Your name: _____

Ian Hacking’s Odd Questions

Try your luck at these questions, without any calculating. Do not be surprised if you make mistakes! Use the space after each question to give any explanatory remarks for your answer, as desired.

1. About as many boys as girls are born in hospitals. Many babies are born every week at City General. In Cornwall, a country town, there is a small hospital where only a few babies are born every week.

A normal week is one where between 45% and 55% of the babies are female. An unusual week is one where more than 55% are girls, or more than 55% are boys.

Which of the following is true:

___ (a) Unusual weeks occur equally often at City General and at Cornwall.
___ (b) Unusual weeks are more common at City General than at Cornwall.
X (c) Unusual weeks are more common at Cornwall than at City General.

2. Pia is thirty-one years old, single, outspoken, and smart. She was a philosophy major. When a student, she was an ardent supporter of Native American rights, and she picketed a department store that had no facilities for nursing mothers. Rank the following statements in order of probability from 1 (most probable) to 6 (least probable). (Ties are allowed.)

1 (a) Pia is an active feminist.
2 (b) Pia is a bank teller.
2 (c) Pia works in a small bookstore.
4 (d) Pia is a bank teller and an active feminist.
5 (e) Pia is a bank teller and an active feminist who takes yoga classes.
5 (f) Pia works in a small bookstore and is an active feminist who takes yoga classes.

3. In Lotto 6/49, a standard government-run lottery, you choose 6 out of 49 numbers (1 through 49). You win the biggest prize—maybe millions of dollars—if these 6 are drawn. (The prize money is divided between all those who choose the lucky numbers. If no one wins, then most of the prize money is put back into next week's lottery.)

Suppose your aunt offers you, *free,* a choice between two tickets in the lottery, with numbers as shown:

A. You win if 1, 2, 3, 4, 5, and 6 are drawn.
B. You win if 39, 36, 32, 21, 14, and 3 are drawn.

Do you prefer A, B, or are you indifferent between the two?

4. To throw a total of 7 with a pair of dice, you have to get a 1 and a 6, or a 2 and a 5, or a 3 and a 4. To throw a total of 6 with a pair of dice, you have to get a 1 and a 5, or a 2 and a 4, or a 3 and another 3.

With two fair dice, you would expect:
x (a) To throw 7 more frequently than 6.
___ (b) To throw 6 more frequently than 7.
___ (c) To throw 6 and 7 equally often.

5. You have been called to jury duty in a town where there are two taxi companies, Green Cabs Ltd. and Blue Taxi Inc. Blue Taxi uses cars painted blue; Green Cabs uses green cars.

Green Cabs dominates the market, with 85% of the taxis on the road.

On a misty winter night a taxi sideswiped another car and drove off. A witness says it was a blue cab.

The witness is tested under conditions like those on the night of the accident, and 80% of the time she correctly reports the color of the cab that is seen. That is, regardless of whether she is shown a blue or a green cab in misty evening light, she gets the color right 80% of the time.

You conclude, on the basis of this information:
___ (a) The probability that the sideswiper was blue is 0.8.
___ (b) It is more likely that the sideswiper was blue, but the probability is less than 0.8.
___ (c) It is just as probable that the sideswiper was green as that it was blue.
___ (d) It is more likely than not that the sideswiper was green.

6. You are a physician. You think it is quite likely that one of your patients has strep throat, but you aren't sure. You take some swabs from the throat and send them to a lab for testing. The test is (like nearly all lab tests) not perfect.

If the patient has strep throat, then 70% of the time the lab says YES. But 30% of the time it says NO.

If the patient does not have strep throat, then 90% of the time the lab says NO. But 10% of the time it says YES.

You send five successive swabs to the lab, from the same patient. You get back these results, in order: YES, NO, YES, NO, YES

You conclude:
X (a) These results are worthless.
___ (b) It is likely that the patient does not have strep throat.
___ (c) It is slightly more likely than not, that the patient does have strep throat.
___ (d) It is very much more likely than not, that the patient does have strep throat.

7. “Imitate” a coin. That is, write down a sequence of 100 H (for heads) and T (for tails) without tossing a coin—but a sequence that you think will fool everyone into thinking it is the report of tossing a fair coin.