

**Example 21.** A firm produces three products  $A$ ,  $B$  and  $C$ . Unit contributions of the products are ₹ 5, 10, and 8 respectively. Each unit of product  $A$  requires 3 kg of material, 4 machine hours and 2 labour hours; each unit of product  $B$  requires 5 kg of material, 4 machine hours and 4 labour hours and each unit of product  $C$  requires 2 kg of material, 4 machine hours and 5 labour hours. Everyday 60 kg of material, 72 machine hours and 100 labour hours are available. Use simplex method to find out the best production strategy. Also, investigate the effect on the solution of the following :

- (i) An increase of 12 machine hours.
- (ii) A decrease of 6 kg of material.
- (iii) 3 units of product  $A$  are to be produced.