Questions Bank: Mathematics for Business Economics: Sem 2

Q) Define maxima and minima for the function F which is defined

$$F = \begin{cases} \mathbf{3x} & \text{if } 0 \leq x < 1 \\ \mathbf{-x+4} & \text{if } 1 \leq x < 2 \\ \mathbf{2x-1} & \text{if } 2 \leq x < 3 \end{cases}$$

Q) Find the domain and Range of **y= x-1/x-2**

Q) A given demand function **q=100-0.5p**;
a) Find the elasticity of demand as the function of q.
b) Find Total revenue and Marginal revenue in terms of q
c) . At what q is the demand elastic? When is the demand elastic and inelastic?

Q) **y= (1-x²)²**
Find the domain, range, Maxima, Minima and inflection point

Q) Find the limit of any two

  a) $\lim$ x²+ 2x-3/ x-1

  b) $\lim$ 3x²/ 4x²+2x-1

  c) $\lim$ 3cox/x =0

  d) $\lim$ x²-x-2/ x²-2x

Q) Show **F(x) = x³-7x²+10**; has a real root

Q) Find the value of c such that the conclusion of Mean Value Theorem is satisfied. **F(x) = -2x²+6x-2 defined on [-2 2].**

Q) Y= x²e⁻ˣ ; find the domain, range, maxima, minima and inflection point.

Q) For each of the following, say whether it converges or diverges and explain why.

  a) S_n= 6+8n²/4-3n³
  b) S_n= n³/n

Q) $TC = Q^3 - 24Q^2 + 600Q$

a) find the level of production at which at AC is minimized.

b) is the point of local minima of AC, also a global Minima?

c) is the AC function concave or convex?

d) find the level of production at which MC is minimum.

Q) Find the inverse of the function. Find the domain and range of inverse function.

   a) $y = x^2 + 2$

   b) $y = x + 5/x - 5$

   c) $y = -(x-1)^{1/2}$

Q) Find third order Taylor's approximation of **$y = 1 + x^3$** about a=0.

Q) y is a differentiable function of x . Find the expression for y' by implicit differentiation.   **$X = 3 + (x^2 + y^2)^{1/2}$**

Q) Let the matrix A(t)=0 be defined for every t by A(T)= {t^2 2t-1

                                                                                  2t   **2}**