

**HERAMB COACHING CLASSES**

Yogeshwar Towers, Katemanivali, Kalyan (East)

Date: 19/08/17

**XII/MATHEMATICS****Marks: 30****Duration: 1Hour****Solve the following question: (any 6)**

- 1) The price  $P$  for demand  $D$  is given as  $P = 183 + 120D - 3D^2$ ; find  $D$  for which price is increasing.
- 2) The manufacturing company produces  $x$  items at the total cost of Rs.  $180 + 4x$ . The demand function for this product is  $P = (240 - x)$ . Find  $x$  for which (i) revenue is increasing, (ii) profit is increasing.
- 3) (i). Find the marginal revenue, if the average revenue is 45 and elasticity of demand is 5.  
(ii). Find the price, if the marginal revenue is 28 and elasticity of demand is 3.
- 4) Find MPC, MPS, APC and APS, if the expenditure  $E_c$  of a person with income  $I$  is given as:  
(i).  $E_c = (0.0003)I^2 + (0.075)I$  when  $I = 1000$ .  
(ii).  $E_c = (0.0002)I^2 + (0.008)I$  when  $I = 8000$ .
- 5) If sum of two numbers is 6 then find the maximum value of the product of square of first number and the other number.
- 6) A manufacturer can sell  $x$  items at a price of Rs.  $(280 - x)$  each. The cost of producing  $x$  items is Rs.  $(2x^2 - 12x + 192)$  each. The cost of producing  $x$  items is Rs.  $(x^2 + 40x + 35)$ . Find the number of items to be sold so that the manufacturer can make maximum profit?
- 7) If Mr. Rane orders  $x$  chairs at the price  $p = (2x^2 - 12x + 192)$  per chair. How many chairs should he order so that the cost of deal is minimum?
- 8) The total cost of producing  $x$  units is Rs.  $(x^2 + 60x + 50)$  and the price is Rs.  $(180 - x)$  per unit. For what units the profit is maximum?

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