1. **Formulate the linear programming model for the following statement.**
   A company sells two different products A and B making a profit of Rs 40 and Rs 30 per unit on them respectively. They are produced in a common production process and are sold in two different markets. The production process has a total capacity of 30000 man hours. It takes 3 hours to product a unit of A and 1 hour to produce a unit of B. The market has been surveyed and company officials feel that the maximum number of units of A that can be sold is 8000 units and that of B is 12000 units subject to these limitations products can be sold in any combination. Formulate this problem as an LP model to maximize profit.

2. **Formulate the linear programming model for the following statement.**
   In a chemical industry two products A & B are made involving two operations. The production of B resolves also in a by-product C at no extra cost. The product A can be sold at a profit of Rs.30 per unit and B at a profit of Rs.80 per unit. Some of this by-product can be sold at a unit profit of Rs.20, the remainder has to be destroyed and the destruction cost is Rs.10 per unit. Forecasts show that up to 5 units of C can be sold. The company gets 3 units of C for each unit of B produced. The manufacturing times are 3 hours per unit for A on operation one and two, respectively, and 4 hours and 5 hours per unit for B on operation one and two respectively. Because the product C results from producing B, no time is used in producing C. The available times are 180 and 210 hours of operation for one and two respectively. Formulate an LP model in order to determine the quantity of A and B which should be prepared keeping C in mind, to make higher profit.

3. **Formulate the linear programming model for the following statement.**
   A retailer deals in two items only, Item A and Item B. He has Rs. 50,000 to invest and a space to store at the most of 60 pieces. An item A cost him Rs. 2500 and B cost Rs. 500. A net profit to him on item A is Rs. 500 and item B is Rs. 150. If he can sell all the items he purchases how he should invest his amount to have maximum profit.

4. **Formulate the linear programming model for the following statement.**
   A firm is engaged in producing two products A and B. Each unit of product A requires 5 Kg of raw material and five labor hours for processing whereas each unit of product B requires 3 Kg of raw material and six labor hours of processing. Every week the firm has an availability of 80 Kg of raw material and 100 labor hours. One unit of product A sold yields Rs. 45 and one unit of product B sold gives Rs. 30 as profit. Formulate this problem as an Linear Programming Problem to determine the number of units of each product that should be produced each week so that the firm can maximize its profits.

5. **Formulate the linear programming model for the following statement.**
   Vitamins A and B are found in foods F1 and F2. One unit of food F1 contains three units of Vitamin A, and four units of Vitamin B. One unit of food F2 contains six units of Vitamin A and three units of Vitamin B. One unit of food F1 and F2 cost 4 and 5 Rs respectively. The minimum daily requirement for a person of Vitamins A and B is 80 and 100 units respectively. Assuming that anything in excess of the daily minimum requirement of A and B is not harmful formulate the problem to minimize the cost.