Practice Calculations – Operations Management

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| LABOUR PRODUCTIVITY | |
| Jana’s is a chocolate manufacturer. They have 60 full time members of staff who produce 4800 boxes of Belgium chocolates a day on the production line. | How can Jana improve employee motivation? |
| Loco’s are train engineers who fix faulty train carriage doors. There are 6 highly skilled engineers who work 5 days a week and fix an average of 18 carriages a day. What is their weekly labour productivity? | How can Loco’s improve the motivation of their highly skilled staff? |
| Dante’s is a cocktail bar in Soho. Dante’s employ 4 bar tenders on any shift. On average, each bar tender makes 40 cocktails an hour. If each shift is 6 hours what is the labour productivity of a shift? | How can Dante’s improve employee motivation? |
| Pollo’s is a chicken shop. Pollo’s employ 3 workers each evening. On a busy Saturday night the workers can serve 600 portions of chicken in a 6 hour shift. What is the hourly productivity rate? | How can Pollo’s improve employee motivation? |
| Unit Costs | |
| Jana’s total costs are £19,200. The total output is 4800 boxes of chocolate. What is the average cost of each box of chocolate? | How can Jana’s lower the average cost per unit? |
| Loco’s have fixed costs of £1,500 a day. The variable cost of each door fixed is £250. If 18 doors are fixed a day what is the average cost? | How can Loco’s lower the average cost per unit? |
| Dante’s produce 2400 cocktails in a single shift. The average cost of each cocktail is £0.60p. What are the total costs?  If the fixed costs are £440, what are the variable costs per unit? | How can Dante’s lower the average cost per unit? |
| Pollo’s have fixed costs of £750. Their variable cost per portion of chicken is 75p. What is the average cost per chick portion if they produce 600 portions? | How can Pollo’s lower the average cost per unit? |
| Capacity Utilisation | |
| Jana’s currently produce 4800 boxes of chocolates. Their production line at full capacity can make 7200 boxes. What is Jana’s capacity utilisation? | Is Jana’s underutilised, over utilised or at capacity?  What would you recommend to Jana based on your answer? |
| Loco’s currently fix 18 doors a day. The maximum they can fix is 36 doors. What is Loco’s capacity utilisation? | Is Loco’s underutilised, over utilised or at capacity?  What would you recommend to Loco’s based on your answer? |
| Dante’s produce 2400 cocktails in a single shift. If the bar was full and all customers purchased two drinks per hour they could sell 3000 cocktails. What is Dante’s capacity utilisation? | Is Dante’s underutilised, over utilised or at capacity?  What would you recommend to Dante’s based on your answer? |
| Pollo’s produce 600 portions of chicken in a shift. They are at 100% capacity and turn customers away. | What are Pollo’s options for dealing with their current situation? |

Practice Calculations Answers

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| LABOUR PRODUCTIVITY | |
| Jana’s is a chocolate manufacturer. They have 60 full time members of staff who produce 4800 boxes of Belgium chocolates a day on the production line.  4800/ 60 = 80 boxes of chocolates per employee. | How can Jana improve employee motivation?  E.g. Introduce piece rate pay |
| Loco’s are train engineers who fix faulty train carriage doors. There are 6 highly skilled engineers who work 5 days a week and fix an average of 18 carriages a day. What is their weekly labour productivity?  18/6 = 3 per day \* 5 = 15 doors per week per employee | How can Loco’s improve the motivation of their highly skilled staff?  E.g. Introduce reward systems e.g. extra responsibility |
| Dante’s is a cocktail bar in Soho. Dante’s employ 4 bar tenders on any shift. On average, each bar tender makes 40 cocktails an hour. If each shift is 6 hours what is the labour productivity of a shift?  40\*4 = 160 per hour \* 6 = 960  960/4 = 240 cocktails per worker per night | How can Dante’s improve employee motivation?  E.g. Commission/ bonus |
| Pollo’s is a chicken shop. Pollo’s employ 3 workers each evening. On a busy Saturday night the workers can serve 600 portions of chicken in a 6 hour shift. What is the hourly productivity rate?  600/ 6 = 100 portions an hour  100/3 = 33.33 (34) portions per worker per hour. | How can Pollo’s improve employee motivation?  E.g.  Target setting  Performance related pay |
| Unit Costs | |
| Jana’s total costs are £19,200. The total output is 4800 boxes of chocolate. What is the average cost of each box of chocolate  £19,200/4800 = £4 per box | How can Jana’s lower the average cost per unit?  E.g. Find a new cocoa supplier |
| Loco’s have fixed costs of £1,500 a day. The variable cost of each door fixed is £250. If 18 doors are fixed a day what is the average cost?  £250 \* 18 = £4500 + £1500 = £6000  £6000/ 18 = £333.34 per door | How can Loco’s lower the average cost per unit?  E.g. try and lower overhead costs for example motivating staff to fix each door quicker so more doors can be fixed |
| Dante’s produce 960 cocktails in a single shift. The average cost of each cocktail is £2.50 What are the total costs?  If the fixed costs are £500, what are the variable costs per unit?  TC = 960 \* £2.50 £2400  TVC = £2400 – £500 = £1900  VCPU = £1900 / 960 = £1.98p per cocktail | How can Dante’s lower the average cost per unit?  Use cheaper suppliers e.g. cheaper fruit juices in cocktails |
| Pollo’s have fixed costs of £750. Their variable cost per portion of chicken is 75p. What is the average cost per chick portion if they produce 600 portions?  TC = (0.75p \* 600) = £450 + £750 = £1200  £1200/ 600 = £2 per portion | How can Pollo’s lower the average cost per unit?  Lower overheads, e.g. use less electricity |
| Capacity Utilisation | |
| Jana’s currently produce 4800 boxes of chocolates. Their production line at full capacity can make 7200 boxes. What is Jana’s capacity utilisation?  4800/7200 \* 100 = 67% | Is Jana’s underutilised, over utilised or at capacity?  Under utilised  What would you recommend to Jana based on your answer?  E.G – Special offer or promotion and advertisement to boost sales. |
| Loco’s currently fix 18 doors a day. The maximum they can fix is 36 doors. What is Loco’s capacity utilisation?  18/36 \* 100 = 50% | Is Loco’s underutilised, over utilised or at capacity?  Under utilised  What would you recommend to Loco’s based on your answer?  **E.G. Rationalise staff – lay off some of the workforce or make them part time** |
| Dante’s produce 2400 cocktails in a single shift. If the bar was full and all customers purchased two drinks per hour they could sell 3000 cocktails. What is Dante’s capacity utilisation?  2400/3000 \* 100 = 80% | Is Dante’s underutilised, over utilised or at capacity?  Under – put within ideal capacity level  What would you recommend to Dante’s based on your answer?  E.G. Maintain current levels – with scope for slightly more capacity, maybe by incentivising staff with commission |
| Pollo’s produce 600 portions of chicken in a shift. They are at 100% capacity and turn customers away. | What are Pollo’s options for dealing with their current situation?  Look to increase capacity   * May need more staff * May need to extend seating area or cooking facilities |