HSTR 207CS: Science & Technology in World History
Mid-Term Exam Study Guide

The final exam will incorporate material from your readings, the lectures, and our discussions. You should bring two blue books to the exam. We will provide blank sheets of paper for you to organize your thoughts and outline your answers. No notes or books will be allowed.

Sample Short Essay Questions

Methods and Approaches

According to Jared Diamond, what are some of the common assumptions for why the West has more power and wealth than the rest of the world? What are wrong about those common assumptions?

Explain Diamond's "chain of causation" among ultimate, intermediate, and proximate causes using examples from the Diamond readings.

In order to answer Yali's question, Diamond suggest we use a wide array of new disciplines. What are they? How does he use these disciplines in his article "Under Montana's Big Sky"?

According to "Why Do So Many People Doubt Science," why, in fact, does the author say that so many people distrust science?

In her lecture on risk perception, Jen stated that the public often perceives risk from a technology or a hazard as being far greater than the risk level given by experts in that field. What factors often influence public risk perception?

What is a trophic cascade? Why do I prefer to use the term "socio-trophic cascade"?

How do the Huesemanns define "reductionism" and what do they see as the problem? How does they use Barry Commoner's laws of ecology to explain the problems with technological fixes? Why do they think technological systems are bound to fail?

Do technologies, such as bridges and nuclear weapons, have politics? Why or why not?

Why did I suggest the term "socio-technological fix" rather than just technological fix?

What other cultural developments paralleled the rise of the technological fix in modern America?

Sean Johnston, in "The Technological Fix as a Social Cure-All," discusses the origins and implications of technological fixes. According to Johnston, when did the belief in technological fixes develop and why do we put such faith in them? What does he describe as a "neat trick"? How does he define "reductionism" and what does he see as the problem?

Revolutions

Describe what Harari means by "imagined realities" or "inter-subjective orders" by using specific examples that he uses in his text.

What is sociobiology? How can it be used, for instance, to explain the differences in approaches to relationships between men and women? How do sociobiologists differ in their views from Harari? That is, what is the significance of the cognitive revolution?

What is Harari's definition of "culture" and "history"? Why does he think we should study history (p. 241)? Give examples of what he means.

Why does Harari suggest the Agricultural Revolution is "history's biggest fraud"?

Francis Bacon maintained that three inventions – the compass, printing, and gunpowder – marked the transition from the ancient to the modern world. All had been invented in China. Why, then, did Europe become the center of the scientific and industrial revolutions (according to my lecture and the Harari text)?

According to my lecture, what was the significance of Arabic science in the Islamic world to the rise of Western science in the Christian world?

Why does Johnson start with Priestley's quote, "The English Hierarchy… has equal reason to tremble at an air pump, or an electrical machine"?

Where does Johnson end his text? What are the lessons we are supposed to take with us?

Johnson discusses many different approaches to understanding cultural change (history), including Great Man history, Kuhn's paradigm, Priestley's progress, and his own ecosystem model. Describe these different approaches, especially his ecosystem approach, using Priestley as an example.

The Industrial World

Tim LeCain describes a number of challenges involved in hard rock mining that mining engineers had to overcome in order to build deeper and safer mines. According to LeCain, these mines created a new type of environment that was neither "natural" nor "artificial." How does he describe these subterrestrial spaces?

According to Tim LeCain's chapter, "When Everybody Wins Does the Environment Lose" what is the immediate focus of scientists and engineers when solving mining pollution problems? What do they often overlook as they create techno-fixes?

John Sandos and Arn Keeling discuss zombie mines and the challenges of dealing with mining waste from abandoned mines. What do they think is the problem with the underground storage of arsenic waste from Canadian mines? How does this storage problem lead to "zombie mines?"

What is the goal of the EPA Superfund program and how many Superfund sites are currently on the NPL (National Priorities List)?

Libby, Montana, requested to be designated as a Superfund site in 2002. Why was the community eager to work with the federal government? What were community members worried about in Libby?

"Libby, Montana, Tries to Shake its Superfund Stigma" and "Postcards from the Edge" are two articles that discuss ways for Butte and Libby to move past their industrial past into an uncertain future. According to these articles, how are these two communities addressing their toxic pasts?

In her lecture, Dr. Phillips discussed her research to fix the problems created by energy production. How is she mitigating subsurface leakage through biofilms? What are two applications of her research?

Dr. Phillips talked about all the different disciplines involved in the Center for Biofilm Engineering. History was not one of them. How could historians help these scientists and engineers in their research in microbial biofilms? What relevance, if any, does history have to their research?

Large Essay Question

One of the themes of this class is to break down the invented distinctions between science and society and nature and culture. Give examples of this in the Harari and Johnson texts, in our lectures, and in our discussions.