Assuming a standard context, label each of the following arguments as deductive or inductive. Explain what it is about the words or form of argument that indicates whether or not each argument is intended or claimed to be valid. If itis not clear whether the argument is inductive or deductive, say why.

1. The sun is coming out, so the rain will probably stop soon.

Inductive. While is may be rare that it doesn’t rain when the sun is out, that is not always true.

1. It’s going to rain tomorrow, so it will either rain or be clear tomorrow.

Inductive. It sounds like the inferred meaning is that forecasting the weather isn’t an exact science. So even though it’s supposed to rain tomorrow, it could be clear.

1. No woman has ever been elected president. Therefore, no woman will ever be elected president.

Inductive. The first sentence is a strength claim.

1. Diet cola never keeps me awake at night. I know because I drank it just last night without any problems.

Inductive. The dude is going off a sample size of 1! He is using a very weak strength claim.

1. The house is a mess, so Jeff must be home from college.

Inductive. There is strong evidence to suggest that Jeff is messy.

By asking the preceding questions, specify what, if anything, is wrong with the following statistical generalizations:

Please IGNORE the given instructions and instead use these instructions:

* First, identify the reference class.
* Second, identify the sample class.
* Third, evaluate the Generalizations using the standards we have for S.G.s
  + (sample size, sample bias, bias in investigation, bias in interpretation)
  + Let me know if the argument is meeting the standard or not and *explain* your answers as much as you can (explanation will be key on the exam!).

1. I have lots of friends. Most of them think that I would make a great president. So most Americans would probably agree.

Reference Class: Americans

Sample: “lots of friends”

Not meeting the standard. The sample size of “lots of friends” is far too small compared to the population of Americans. The sample is biased because it is from a specific group of people (friends) and that the group of people are of a group that is predisposed to answering in the affirmative. That being said, it is probably safe to assume that the results were read correctly.

1. In exit polls after people had just voted, most people told our candidate that they voted for her, so probably most people did vote for her.

Reference Class: Voters

Sample: People who just voted at polling stations

Not meeting the standard. The sample size of people who just voted seems pretty good, assuming they able to get a high percentage of people at the polls. There doesn’t seem to be anything that suggest a biased sample. However, the sampling procedure is biased because it does not include absentee or online voting. The difference between people who vote in person versus absentee/online suggests a difference in demographics that could skew that outcome. This could mean the results were misinterpreted.

1. Mary told me that all of her older children are geniuses, so her baby will probably be a genius, too.

Reference Class: Mary’s children

Sample: all of May’s older children

Not meeting the standards. Assuming Mary’s “older children” are all of her kids besides the new baby, that’s a 100% sample size! But since Mary is their mother, that is about as biased a sample as you can get! Who knows what Mary’s procedure for determining genius in her children, but the procedure is certainly suspect. It is also likely that any “polling data” she has would also be misinterpreted.

1. When asked whether they would prefer a tax break or a bloated budget, almost everyone said that they wanted a tax break. So a tax break is overwhelmingly popular with the people.

Reference Class: Taxpayers

Sample: Almost Everyone?

Not meeting standards. Sample size? Who is almost everyone? I guess everyone they talked to? Hard to say if this was a good sample size or not. It is hard to say if the bias exists in the sample due the ambiguity of the sample itself. But there is certainly bias in the sample procedure due to the phrasing of the question. The question should be restated to remove the negative connotations of the alternative to tax breaks. Given that the phrasing of the question probably produced skewed results, the interpretation becomes moot. But there isn’t any reason so suspect interpretation bias.

1. When hundreds of convicted murderers in states without the death penalty were asked whether they would have committed the murder if the state had a death penalty, most of them said that they would not have done it. So most murders can be deterred by the death penalty.

Reference Class: convicted murderers

Sample: hundreds of convicted murderers in states without the death penalty

Not meeting standards. Hundreds, even if that means just 200 is not a terrible sample size. Even if we’re talking about the US prison system which currently holds about 179,000 convicted murders (thanks google). I do think that there is some bias in the sample. It is very likely that inmates are remorseful what their crimes and may skew that results. The procedure is also biased as the sample is comprised of people who were caught, and thus can assume they would receive a death sentence.

For each of the following statistical applications, identify the reference class, and then evaluate the strength of the argument in terms of the percentages or proportions cited and the relevance of the reference class.

* First, identify the reference class.
* Second, identify the subset class.
* Third, evaluate the Applications using the standards we have for S.A.s
  + (whether the ratio cited in the argument is acceptable, the relevance of the reference class)
  + As before, explain your evaluations here!

4. Three percent of socialists with blue eyes voted for McCain.

Maureen is a socialist with blue eyes.

∴Maureen did not vote for McCain.

Reference: Socialists with blue eyes

Subset: Maureen

3% of Fs voted for McCain. Or, 97% of Fs did NOT vote for McCain. Maureen is F so she probably did NOT vote for McCain. Though the bit about blue eyes is probably irrelevant.

5. Ninety-eight percent of what John says is true.

John said that his father is also named John.

∴John’s father is named John.

Reference: what John says

Subset: said his father was also named John

98% is very close to 100%. John’s father probably is also named John. It probably goes without saying that John tells the truth most of the time. It would be more significant if it was the opposite and John was a compulsive liar.

6. Ninety-eight percent of what John says is true.

John said that the Giants are going to win.

∴The Giants are going to win.

Reference: things John says

Subset: John says the Giants will win

Again, John speaks the truth 98% of the time! What a great record! But this seems irrelevant to the performance of the Giants. Unless John somehow knew that outcome of the game beforehand.

8. Most people do not understand quantum mechanics.

My physics professor is a person.

∴My physics professor probably does not understand quantum mechanics.

Reference: people

Subset: my professor

“Most people” is too ambiguous, it could mean anywhere from 51% to 99%. The argument is potentially very weak. Not to mention the professor is teaches physics and that is not mentioned in the conclusion.

9. Almost all birds can fly.

This penguin is a bird.

∴This penguin can fly.

Reference: all birds

Subset: this penguin

“Almost all” is a bit ambiguous so it as a little difficult to gauge the strength of the argument. The relevancy is tough here since “birds” is a pretty broad category and we’re talking about a single penguin. I think it might make more sense if we were talking about species of birds.

Which of the following claims are true? Which are false?

1. Being a car is a sufficient condition for being a vehicle.

True, all cars are vehicles.

2. Being a car is a necessary condition for being a vehicle.

False, there are many other classes of vehicles like trucks, vans, motorcycles, etc.

3. Being a vehicle is a sufficient condition for being a car.

False, same as 2

4. Being a vehicle is a necessary condition for being a car.

True, all cars are vehicles.

14. Driving seventy-five miles per hour (for fun) is a sufficient condition for violating a legal speed limit of sixty-five miles per hour.

True, anything above 65 mph is sufficient for violating the speed limit and 75 mph > 65 mph.

15. Driving seventy-five miles per hour (for fun) is a necessary condition for violating a legal speed limit of sixty-five miles per hour.

False, since anything above 65 would also violate the speed limit, 75 is not necessary.

16. Cutting off Joe’s head is a sufficient condition for killing him.

True, humans cannot (with current medical science) live with a severed head.

17. Cutting off Joe’s head is a necessary condition for killing him.

False, there are many things that are fatal to humans aside from decapitation.

18. Cutting off Joe’s head and then holding his head under water for ten minutes is a sufficient condition for killing him.

True, since both methods would probably do the job, drowning Joe after decapitation is overkill (pun intended).

For each of the following tables determine

a. Which, if any, of the candidates—A, B, C, or D—is not eliminated by the sufficient condition test as a sufficient condition for target feature G?

b. Which, if any, of the candidates—A, B, C, or D—is not eliminated by the necessary condition test as a necessary condition for target feature G?

c. Which, if any, of the candidates—A, B, C, or D—is not eliminated by either test?

EXAMPLE:   
Case 1: A B ~C D ~G

Case 2: ~A B C D G

Case 3: A ~B C D G

a. Only C passes the SCT.

b. Only C and D pass the NCT.

c. Only C passes both tests.

Please IGNORE the instructions here and instead use these:

* List the conditions that FAIL the SCT for feature “G” and provide all the cases that prove that they cannot be sufficient conditions.
* List the conditions that FAIL the NCT for feature “G” and provide all the cases that prove that they cannot be necessary conditions.

1. Case 1: A B C D G

Case 2: ~A B ~C D ~G

Case 3: A ~B C ~D G

Case 2 shows that B and D are not enough for G

Case 3 shows that B and D are not required for G

All cases show that C is sufficient for G

2. Case 1: A B C ~D G

Case 2: ~A B C D G

Case 3: A ~B C ~D G

Case 1 shows D is not required by G

Case 2 shows A is not required for G

Case 3 Shows B is not required for G

Nothing is shown to be sufficient in these cases.

3. Case 1: A B C D ~G

Case 2: ~A B C D G

Case 3: A ~B C ~D G

Case 1 shows that nothing is sufficient for G

Case 2 shows that A is not necessary for G

Case 3 Shows that B and G are not necessary for G

4. Case 1: A B ~C D G

Case 2: ~A ~B C D G

Case 3: A B ~C ~D ~G

Case 1 shows that C is not necessary for G

Case 2 shows that A and B are not necessary for G

Case 3 shows that A and B are not sufficient for G

5. Case 1: A ~B C D ~G

Case 2: ~A B C ~D ~G

Case 3: A ~B ~C D G

Case 1 shows that A, C and D are not sufficient for G

Case 2 shows that B and C are not sufficient for G

Case 3 shows that B and C are not necessary for G

6. Case 1: A B ~C D G

Case 2: ~A ~B C D ~G

Case 3: A ~B C ~D ~G

Case 1 shows that C is not necessary for G

Case 2 shows that C and D are not sufficient for G

Case 3 Shows that A and C are not sufficient for G

7. Case 1: A B ~C D ~G

Case 2: ~A B ~C D ~G

Case 3: A B ~C ~D ~G

Case 1 Shows that A, B and D are not sufficient for G

Case 2 Shows that B and D are not sufficient for G

Case 3 Shows that A and B are not sufficient for G

Nothing so shown to be necessary

8. Case 1: A B C D ~G

Case 2: ~A ~B C D G

Case 3: A ~B ~C ~D ~G

Case 1 shows that A, B, C and D are not sufficient

Case 2 show that A and B are not necessary

Case 3 shows that A is not sufficient

Imagine that your desktop computer system won’t work, and you want to find out why. After checking to make sure that it is plugged in, you experiment with a new central processing unit (CPU), a new monitor (MON), and new system software (SSW) in the combinations on the table below. The candidates for necessary conditions and sufficient conditions of failure are the plug position (in or out), the CPU (old or new), the monitor (old or new), and the software (old or new). For each candidate, say (1) which cases, if any, eliminate it as a sufficient condition of your computer’s failure and (2) which cases, if any, eliminate it as a necessary condition of your computer’s failure. Which candidates, if any, are not eliminated as a sufficient condition of failure? As a necessary condition of failure? Does it follow that these candidates are necessary conditions or sufficient conditions of failure? Why or why not?

Plug CPU Monitor Software Result  
Case 1 In Old CPU Old MO Old SW Works  
Case 2 In Old CPU Old MO New SW Works  
Case 3 In Old CPU New MO Old SW Fails  
Case 4 In Old CPU New MO New SW Works  
Case 5 In Old CPU Old MO Old SW Works  
Case 6 In Old CPU Old MO New SW Works  
Case 7 In Old CPU New MO Old SW Fails  
Case 8 In Old CPU New MO New SW Works  
Case 9 In New CPU Old MO Old SW Fails  
Case 10 In New CPU Old MO New SW Works  
Case 11 In New CPU New MO Old SW Fails  
Case 12 In New CPU New MO New SW Works

Fails SCT

Plug Case 3, 7, 9, 11

CPU Case 9, 11

Monitor Case 3, 7, 11

Fails NCT

CPU Case 1, 2, 4, 5, 6, 8

Monitor Case 1, 2, 5, 6, 10

Software Case 1, 5

For each of the following explanations, specify which standard of a good ex-planation, if any, it violates. The standards require that a good explanation be explanatory, deep, powerful, falsifiable, modest, simple, and conservative. A single explanation might violate more than one standard.

1. Although we usually have class at this time in this room, I don’t see any-body in the classroom, because a wicked witch made them all invisible.

2. Although we usually have class at this time in this room, I don’t see any-body in the classroom, because they all decided to skip class today.

3. Although we usually have class at this time in this room, I don’t see any-body in the classroom, because it’s Columbus Day.

4. My house fell down, because it was painted red.

5. My house fell down, because of a powerful earthquake centered on my property that did not affect anything or anybody else.

6. My house fell down, because its boards were struck by a new kind of sub-atomic particle.

7. Although I fished here all day, I didn’t catch any fish, because there are no fish in this whole river.

8. Although I fished here all day, I didn’t catch any fish, because the river gods don’t like me.

9. Although I fished here all day, I didn’t catch any fish, because I was unlucky today.

10. That light far up in the night sky is moving quickly, because it is the daily United Airlines flight from Boston to Los Angeles.

11. That light far up in the night sky is moving quickly, because it is an alien space ship.

12. That light far up in the night sky looks like it is moving quickly, because there’s something wrong with my eyes right now.

Using the criteria mentioned above, evaluate each of the following arguments as strong or weak. Explain your answers. Be sure to specify the properties on which the analogy is based, as well as any background beliefs on which your evaluation depends.

1. This landscape by Cézanne is beautiful. He did another painting of a similar scene around the same time. So it is probably beautiful, too.

2. My aunt had a Siamese cat that bit me, so this Siamese cat will probably bite me, too.

3. The students I know who took this course last year got grades of A. I am a lot like them, since I am also smart and hardworking; and the course this year covers very similar material. So I will probably get an A.

4. This politician was caught cheating in his marriage, and he will have to face similarly strong temptations in his public duties, so he will probably cheat in political life as well.

5. A very high minimum wage led to increased unemployment in one country. That country’s economy is similar to the economy in a different country. So a very high minimum wage will probably lead to increased unemployment in the other country as well.

6. I feel pain when someone hits me hard on the head with a baseball bat. Your body is a lot like mine. So you would probably feel pain if I hit you hard on the head with a baseball bat. (This is related to the so-called “Problem of Other Minds.”)

7. It is immoral for a doctor to lie to a patient about a test result, even if the doctor thinks that lying is in the patient’s best interest. We know this because even doctors would agree that it would be morally wrong for a financial adviser to lie to them about a potential investment, even if the financial advisor thinks that this lie is in the doctor’s best interests.

8. Chrysler was held legally liable for damages due to defects in the suspension of its Corvair. The defects in the Pinto gas tank caused injuries that were just as serious. Thus, Ford should also be held legally liable for damages due to those defects.