Total Marks: 50

Time: 2 Hrs.

1. Answer any two questions: 10 *2 = 20
   - a) Explain how the slope of MR curve depends on the curvature of AR curve.
   - b) Utility function of a consumer is $U = e^{x_1 x_2}$. Budget constraint is $y_0 = p_1 x_1 + p_2 x_2$. Find the expression for price elasticity of demand for both x_1 and x_2.

   c) Solve by matrix inversion method

   $X+2y- z=-9$
   $2x – y +3z= -2$
   $3x + 2y+3z=9$

   - d) i)Let the utility function $U = x^2 y^3$. Determine the expenditure function.   7
     ii) Suppose the demand function is given by p= 8 – 3 q and cost function is c=3+2q.
     Find out the profit maximizing output , price and maximum amount of profit.   3

2. Answer any four questions: 5*4 = 20
   - a) Derive the series of the function log (1+x) by using the Maclaurin Series.
   - b) A production function is $q = 7K^{0.5} L^{0.3}$. If prices of K and L are Rs. 2 and Rs. 3 respectively, obtain the equation of expansion path.
   - c) Derive compensated demand function of the given utility function $U = q_1 . q_2$ and the budget constraint $p_1 q_1 + p_2 q_2 = M$.

   d) Given u=[5   v=[0
            1] &   3]   find the following graphically
      i)2v ,
      ii) u+v
      iii) v-u
      iv) 2u+3v
      v)4u-2v

   e) Find the rank of the given matrix

   A= 1   1   1
      1 -1   0
      1   1   1

   f) a.Consider the following household demand function:

   $q^d = q^d (p, y) = 10 y^2 + 2y^4 p^{-2} – 3p^3$ (p, y> 0)