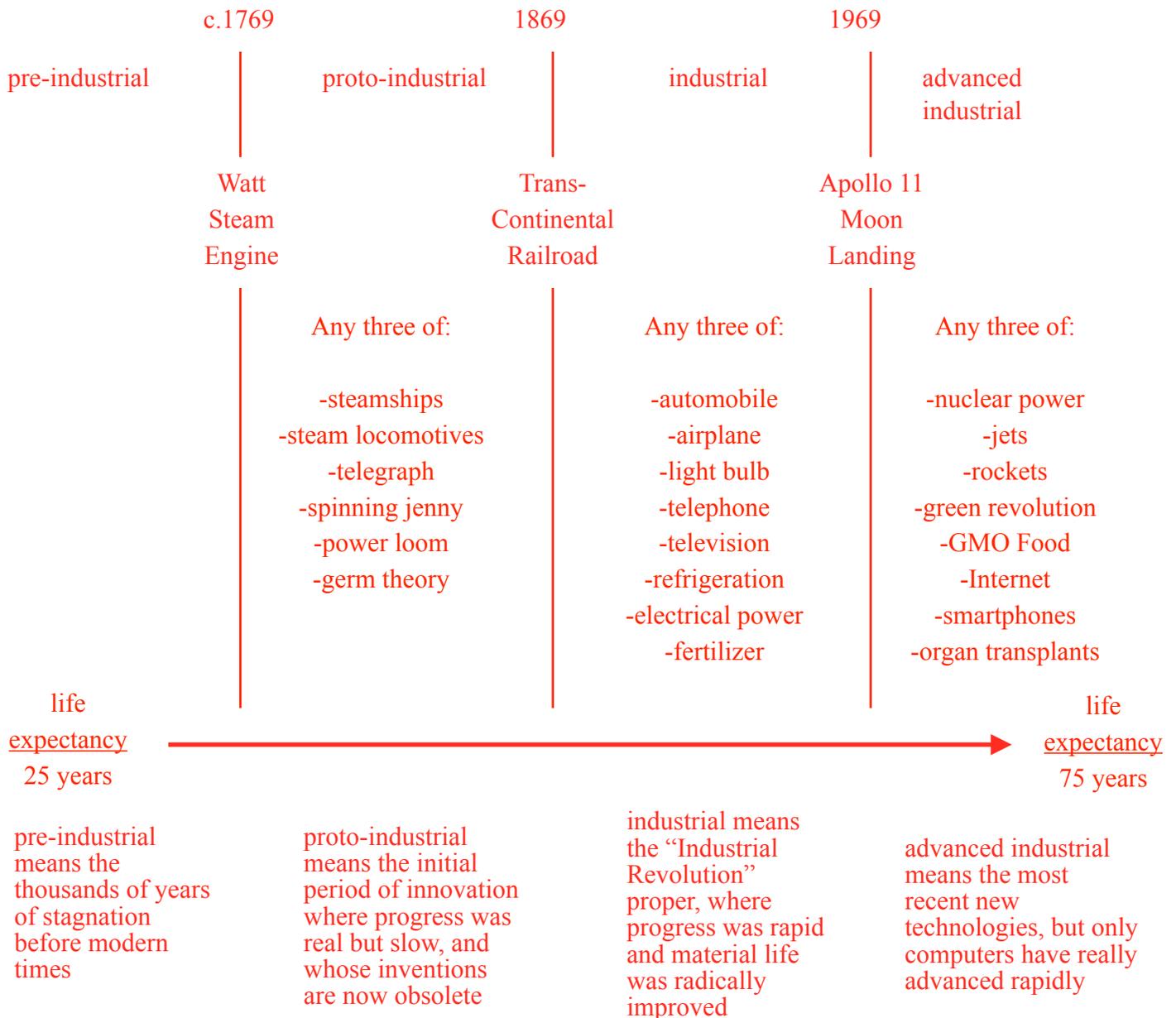


Part 1: Big Picture Timeline

1. In the space provided, and using the timeline from the class notes as a model, draw your own table/timeline of the history of technology and society with the following features:
 - a) four labeled periods/chapters with three dividing lines between them—and the *dates for the lines*
 - b) the names of the inventions/events that are the reason for the lines
 - c) the *names* of three inventions/events that are especially important to each modern period (no *dates*)
 - d) the life expectancy of human beings at the beginning and end of the timelines
 - e) a brief explanation of the names of the four periods



Total Points This Page: 20 pts

Part 2: Power Revolutions

2. What is the first power revolution in industrial history? How did it lead to textile and transportation revolutions as well?

The first power revolution in history is the invention of the Watt Steam Engine c.1769 by James Watt. This steam engine was the first practical engine to capture the power of steam from a boiler in order to move mechanical engines. Such engines were used to power equipment like the Spinning Jenny (for making thread) and the Power Loom (for weaving thread into cloth) in textile (clothing) factories. This made it possible to make much more clothing than ever before, so the first power revolution was a big part of the textile revolution. It was also key to the transportation revolution of steamships (that could cross the Atlantic ocean much faster than sailing vessels, regardless of wind conditions) and locomotives and greatly expanding land-based transportation. The “Age of Steam” was the first transportation revolution.

(5 pts: 1 pt Watt Steam Engine; 1 pt for spinning and weaving technology and clothing production; 1pt for steamships; 1 pt for locomotives; 1 for spelling and grammar)

3. Why is the technology for the extraction of oil and refinement of gasoline so important to industrial history?

The technology for the extraction of oil and refinement of gasoline is what provides the fuel for the second transportation revolution. This revolution revolves around the “internal combustion engine,” which requires gasoline to be exploded inside of the engine along with air. Such a design is smaller and more efficient than steam engines, and thus permitted the development of engines that could be used on airplanes and on “carriages,” which became automobiles, such as the Model-T ford.

(5 pts: 1 pt oil & gas as fuel; 1 pt for internal combustion engine; 1pt for automobiles; 1 pt for airplanes; 1 for spelling and grammar)

Total Points This Page: 10 pts

Part 3: Food and Medicine

4. How did increased food production occur in the *industrial* period? What social change resulted? How did electrical technology facilitate this new pattern of life?

Increased food production occurred in the industrial period mainly because of the Haber process that produced ammonia fertilizer (food for food). Tractors and reapers using internal combustion engines also helped. Because of these advances, fewer people were needed on farms, and they moved into cities. This is called urbanization. Because food and people were now so far apart, technology was needed to preserve the food for transportation and distribution. Electrical power made *refrigeration* possible, and thus facilitated this new pattern of life with food produced with technology and people living far from where food is made.

(4 pts: 1 pt for fertilizer and/or mechanization; 1 pt for urbanization; 1pt refrigeration; 1 for spelling and grammar)

5. What is the Green Revolution, and why is it important?

The Green Revolution is a revolution in food production made possible by the combination of many technologies including fertilizer (plant food), pesticides (chemicals for killing insects), herbicides (chemicals for killing weeds, but not food plants), irrigation (the distribution of water to farm fields), and hybridization (the creation of new breeds of plant foods that are more productive and resilient). Norman Borlaug is the American agricultural scientist that deserves the bulk of the credit for this advance.

(6 pts: 1 pt for each of fertilizer, pesticides, herbicides, irrigation, and hybridization ; 1 for spelling and grammar)

6. What are three major advances that have propelled industrial medicine to its current level?

The three major advances that have propelled industrial medicine are the germ theory of disease, which made possible new medicines such as antibiotics and vaccines, the ability to take x-ray photography of the body to detect injuries and problems, and the use of anesthesia, which keeps patients unconscious. When combined, the latter two make possible surgery for helping people with physical trauma.

(4 pts: 1 pt for each of three choices from among germ theory, antibiotics, vaccines, x-rays, anesthesia, and surgery ; 1 for spelling and grammar)

Total Points This Page: 14 pts

Part 4: Technology and Society

7. What are the representative technologies of the four chapters of the history of transportation?

The representative technologies for the history of transportation are the horse-drawn carriage and/or cart and/or sailing vessel of *pre-industrial* times, the steamship and/or steam locomotive for *proto-industrial* times, the automobile and airplane for *industrial* times, and finally *rockets (and jets)* for advanced industrial times.

(5 pts: 1 pt for the technology of each of the four phases ; 1 for spelling and grammar)

8. Why do *Luddism* and *transcendentalism* have in common, and in what way(s) do they differ?

Luddism and transcendentalism are both reactions to proto-industrialization. They have in common a negative view of industrialization because it causes people to focus on mechanical work and material things. Luddism is unique because it is against people using machines because it is dehumanizing. Transcendentalism is also against industrial technology because it says that non-material values are more important than material values.

(4 pts: 1 pt for anti-industrialism; 1 pt for anti-mechanization; 1 pt for prioritizing the non-material; 1 for spelling and grammar)

9. What is the difference between environmentalism and the earlier anti-industrial ideologies conservationism and preservationism? What developments in technology spawned this new way of thinking?

Environmentalism is a broader and stronger form of anti-industrialism that focusses on “the environment” as such. Conservationism and preservationism were early forms of this perspective, but conservationism focussed on conserving resources for future generations and preservationism focussed on the pristine beauty of nature as an end in itself. The shocking power of nuclear technology and chemical usage in agriculture represented a new level of technology that spurred environmentalism into being.

(4 pts: 1 pt for “the environment”; 1 pt for earlier emphasis on conservation and preservation; 1 pt for new technologies ; 1 for spelling and grammar)

Total Points This Page: 13 pts

TOTAL POINTS ON TEST: 57 pts