

### Exam

All 8 questions have equal weight

1. Discuss the decoy effect. Define the concept and give an example.
2. Discuss mental accounting and the hedonic editing hypothesis. Define the concepts and give an example.
3. Discuss commitment. Define the concept and give an example.
4. Consider the following game. There are two players: a Sender (Player 1) and a receiver (Player 2). Each of them is initially given \$10. The sender chooses an amount  $x$  out of her \$10 to send to the receiver. The receiver gets  $3 \times x$  and then chooses an amount  $y$  to send back to the sender. The sender's final payoff is  $10 - x + y$ . The receiver's final payoff is  $10 + 3x - y$ .
  - (a) What is the sub-game perfect equilibrium of this game? Explain why.
  - (b) How do people usually behave in this game? What are possible explanations for observed behavior?
5. Assume preferences over hats ( $x$ ) and money ( $y$ ) are described by the following utility function:

$$U(x, y) = v(x - \bar{x}) + y$$

where  $\bar{x}$  is the endowment of hats and the value function is:

$$v(x - \bar{x}) = \begin{cases} x - \bar{x}, & \text{if } x \geq \bar{x} \\ 1.5(x - \bar{x}), & \text{if } x < \bar{x} \end{cases}$$

Compute the willingness-to-accept and the willingness-to-pay for one hat and explain why they are the same or different.

6. A person's value function is:

$$v(x) = \begin{cases} \sqrt{x}, & \text{if } x \geq 0 \\ -2\sqrt{|x|}, & \text{if } x < 0 \end{cases}$$

where  $x$  is the gain or loss relative to the person's reference point. This person is facing the choice between a sure \$16 and a 50-50 gamble that pays \$25 if she wins and \$0 if she loses. If she takes the worst possible outcome as her reference point, which alternative would she prefer? Explain why.

7. A taxi company was involved in a hit-and-run accident at night. There are 130 taxis in your city, and two taxi companies, the Green and the Blue. There are 120 Green taxis and 10 Blue taxis. A witness identified the cab involved in the accident as Blue. The court tested the reliability of the witness under the same circumstances that existed on the night of the accident and concluded that the witness correctly identified each one of the two colors 80 percent of the time and failed 20 percent of the time.
  - (a) If the judge is a Bayesian, what is her belief that the taxi involved in the accident was Blue rather than Green?
  - (b) How would the judge's belief be affected if she suffered from base-rate neglect?

8. Consider the following game (payoffs are in dollars):

	L	R
U	\$6, \$4	\$2, \$2
D	\$0, \$1	\$2, \$1

Assume players are altruistic: a player's utility is  $u(x, y) = 0.5x + 0.5y$ , where  $x$  is the player's own monetary payoff and  $y$  is the monetary payoff of the other player. Find the Nash equilibria in pure strategies (if there is any).

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Useful formulas

$$P(A|B) = \frac{P(A \cap B)}{P(B)} = \frac{P(B|A) \cdot P(A)}{P(B)} = \frac{P(B|A) \cdot P(A)}{P(B|A) \cdot P(A) + P(B|A^C) \cdot P(A^C)} \text{ where } A^C = A \text{ does not occur}$$