Questions for the Final Exam

The final exam is on **Thu, Dec. 19, 1:30 PM - 3:30 PM in CCC 1115**. The final exam consists of two parts. The first is an online multiple choice exam which will be available starting on Friday. You will have one chance to answer each of the questions and it must be completed by Friday, Dec. 20 at noon. The second part of the exam will consist of essay questions that you will answer during the exam period. I will select 3 of the 20 point questions and 4 of the 10 point questions. You can think about the answers to these questions for the next week, but you must write the answers during the exam period (you will not be allowed to use any notes). Good luck!

1. (20 points) Describe the Wason Selection Task and the "standard" solution. In your opinion, what is the best explanation best explain why people do not seem to give the "correct" answer (at least according to a classical logic interpretation).

2. (20 points) Throughout the semester, we discussed a number of experiments that purported to show that We studied a number of purported fallacies: The Wason Selection Task, the Conjunction Fallacy, the Base-Rate Fallacy, and Framing Effects. Do any of these experiments demonstrate that humans are *irrational*? Please explain your answer.

3. (20 points) Let $H = (\forall x)(Rx \to Bx)$, where Rx means "x is a Raven" and Bx means "x is black". The standard Bayesian resolution to the Ravens Paradox involves showing that following probabilistic statements:

   (a) $Pr(Ra \ \& \ \neg Ba) > 0$
   (b) $Pr(\neg Ba) > Pr(Ra)$
   (c) $Pr(Ra \mid H) = Pr(Ra)$
   (d) $Pr(Ba \mid H) = Pr(Ba)$

   jointly imply that

   5. $Pr(H \mid Ra \ \& \ Ba) > Pr(H \mid \neg Ra \ \& \ \neg Ba)$

   Briefly explain the significance of this result. That is, precisely how does this result bear on the ravens paradox?

4. (20 points) Explain why David Lewis thinks that the prisoner's dilemma is a Newcomb's problem. If Lewis is correct, then what does this tell us about the solution to the Prisoner's Dilemma?

5. (10 points) What is the conjunction fallacy? Hartmann and Meijs describe a related problem: the Walter the Banker problem. Explain the crucial difference between this problem and the Linda the bank tell problem that was used by Kahneman and Tversky?

6. (10 points) What is a "framing effect"? Give two different examples of a framing effect.

7. (10 points) Explain the Preface Paradox. What should we conclude from this paradox regarding the relationship between what is rational to believe and logical consistency?

8. (10 points) Explain Newcomb's Paradox. What is the crucial difference between the "1-box" solution and the "2-box" solution?

9. (10 points) What is inductive reasoning, as compared to deductive reasoning? Briefly explain two foundational problems of inductive reasoning.

10. (10 points) Give an example of an information cascade. Are people *irrational* when they are influenced by an informational cascade?