

# Questions on Production and Cost

1. Why does a production function experience diminishing marginal returns to labour in the short run?
2. Can an isoquant ever slope upward? Explain.
3. Do the following production functions exhibit increasing, constant, or decreasing returns to scale? What happens to marginal product of each individual factor as that factor is increased and the other factor held constant?
  - (a)  $Q = 3L + 2K$ .
  - (b)  $Q = (2L + 2K)^{\frac{1}{2}}$ .
  - (c)  $Q = 4L^{\frac{1}{2}} + 4K$ .
4. If the short run average variable cost of a firm is constant, what shape of the long run average curve is implied by this phenomenon? Explain.
5. A firm has a fixed production cost of Rs 5000 and a constant marginal cost of production of Rs 500 per unit produced.
  - (a) What is the firm's total cost function? Average cost?
  - (b) If the firm wanted to minimize the average total cost, would it choose to be very large or small? Explain.
6. Suppose that a firm's production function is  $q = 10L^{\frac{1}{2}}K^{\frac{1}{2}}$ . The cost of a unit of labor is Rs 20 and cost of a unit of capital is Rs 80.
  - (a) The firm is currently producing 100 units of output. Determine the cost minimizing quantities of labour and capital.
  - (b) The firm wants to increase output to 140 units. If capital is fixed at 5 units? Determine the cost minimizing quantities of labour and capital in the short run. What is the cost function of the firm?
  - (c) In the long run capital is not fixed. Determine the cost minimizing level of labour and capital in the long run.