the monthly effect on the profits of DVD Division will be a:      |  |  | | --- | --- | | A. | $65,000 increase |  |  |  | | --- | --- | | **B.** | $50,000 increase |  |  |  | | --- | --- | | C. | $185,000 increase |  |  |  | | --- | --- | | D. | $170,000 increase |   In this situation, there is no opportunity cost and the DVD Division's profits would increase by ($170 per unit - $120 per unit) × 1,000 units = $50,000. |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 3 Hard Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| 22. | Assume that DVD Division's monthly production capacity is 3,200 units. If the DVD Division sells 1,000 DVDPs to MaxiSound for $170 each, the effect on the monthly profits of Sound Company as a whole will be a:      |  |  | | --- | --- | | A. | $9,000 decrease |  |  |  | | --- | --- | | B. | $74,000 decrease |  |  |  | | --- | --- | | C. | $20,000 increase |  |  |  | | --- | --- | | **D.** | $11,000 increase |   Available capacity for outside sales = Capacity - Internal sales = 3,200 units - 1,000 units = 2,200 units Lost outside sales = Total outside demand - Available capacity for outside sales = 2,800 units - 2,200 units = 600 units Total contribution margin on lost sales = CM per unit × Lost outside sales = ($185 per unit - $120 per unit) × 600 units = $39,000    The cost would be higher by $11,000 if the DVDPs are purchased from an outside supplier rather than transferred internally. |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 3 Hard Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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|  | The Red River Division of Alto Company produces and sells bags of pottery clay which can either be sold to outside customers or transferred to the White Mountain Division of Alto Company. The following data are available for the last year:          By selling to the White Mountain Division, the Red River Division will avoid $3 per bag in selling costs. |

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| 23. | If Red River can sell only 10,000 bags annually to outside customers, according to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?      |  |  | | --- | --- | | A. | $20 per bag |  |  |  | | --- | --- | | B. | $16 per bag |  |  |  | | --- | --- | | **C.** | $11 per bag |  |  |  | | --- | --- | | D. | $14 per bag |   Available capacity for outside sales = Capacity - Internal sales = 18,000 bags - 6,000 bags = 12,000 bags There is no opportunity cost because the available capacity for outside sales exceeds the demand from outside customers.  From the perspective of the selling division, profits would increase as a result of the transfer if and only if: Transfer price > Variable cost per unit + Opportunity cost per unit Transfer price > [$10 per bag + ($4 per bag - $3 per bag)] + $0 per bag = $11 per bag |

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| 24. | If Red River can sell 15,000 bags annually to outside customers, according to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?      |  |  | | --- | --- | | A. | $20 per bag |  |  |  | | --- | --- | | B. | $16 per bag |  |  |  | | --- | --- | | C. | $11 per bag |  |  |  | | --- | --- | | **D.** | $14 per bag |   Available capacity for outside sales = Capacity - Internal sales = 18,000 bags - 6,000 bags = 12,000 bags Lost outside sales = Total outside demand - Available capacity for outside sales = 15,000 bags - 12,000 bags = 3,000 bags Total contribution margin on lost sales = CM per unit × Lost outside sales = [$20 per bag - ($10 per bag + $4 per bag)] × 3,000 bags = $18,000  From the perspective of the selling division, profits would increase as a result of the transfer if and only if: Transfer price > Variable cost per unit + Opportunity cost per unit Transfer price > Variable cost per unit + (Total contribution margin on lost sales ÷ Number of units transferred) Transfer price > [$10 per bag + ($4 per bag - $3 per bag)] + ($18,000 ÷ 6,000 bags) = $11 per bag + $3 per bag = $14 per bag |

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| 25. | What is the maximum transfer price the White Mountain Division should be willing to pay?      |  |  | | --- | --- | | A. | $20 per bag |  |  |  | | --- | --- | | **B.** | $16 per bag |  |  |  | | --- | --- | | C. | $11 per bag |  |  |  | | --- | --- | | D. | $14 per bag |   White Mountain Division would be unwilling to pay more than $16 per bag, which is the amount it pays the outside supplier. |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

**Essay Questions**

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| 26. | Division B has asked Division A of the same company to supply it with 4,000 units of part K932 this year to use in one of its products. Division B has received a bid from an outside supplier for the parts at a price of $31.00 per unit. Division A has the capacity to produce 10,000 units of part K932 per year. Division A expects to sell 8,000 units of part K932 to outside customers this year at a price of $36.00 per unit. To fill the order from Division B, Division A would have to cut back its sales to outside customers. Division A produces part K932 at a variable cost of $18.00 per unit. The cost of packing and shipping the parts for outside customers is $3.00 per unit. These packing and shipping costs would not have to be incurred on sales of the parts to Division B.  **Required:**  a. What is the range of transfer prices within which both the Divisions' profits would increase as a result of agreeing to the transfer of 4,000 parts this year from Division B to Division A? b. Is it in the best interests of the overall company for this transfer to take place? Explain.     (Note: Due limitations in fonts and word processing software, > and < signs must be used in this solution rather than "greater than or equal to" and "less than or equal to" signs.) a. From the perspective of Division B, profits would increase as a result of the transfer if and only if: Transfer price > Variable cost + Opportunity cost The opportunity cost is the contribution margin on the lost sales, divided by the number of units transferred: Opportunity cost = [($36.00 - $18.00 - $3.00) × 2,000\*]/4,000 = $7.50      Therefore, Transfer price > $18.00 + $7.50 = $25.50.  From the viewpoint of Division A, the transfer price must be less than the cost of buying the units from the outside supplier. Therefore, Transfer price < $31.00. Combining the two requirements, we get the following range of transfer prices: $25.50 < Transfer price < $31.00.  b. Yes, the transfer should take place. From the viewpoint of the entire company, the cost of transferring the units within the company is $25.50, but the cost of purchasing them from the outside supplier is $31.00. Therefore, the company's profits increase on average by $5.50 for each of the special parts that is transferred within the company. |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 3 Hard Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| 27. | Krenski Corporation has a Parts Division that does work for other Divisions in the company as well as for outside customers. The company's Equipment Division has asked the Parts Division to provide it with 10,000 special parts each year. The special parts would require $12.00 per unit in variable production costs. The Equipment Division has a bid from an outside supplier for the special parts at $31.00 per unit. In order to have time and space to produce the special part, the Parts Division would have to cut back production of another part-the TW3 that it presently is producing. The TW3 sells for $35.00 per unit, and requires $13.00 per unit in variable production costs. Packaging and shipping costs of the TW3 are $3.00 per unit. Packaging and shipping costs for the new special part would be only $2.00 per unit. The Parts Division is now producing and selling 50,000 units of the TW3 each year. Production and sales of the TW3 would drop by 10% if the new special part is produced for the Equipment Division.  **Required:**  a. What is the range of transfer prices within which both the Divisions' profits would increase as a result of agreeing to the transfer of 10,000 special parts per year from the Parts Division to the Equipment Division? b. Is it in the best interests of Krenski Corporation for this transfer to take place? Explain.     (Note: Due limitations in fonts and word processing software, > and < signs must be used in this solution rather than "greater than or equal to" and "less than or equal to" signs.)  a. From the perspective of the Parts Division, profits would increase as a result of the transfer if and only if: Transfer price > Variable cost + Opportunity cost The opportunity cost is the contribution margin on the lost sales, divided by the number of units transferred: Opportunity cost = [($35.00 - $13.00 - $3.00) × 5,000\*] ÷ 10,000 = $9.50 \* 10% × 50,000 = 5,000 Therefore, Transfer price > ($12.00 + $2.00) + $9.50 = $23.50.  From the viewpoint of the Equipment Division, the transfer price must be less than the cost of buying the units from the outside supplier. Therefore, Transfer price < $31.00. Combining the two requirements, we get the following range of transfer prices: $23.50 < Transfer price < $31.00.  b. Yes, the transfer should take place. From the viewpoint of the entire company, the cost of transferring the units within the company is $23.50, but the cost of purchasing the special parts from the outside supplier is $31.00. Therefore, the company's profits increase on average by $7.50 for each of the special parts that is transferred within the company, even though this would cut into production and sales of another product. |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 3 Hard Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |

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| 28. | Division A makes watzits. The company has sufficient capacity to make 70,000 watzits per year. The company expects to sell 65,000 watzits this year. Division B uses watzits in their production and has total needs of 20,000 watzits this year. Division B is presently buying watzits from an outside supplier for $11.25 each. The cost to Division A to make the watzits are $5.00 for direct materials, $2.00 for direct labor, $2.50 for variable manufacturing overhead, and $1.50 for fixed manufacturing overhead. Direct labor is a variable cost. Division A sells watzits on the outside market for $11.50 each.  **Required:**  a. Assuming that Division B buys its entire 20,000 requirement of watzits from Division A, is it possible for Division A and Division B to agree to a mutually acceptable transfer price and if so, within what range would that transfer price be? b. Assuming that Division B buys only 5,000 watzits from Division A, is it possible for Division A and Division B to agree to a mutually acceptable transfer price and if so, within what range would that transfer price be?     a. From the selling division's perspective, the transfer price must cover both the variable costs and the lost contribution margin from the 15,000 units that would have to be diverted from the outside market to deliver 20,000 units to Division B. Transfer price > Variable cost per unit + (Total contribution margin on lost sales ÷ Number of units transferred) = $9.50 + ((($11.50 - $9.50) × 15,000) ÷ 20,000) = $9.50 + (($2.00 × 15,000) ÷ 20,000) = $9.50 + ($32,250 ÷ 20,000) = $9.50 + $1.50 = $11.00  From the buying division's perspective, the transfer price cannot be greater than the price it is already paying to the outside supplier, which is $11.25.  It should be possible for the division managers to agree to a transfer price. Both divisions would be better off making the transfer as long as the transfer price is between $11.00 and $11.25.  b. If Division B only buys 5,000 units from Division A, there would be no lost contribution margin since only idle capacity would be used in Division A to fill the order. Therefore, from the selling division's perspective, the transfer price would only have to cover the variable cost of $9.50. It should be possible for the division managers to settle on a transfer price between $9.50 and $11.25. |

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| *AACSB: Analytic AICPA BB: Critical Thinking AICPA FN: Measurement Blooms: Apply Difficulty: 2 Medium Learning Objective: 11A-05 Determine the range; if any; within which a negotiated transfer price should fall.* |