All questions carry equal weight. Please state your answers clearly and carefully. Do not hesitate to contact me if you have any questions. Have fun!

1 Preferences I

- Berkeley football coach says that given any two linemen $A$ and $B$, he always prefers the one who is bigger and faster. Is this preference relation complete? Is it transitive?

- In the theory of consumer behavior, certain axioms about the nature of preferences imply that indifference curves cannot cross. Which axioms imply this. Explain your answer using a diagram and using words.

2 Preferences II

Suppose that the government subsidizes housing expenditures of low-income families by providing a dollar-for-dollar subsidy.

- Draw the budget constraint of a low-income family with household income of $1,000 that qualifies for the subsidy (put housing, in dollars, on the horizontal axis and all other goods, in dollars, on the vertical axis).

An alternative policy has been proposed that would provide low-income families a lump-sum transfer of $250 which can be used for housing or other goods.

- On the same diagram, draw the budget constraint of the low-income family with household income of $1,000 that qualifies for the lump-sum transfer.

- Suppose the low-income family spends $250 of their own on housing and thus receive government subsidy of $250 (so they spend a total of $500 on housing). Using the graph, explain whether the family would prefer the current program, the proposed program, or would be indifferent between them.

In the field of financial management, it has been observed that there is a trade-off between the rate of return that one earns on investments and the amount of risk one must bear to earn that return.

- Draw a set of indifference curves between risk (horizontal axis) and return (vertical axis) for an investor that is risk averse.
- Draw a set of indifference curves between risk (horizontal axis) and return (vertical axis) for an investor that is risk neutral.
- Draw a set of indifference curves between risk (horizontal axis) and return (vertical axis) for an investor that is risk loving.

In each case, explain your answer using words.

[4] Risk II

A portfolio manager received a stock tip that XYZ Corp. will increase in value by 100%. The portfolio manager believes that his source has a 25% of being correct. If his source is incorrect, then he expects the value of XYZ Corp. to fall by 50%.

- Suppose the portfolio manager’s utility is $U = \sqrt{I}$ where $I$ denotes the payoff. Draw the manager’s utility function over payoff. Is he risk loving, risk neutral, or risk averse?
- What is the manager’s expected utility from buying $1M$ worth of XYZ Corp. stock? Should the manager purchase the stock?

Good luck!!!