

Please answer the questions in your bluebooks. Answer each question as completely as you can. Partial credit will be given for partially correct answers. You must answer at least 6 questions, for a total of 120 points. If you answer more than the minimum number, then only your best answers will be counted.

Section 1 (120 points: each question worth 20 points, and you must answer at least 6):

- 1) Consider the formal definition of an argument. For each of the statements below, decide whether or not it is an argument, and explain why or why not.
 - A) God exists, because something had to cause the Universe.
Argument, God exists is the conclusion, the rest is the premise.
 - B) My daughter is an alien from Alpha Centauri.
Not argument, no premise.
 - C) The Moon is attracted to the Earth by gravity, not electricity.
Not argument, explanation.
 - D) Don't tell me I don't know what I'm talking about. My opinion is just as valid as yours!
Not argument, no clear conclusion stated.
 - E) The Lakers almost didn't beat the Kings. They'll never beat Dallas.
Argument. Sentence one is premise, sentence two is conclusion.

- 2) Rank the following sources of information in order according to their credibility, starting with the most credible, and ending with the least credible. Describe your reasoning.

An ad for a new medicine.	Your doctor.
An ad for a politician's campaign.	Your representative in Congress..
Your best friend.	Your Mom.
A professor.	A CNN news report.
A Supreme Court Justice.	The ambassador from Mexico.

different answers are possible, as long as the reasoning is presented.

- 3) You are walking home from a late class one evening with a friend and you trip and sprain your ankle. Your friend offers you a magnetic anklet to wear to help you heal. You say "No thanks, that stuff's not real." Your friend gets mad at you for rejecting his help. Describe how you could conduct an experiment using the scientific method to see if the magnetic anklet works or not.
Different answers are possible as long as you proposal an example of a testable hypothesis.

- 4) Look at Figure 1 at the back of the exam. Write one inductive argument *and* one deductive argument about what you see in the Figure, and explain why the first argument is inductive and the second deductive.

There are many possible arguments. Deductive ones are where the conclusion must be true if the premise or premises are true. Inductive ones are where are only likely to be true if the premises are true.

- 5) In the passages below identify any rhetorical devices you find.
- A. You say you are in love with Oscar, but are you sure he's right for you? Isn't he a little too... uh, mature for you?
"mature" is a euphemism. Possibly innuendo, but euphemism better.
- B. Of course, it *may* be that Pons and Fleischman were entirely innocent in the whole cold fusion scandal.
Innuendo, or sarcasm.
- C. "So if you were awake when you crossed the bridge, just when did you fall asleep at the wheel?"
Loaded question
- D. The whole Social Security system is just a big con scheme designed to rip off taxpayers.
Rhetorical definition
- E. Right – President Trump "won" the election, didn't he?
Quotes around won are downplaying, also possibly sarcasm.
- 6) Below are three of the many reasons why astrology is pseudoscience. Explain how each of these reasons violates one or more of the four characteristics that all scientific endeavors have in common. We discussed these characteristics in the first week of class, in the section "What is Science?"
- A. Astrologers can't agree on what the zodiac signs are, and what birthdates they represent
Explanations must be as simple as possible but if you can't even agree on what the tests should be (12 versus 13 zodiac signs) then how can you even perform a test?
- B. Different astrologers come up with different predictions for the exact same person.
Results of tests must be repeatable – different people must be able to perform the same tests and get the same results.
- C. Astrologers can't explain how the motions of the planets are able to influence things here on Earth.
Only natural causes can be used to explain natural phenomena, and astrologers don't have any causes they can cite to explain how astrology works.

- 7) Rank the following 5 claims in order starting with most credible and going to least credible. Describe your reasoning for your ranking.
- A. George Washington was the first president of the United States.
 - B. Oil companies pay car manufacturers *not* to produce cars that get 100 miles per gallon of gas.
 - C. The Earth moves around the Sun.
 - D. President Obama was not really born in the United States.
 - E. Radiation from high voltage power lines makes people sick.

C, A, B, E, D

- 7) Think of the four steps of the idealized version of the scientific method (1. see something/ do an experiment; 2. try to explain what happened; 3. make a prediction using your explanation; 4. test the prediction.) Describe the cold fusion experiment in these terms and used them to identify what went wrong in the experiment.

The scientific method includes: 1) identifying a problem to work on; 2) making observations or experiments to gain information about the problem; 3) make an explanation for what happened; 4) make a prediction based on your explanation; and 5) test that prediction. P&F did have a problem to work on, namely cold fusion. They did do some experiments. They did have an explanation – fusion at low temperatures using palladium as a catalyst. However, they don't appear to have made good predictions (looking for more helium than you started with, or seeing neutrons during the experiment) and they certainly didn't test those predictions.

- 8) For the passage below, identify any *arguments* that are made, any *explanations* that are given, and anything that is *subjective*. The passage is from a letter to the Sacramento Bee newspaper written by Juliana Nguyen.

“Every school needs a library to be a successful school. To me and many other students, the library is such a big help with schoolwork. It has numerous books of all genres. It provides plenty of research and information tools to students. Moreover, libraries are great places to do homework or study in because of the quiet environment.

If libraries are taken away, students will fall behind in their reading abilities and they will miss out on the wonderful opportunities reading offers.”

The main issue is the importance of school libraries. Arguments include 1) the library is a big help with school work; and 2) libraries are great places to study or do homework. There are no explanations, nor is there anything subjective.

- 9) Which of the following claims are subjective, and which are not? Explain your reasoning.
- A. Starbucks coffee is the best in the world.
Subjective: taste is a matter of opinion with no recognized authority
 - B. Starbucks coffee is the most expensive in the world.
Not subjective – prices can be looked up and verified.
 - C. Murder is a bad thing.
Not subjective – this is a commonly agreed upon value, so common as to not be considered subjective.
 - D. Kobe Bryant is a better basketball player than Shaquille O'Neal.
Not subjective-- their stats can be looked up and compared.
 - E. Old people have worse hearing and so play music louder than young people.
Not subjective – both hearing ability and music loudness can be measured and tested.
 - F. On average, men make more money than women for the same jobs.
Not subjective – the numbers can be looked up.
 - G. My favorite color is purple.
Subjective, a matter of personal preference.
 - H. Purple is the best color for sports cars.
Subjective, unless you can show that purple sports cars perform better.
 - I. Physics 30 is the only critical thinking class you should take at Sac State.
Subjective, unless you can prove that in Physics 30 everyone learns critical thinking better than in any other critical thinking class.
 - J. In space, no one can hear you scream.
Not subjective – this is a fact. there is no air in space, and air is necessary for sound to travel..