

Do all 4 questions. All count equally.

1. A consumer's expenditure function must be homogeneous of degree  $t$  in prices.

What is  $t$ ?

Explain briefly.

2. Derive the Hicksian (compensated) demand functions for a consumer whose preferences can be represented by the direct utility function

$$u(x_1, x_2) = 12 - \frac{1}{(x_1)^2} - \frac{1}{(x_2)^2}$$

3. An expected-utility-maximizing person has utility of wealth function

$$U(W) = \frac{1}{1-\beta} W^{1-\beta} \quad \beta > 0$$

For what value of  $\pi$  will the person be willing to accept a gamble which doubles her wealth with probability  $\pi$ , and loses her all her wealth with probability  $1 - \pi$ ?

4. Derive the long-run supply curve for an industry consisting of a large number of identical firms, each of which has a long-run average cost curve with the equation

$$AC(q) = q^2 - 12q + 50$$

where  $q$  is the firm's output.