Solution of chapter 8 operations mangement by jay heizer

Service location decisions tend to focus on the revenue function, whereas manufacturing/industrial location decisions tend to focus on costs. The service sector uses techniques such as: Correlation analysis Traffic counts Demographic analysis Purchasing power analysis The industrial decision uses: Transportation method Factor-weighting approach Break-even analysis Crossover charts 8. Factors to consider when choosing a country: Exchange rates Government stability Communications systems within the country and to the home office Wage rates Productivity Transportation costs

Language Tariffs Taxes Attitude towards foreign investors/incentives Legal system Ethical standards Cultural issues Supplies availability Market locations 9. Factors to consider in a region/community decision: Corporate desires Attractiveness of region Labor issue Utilities Environmental regulations Incentives Proximity to raw materials/customers Land/construction costs 10. Site location factors: Size and cost Transportation systems Zoning Proximity of services/supplies needed Environmental impact END-OF-CHAPTER PROBLEMS 8. 1(a)Six laborers each making $3 per day can produce 40 units. b)Eight laborers each making $2. 50 per day, can produce 45 units. (c)Two laborers, each making $64 per day, can make 100 units.

China is most economical, assuming transportation costs are not included. 8. 2Malaysia China Montana China is most favorable. 8. 6Atlanta Charlotte Charlotte is better. 8. 7| | Suburb B has the highest rating, but weights should be examined using sensitivity analysis, as the final ratings are all close. 8. 8| | Location| | | Present Location| Newbury| Hyde Park| | Factor| | Wgt| | | Wgt| | | Wgt| | | 1| 40| 0. 30| 12| 60| 0. 30| 18. 00| 50| 0. 0| 15. 0| | 2|

20| 0. 15| 3| 20| 0. 15| 3. 00| 80| 0. 15| 12. 0| | 3| 30| 0. 20| 6| 60| 0. 20| 12. 00| 50| 0. 20| 10. 0| | 4| 80| 0. 35| 28| 50| 0. 35| 17. 50| 50| 0. 35| 17. 5| | | Total Points| 49| Total Points| 50. 50| Total Points| 54. 5| It appears that Hyde Park represents the best alternative. 8. 9(a)Chicago = 16 + 6 + 7 + 4 = 33 Milwaukee = 10 + 13. 5 + 6 + 3 = 32. 5 Madison = 12 + 12 + 4 + 2. 5 = 30. 5 Detroit = 14 + 6 + 7 + 4. 5 = 31. 5 All four are quite close, with Chicago and Milwaukee almost tied.

Chicago has the largest rating, with a 33. b)With a cutoff of 5, Chicago is unacceptable because it scores only 4 on the second factor. Only Milwaukee has scores of 5 or higher on all factors. 8. 10| Location A| | Factor| Weight| Rating| Weighted Score| | 1| 5| 100| 500| | 2| 3| 80| 240| | 3| 4| 30| 120| | 4| 2| 10| 20| | 5| 2| 90| 180| | 6| 3| 50| 150| | Total weighted score:| 1210| | Location B | | Factor| Weight| Rating| Weighted Score| | 1| 5| 80| 400| | 2| 3| 70| 210| | 3| 4| 60| 240| | 4| 2| 80| 160| | 5| 2| 60| 120| | 6| 3| 60| 180| | Total weighted score: | 1310| | Location C | Factor| Weight| Rating| Weighted Score| | 1| 5| 80| 400| | 2| 3| 100| 300| | 3| 4| 70| 280| | 4| 2| 60| 120| | 5| 2| 80| 160| | 6| 3| 90| 270| | Total weighted score:| 1530|

Based on the total weighted scores, Location C should be recommended. Note that raw weights were used in computing these weighted scores (we just multiplied " weight" times " rating"). Relative weights could have been used instead by taking each factor weight and dividing by the sum of the weights (i. e. , 19). Then the weight for factor 1 would have been . Location C would still have been selected. . 11| | Site 3 has the highest rating factor, 86. 65, and should be selected. 8. 12(a)The following figure indicates the volume range for which each site is optimal. Site 1 is optimal for production less than

or equal to 125 units. Site 2 is optimal for production between 125 and 233 units. Site 3 is optimal for production above 233 units. (b)For 200 units, site 2 is optimal. 8. 13| (a)| | (b)For 5, 000 units, Perth is the better option. 8. 14| | V–A: A–B: B–C: 8. 15| (a)| | The total cost equations are: (b)Denver is preferable over the range from 0–3, 570 units.

Burlington is lowest cost at any volume exceeding 3, 570, but less than 25, 000 units. Atlanta is never lowest in cost. Cleveland becomes the best site only when volume exceeds 25, 000 units per year. (c)At a volume of 5, 000 units, Burlington is the least-cost site. 8. 16| | The proposed new hub should be near (5. 15, 7. 31). 8. 17| | | City| Map Coordinates| Shipping Load| | A| 2, 1| 20| | B| 2, 13| 10| | C| 4, 17| 5| | D| 7, 7| 20| | E| 8, 18| 15| | F| 12, 16| 10| | G| 17, 4 | 20| | H| 18, 18| 20| | | | 120| 8. 19| | The proposed new facility should be near (7. 97, 6. 69).