Sri Bhima Sweets is a famous sweet shop in Hastinapur and is particularly famous for its tasty laddus. They have only two outlets where they sell their sweets. The laddus are made in two places in the town and are transported to the retail outlets. Mr. Mithaiwala, the owner is aware of the expected demand for Laddus for Diwali.

Laddus can be made at the rate of 6 kg per hour. The two places that make the laddus have exclusive ovens used to make the laddus. These have four and three ovens respectively. They work for two shifts ordinarily and each shift is for 8 hours. They can work over time if needed and the third shift is for six hours.

The laddus are available for sale on the same day they are produced. Mr. Mithaiwala estimates that the sweets have a life of about one week and therefore uses the daily production to meet the demand of that day and the next day. He also sells some available sweets at half the price on the third day in the name of broken sweets. This way some demand on the third day can be met. The broken sweets are to be sold only in the first shop. Any unfulfilled demand can be met on the next day in either of the shops. As a goodwill gesture the shop undertakes the delivery that costs the shop on an average Rs. 5/kg.

The laddus are sold at Rs. 180/kg in both the shops. The cost of making these (including labour and materials) is Rs. 80 per kg for regular time. The cost of overtime production is Rs. 100/kg. The cost of regular time labour alone is Rs. 40/hour.

To meet the increased demand, Mr. Mithaiwala chooses to use some capacity from Sri Arjun Sweets. He is slightly worried about the quality of the sweets and decides to restrict his daily requirement from them to 50 kg each. He also decides to sell them on the same day and also does not want to use them to meet back ordered demand. The cost price of these sweets are Rs. 100/kg.

The estimated demand for laddus in shop I for the three days preceding Diwali are 500, 600 and 670 kg and in shop 2 the estimated demands are 380, 400 and 480 kg respectively. Both the shops are willing to accept additional 10% more sweets on the third day because of a possible further increase in demand.

There is also a transportation cost from the production facilities to the shops. The estimated cost per kg of laddus transported is given in below table.

**Cost of Transportation**

|  |  |  |
| --- | --- | --- |
|  | Manufacturing 1 | Manufacturing 2 |
| Sale outlet 1 | 1.00 | 1.25 |
| Sale outlet 2 | 1.30 | 1.15 |

Mr. Mithaiwala thinks that the transportation cost can be ignored or can be approximated to an average value of Rs 1.20 per kg transported.