1. Definitions (use words not equations)
3 lines or less
• 1pt Please define Diversifiable risk

When holding a portfolio of risk assets reduces risk relative to holding a single one. (for instance when an insurance company holds many insurance policies, or an investor owns many different kinds of stocks)
• 2pt Please explain the lemon’s problem (short paragraph)

A lemon’s problem can arise when sellers observe quality and buyers do not. Buyers who are uninformed will only pay the expected value of the object which is related to average quality. If the price of average quality is low enough the owners of high quality objects will not sell. Then only low quality objects are for sale and the market may collapse entirely.

3. problem
• 3pts
• Suppose you are offered to pay a gamble. Where you earn $20 with probability 1/5 and $10 with probability 4/5. Your utility function is u(x) = x^{0.5}.
• What is the expected value of this gamble?
  EV=0.2*20 +0.8*10=12
• What is the expected utility of this gamble?
  EU=0.2*(20)^{0.5}+0.8*(10)^{0.5}=0.2*4.77+0.8*3.16=3.42
• What is the certainty equivalent, and thus the maximum price of insurance?
  CE= 3.42^2=11.72