Solve the following questions.

1. It is not necessary that all the relationships should be linear in LPP(Say true/false)

2. linear programming is a mathematical technique used to solve the problem of allocating limited resources among the competing activities. (Say true/false)

3. A farmer has a 100 acre farm. He can sell all the tomatoes, lettuce or radishes he can raise. The price he can obtain is Rs. 1 per kg. for tomatoes, Re.0.75 a head for lettuce and Rs.2 per kg. for radishes. The average yield per acre is 2,000 kilograms of tomatoes, 3,000 head of lettuce and 1,000 kilograms of radishes. Fertilizer is available at Rs .0.50 per kg. and the amount required per acre is 100 kgs. each for tomatoes and lettuce and 50 kgs. for radishes. Labour required for sowing, cultivating and harvesting per acre is 5 man-days for tomatoes and radishes and 6 man -days for lettuce. A total of 400 man -days of labour are available Rs. 20 per man day. Formulate this problem as a Linear Programming model to maximize the farmerĝs total profit.

4. A person requires 10, 12 and 12 units of chemicals A, B and C respectively for his garden. A liquid products contain 5, 2 and 1 units of A, B and C respectively per jar. A dry product contains 1, 2 and 4 units of A, B and C per carton. If the liquid product sells for Rs. 3 per jar and the dry product sells for Rs. 2 per carton, how many of each should he purchase in order to minimize the cost and meet the requirement?

5. A Company makes two kinds of leather belts. Belt A is a high quality belt and belt B is of lower quality. The respective profits are Rs.4.00 and Rs.3.00 per belt. Each belt of type A requires twice as much time as a belt of type B, and if

all belts were of type B, the company could make 1000 per day. The supply of leather sufficient for only 800 belts per day (both A and B). Belt A requires a fancy buckle and only 400 per day are available. There are only 700 buckles a day available for belt B. Determine the optimal product mix. (Maximization case).