

17. The average cost function associated with producing and marketing x units of an item is given by $AC = 2x - 11 + \frac{50}{x}$. Find the range of values of the output x , for which AC is increasing. [ISC 2018]
18. A product can be manufactured at a total cost $C(x) = \frac{x^2}{100} + 100x + 40$, where x is the number of units produced. The price at which each unit can be sold is given by $P = \left(200 - \frac{x}{400}\right)$. Determine the production level x at which the profit is maximum. What is the price per unit and total profit at the level of production? (ISC 2018)
19. A manufacturer's marginal cost function is $\frac{500}{\sqrt{2x+25}}$. Find the cost involved to increase production from 100 units to 300 units. [ISC 2018]
20. A company produces a commodity with ₹ 24,000 as fixed cost. The variable cost estimated to be 25% of the total revenue received on selling the product, is at the rate of ₹ 8 per unit. Find the break-even point. [ISC 2019]
21. The total cost function for a production is given by $C(x) = \frac{3}{4}x^2 - 7x + 27$. Find the number of units produced for which $M.C. = A.C.$ ($M.C.$ = Marginal Cost and $A.C.$ = Average cost) [ISC 2019]
22. The cost function of a product is given by $C(x) = \frac{x^3}{3} - 45x^2 - 900x + 36$ where x is the number of units produced. How many units should be produced to minimize the marginal cost? [ISC 2019]
23. The marginal cost function of x units of a product is given by $MC = 3x^2 - 10x + 3$. The cost of producing one unit is ₹ 7. Find the total cost function and average cost function. [ISC 2019]
24. The selling price of a commodity is fixed at ₹ 60, and its cost function is $C(x) = 35x + 250$
- Determine the profit function.
 - Find the break-even points. [ISC 2020]
25. The revenue function is given by $R(x) = 100x - x^2 - x^3$. Find
- the demand function,
 - marginal revenue function. [ISC 2020]
26. The marginal cost of the production of the commodity is $30 + 2x$, it is known that fixed costs are ₹ 200, find
- the total cost.
 - the cost of increasing output from 100 to 200 units. [ISC 2020]
27. The total cost function of a firm is given by $C(x) = \frac{1}{3}x^3 - 5x^2 + 30x - 15$ where the selling price per unit is given as ₹ 6. Find for what value of x will the profit be maximum? [ISC 2020]