STUDY GUIDE FOR FIRST EXAMINATION

The first examination will be held on Tuesday, October 8. It will consist of one essay and a few short answer questions. You will have 50 minutes to complete the examination. The examination will be closed-book and closed-note; however, we encourage you to study by outlining answers to the questions.

The short identification questions will ask you to identify in a few words (or at most one sentence) a key person, place, thing, or concept from the course lectures and readings. You will have a choice of terms to identify. The rest of this study guide focuses on the essay questions.

When you answer an essay question in an examination, it’s important to be clear and direct. Since you don’t have a lot of time, it’s tempting to just start writing what you think. You should resist that temptation. If you just start writing, you’re likely to express yourself in a confused and disjointed way, even if you have a good answer to the question.

Instead, you should take a moment to plan your answer. Your first paragraph should set out, in a schematic form, the points you want to raise in your essay. There are two reasons for doing this. First, it means that you don’t need to think about topic sentences for your paragraphs: you will already have thought about them. Second, if you run out of time to finish the essay, your first paragraph will indicate to the grader that you have at least thought about a point, even if you didn’t have time to develop it. Some students find it helpful to write a mini-outline on a piece of scrap paper before they start to answer an essay question. For this exam, we suggest outlining the answers for all the questions in advance.

In answering an essay question, just as in writing a paper, you should not try to cram in everything you know, regardless of its relevance. Instead, you should think about which facts are relevant to answering the question and what they mean. Since the exam is closed-book, you do not need to provide exact quotations or page references, but you should indicate the source of your information (i.e. “Aristotle defined scientific knowledge...,” not “They defined scientific knowledge...”).

There isn’t room in this study guide to provide an example of a complete answer to an essay question, but here is a sample first paragraph. The question which it addresses is: “Discuss the relationship between writing, science, and technology. Is writing necessary for science and technology? What does it contribute?”

Sample first paragraph: “Writing is clearly not a necessary precondition for science and technology. Human beings had been using technology for millennia before writing was invented, while Stonehenge shows that pre-literate societies could pose and solve scientific problems. Nonetheless, writing allows certain technologies to be developed, and it allows for precise scientific exchange between different places and times.”

This sample paragraph indicates that there will be four main points: (1) Technology has been around ever since the first proto-humans made tools. (2) Stonehenge is an example of scientific knowledge without writing. (3) Writing is necessary for certain kinds of technology. (4) Writing allows scientists to exchange ideas without meeting in person. Each of the main points would be developed in a paragraph of the essay.

As you can see from this example, the way to approach an essay question is to identify the key concepts and then to think about how they relate to one another. In this example, “technology” and “science” are general concepts, which can be divided into aspects which are not dependent on writing and aspects which are (or which are much easier with writing). Your knowledge of material from course readings and lectures will provide you with specific examples of science and technology to use as evidence in support of your main points.

TURN OVER FOR THE ACTUAL ESSAY QUESTIONS
The exam will include one of the following questions (you will not be able to choose the question; everyone will answer the same question):

1. Explain the relationship between agriculture, civilization, and writing in ancient Near Eastern civilizations. What problems did each new technology try to solve, and how were the technologies related?

2. How did Greek approaches to understanding nature differ from those of other ancient Near Eastern civilizations (Egypt, Mesopotamia)? Relate the different approaches to the social standing and the occupation of the student of nature.

3. What similarities and differences did Aristotle see between nature and craft (techne)? In what ways are natural and technological activities the same? How do they differ? Use Aristotle’s four kinds of cause as a basis for your analysis.

4. The historian G. E. R. Lloyd has argued that the most important step in the development of Greek science was that pre-Socratic philosophers removed the gods from explanations of natural phenomena. Why would this be considered an important step in the development of scientific thought?

5. What do “social determinism” and “technological determinism” mean when referring to the history of technology? Explain how a social determinist would account for the development of agriculture and civilization. Explain how a technological determinist would account for the same developments. Which explanation is more convincing, and why?

EVALUATION

The exams will not be graded on a curve or against each other. They will be evaluated according to the following standards of form and content.

I presume that a grade of B indicates satisfactory mastery of the course material. Grades below B reflect decreasing mastery, while grades above B indicate exceptional or outstanding knowledge and ability. Following those principles, the essays will be marked as follows:

- A B essay is clearly organized, with a thesis and at least two supporting points. It will show knowledge of all relevant course material insofar as it is useful for supporting the thesis. The thesis should address the question that is posed.
- An essay that is disorganized, has no thesis, has little supporting evidence, or makes serious factual errors will receive a lower grade.
- Essays that show exceptional command of the course material or especially clear and precise argumentation will be graded A or AB.

Short answer questions will be graded on two criteria: the short answer must (1) correctly define the term and (2) indicate its significance for the history of science and technology. A good short identification for the term “pyramid” might be, “Ancient Egyptian monumental tomb, showing Egyptian engineering skills and ability to mobilize large labor crews.”