CMPG322 – Applied assignment B

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| **Submission date**: 11/09/2023 | |  |
| **Name & surname:** | **Bernard Swanepoel** |  |
| **Student number:** | **39909476** |  |
| **Name of your business:** | |  |
| **“ByteBazaar”** | |  |
| **Enter the products that your business provides:** | |  |
| **Computer-hardware** | |  |
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| Instructions | |  |
| 1. This document serves as a portfolio report relating to changes in your business. Enter the required information at the top of this report. | |  |
| 1. Open the accompanying Excel file, click on “Enable macros”; select the approximate price of one of the products that your business provides; click on “Generate data”. **Important**: click on “Save as” and save this file as an “.xlsx” file to prevent your problem values from changing when you reopen or make changes to the file. 2. Use the Excel file for your calculations and submit it together with this report. 3. Save your report as <studentno>.docx and the Excel file as <studentno>.xlsx. submit both files. 4. When you have completed this report, go to your virtual business student page. Add a comment about the EOQ for the selected product and a possible change in ordering policy. Also comment on the implications for manufacturing this product based on your answers in question 2. | |  |
| Complete: | |  |
| 1. This question relates to the specific product you have selected. Generate your unique data set in the Excel file. | |  |
| * 1. What is the optimum ordering quantity? | |  |
| 200 units | | (3) |
| * 1. How many orders per year are needed with the optimal policy? | |  |
| 1 order | | (2) |
| * 1. What is the reorder point? | |  |
| 13.63636 = 13.64 units | | (2) |
| * 1. Your supplier has indicated that the lead time is to increase threefold. How will this change your reorder point? | |  |
| The reorder points will increase from 13.64 units to 40.9 thanks to the lead-time being three times as big. It means the company maintains a larger amount of inventory before they need to reorder against keeping a lower number of items before they need to reorder. The higher lead time means that there is a longer time between ordering and receiving which means that there should be a larger quantity of inventory kept. | | (2) |
| * 1. You have determined that you can also manufacture this product yourself. Do an analysis to determine whether you should keep ordering this product in future or rather manufacture it yourself. | |  |
| The optimal production quantity is 374.74 units. The optimal ordering quantity is 200 units. The cost of producing the products in-house is not worth it because of the setup cost being high 40 cost and a lower EOQ is regarded as better. This means I would rather order the products and use the companies resources for something else. | | (5) |
| * 1. Suppose you have been ordering the number of units provided in cell D31. For this order policy to be optimal, what would the ordering cost have to be? | |  |
| R133.33 is the ordering cost using the optimal number of units ordered of 24 units and calculating annual ordering cost. | | (3) |
| 1. You decide to prepare for the manufacturing process while your analysis is being done. You identify the following steps for this process:   (1) write instructions and procedures,  (2) select techniques to operate the equipment, and  (3) procure the equipment.  The instructions and selection of the operators has to be completed before the training could commence. It is also necessary to choose the operators and evaluate their qualifications before formally announcing the new service to the local community. Upon arrival and installation of the equipment and completion of the operators' training, you will have to spend a period checking out the procedures, operators, and equipment before declaring that the project was successfully completed. The activities and times are listed in the Excel file. | |  |
| * 1. Develop a PERT/CPM network for this problem. Indicate the critical path and the minimum completion time. (This question to be marked in Excel.) | |  |
| The critical path is A-C-F. The minimum completion time is 10 weeks. | | (5) |
| * 1. It would be possible to shorten project completion time by finishing certain activities more quickly at extra cost. If the equipment were to be transported at R2000 per express truck, one week could be saved. Air freight at R4000 would save two weeks. The operator's training period can also be reduced by one week by means of overtime at R1000. The instructions can also be completed one week earlier at a cost of R1000. Create a new spreadsheet and do project crashing for the information provided above. What is the shortest time in which the project can be completed and the costs involved?(TEXT IN RED IS WHAT MY ANSWER WOULD BE IF I NEED TO BE CONSIDERED OF COST), etc trying to minimize crash cost. Normal text represents a scenario where I crash all of the costs listed above. | |  |
| The project can be completed in 9 weeks if you crash all the activities listed above. The total cost is R38000. The crash cost is R4000 when using the crash cost formula. The project will be completed in 9 weeks time and the crash cost involved is 1000. The total cost will be 31000. | | (5) |
| * 1. Which activity(/ies) must be crashed to get your answer above? | |  |
| A. Write instructions should be crashed, C. Train operators should be crashed and E. Purchase, ship, and receive equipment should be crashed. The additional cost of crashing. The crash cost for all these activities is R4000. The activities that will be crashed is C training. | | (2) |
| * 1. What is the critical path after crashing? | |  |
| There are multiple critical paths after crashing, B-D and B-C-F. When attempting to minimize cost, the critical paths will be B-D, B-C-F and A-C-F. | | (1) |
| **Total:** | | **[30]** |