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HIS 2129

History 2129: Technology, Society and Environment since 1800

3 5) In a 1980 article, Langdon Winner argues attention must be paid to the meanings, political or otherwise, of the design and arrangements of our artifacts.

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4 6) The Duke of Bridgewater built the first canal in England.

T F

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5 7) During the Industrial Revolution of the 17th century, European states such as England and France invested in the development of patent systems and of technical education.

T F

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6 8) When Europeans came to the Americas, the indigenous population fell sick in great numbers with diseases caused by the many new pathogens brought by Europeans.

T F

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7 9) According to Lewis Mumford himself, his 1934 opus *Technics and Civilization* assumed that technical forces evolved automatically and determined the character of all other institutions.

T F

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8 10) Once the steam engine was invented, it completely displaced the watermills and windmills used formerly.

T F

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9 11) After the Tay Bridge railroad disaster, British railway bridges were built on the model of Roman aqueducts, with rounded arches made out of stone masonry.

T F

F

10 12) Around 1800, British canal owners resisted the use of canals by steamboats, fearing the effect on the canal banks.

T F

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11 13) Thanks to prudent management practices by the Canadian government, the bison herds of Wood Buffalo National Park are free of the diseases afflicting herds farther south.

T F

12 14) According to scholars such as Jared Diamond, the more extensive domestication of animal species also leads to a healthier population as it increases the consumption of animal proteins and cuts the number of diseases.

T F

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* 15) The flintlock musket did away with some of the weaknesses of the matchlock.

T F

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* 16) Between 1730 and 1760, boats were hauled upstream through the city of Paris by a machine using wind-power.

T **F**

* 17) The locomotives of early North American railways mostly burned charcoal from the Allegheny mines, moved by intraregional canals.

T **F**

F

18) Alexander Graham Bell was the first inventor in North America to receive a patent for a telephone.

T F

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19) The invention of the telephone was fostered by the efforts to discover how to get a telegraph line to carry several messages simultaneously.

T F

20) With respect to telegraph technology, the "installed base" targeted by Alexander Graham Bell and other inventors was the sound-proofed baseplate of Morse telegraphs that amplified the vibrations received over the wires.

T **F**

* 21) Ottawa's Chaudière Falls are an example of a source of waterpower that was turned into an industrial site and later provided hydroelectric power.

T F

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* 22) The Erie Canal may be compared to the Duke of Bridgewater's canal for its importance in demonstrating the practical and commercial interest of a crucial canal route, while spurring rival or complementary projects.

T F

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23) Thomas P. Hughes reveals that Edison's Pearl Street power station in Manhattan flirted with bankruptcy and was only sustained until a fire gutted it in 1890 because the Edison system relied on it as a showpiece to encourage customers outside New York to purchase franchises and equipment.

T F

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* 24) In Canada, the original railway boom of the 19th century encouraged universities, colleges, and private schools to start teaching engineering for the first time.

T F

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25) In the early part of the 20th century, farms were more likely than cities to have access to electricity because they were closer to the sites chosen for hydroelectric dams.

16 T

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* 26) The deadliest railway bridge accident in Canadian history happened near Quebec City in 1907 when part of a bridge under construction collapsed.

17 T

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* 27) Standard time was introduced because canal owners wanted to better coordinate the movement of barges and steamboats along canals.

18 T

F

F

* 28) In Canada, the Lachine Canal was built for strategic purposes in order to remove river traffic on the St. Lawrence from the reach of any future military threat posed by the United States.

19 T

F

F

29) The explosion in the number of U.S. engineers between 1880 and 1920 may be attributed to the multiplication of "land grant colleges" teaching the "agricultural and mechanical arts", including engineering, with the help of financing provided by the 1862 Morrill Act.

19 T

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* 30) In Canada, Ottawa was the only city to get a "Union Station" like the ones found in the United States.

20 T

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B) [20 points] Answer 20 of the following by indicating which of the four (4) alternative answers is the correct one in your opinion. If you answer more than 20, only the first 20 will be marked.

1) In their heyday, horseboats (paddlewheelers powered by horses) were mostly used to:

- 1- (a) carry goods along canals over long distances
 (b) ferry travellers and their goods over short distances ✓
 (c) carry passengers upstream on rivers too narrow for sailboats
 (d) none of the above

2) Of the following, the most effective means of turning waterpower into useful work is:

- ✓ 2 (a) the undershot vertical waterwheel
 (b) the overshot vertical waterwheel
 (c) the horizontal waterwheel
 (d) the turbine ✓

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3) Technology was conceived as the science that teaches the processing of natural materials or the knowledge of crafts by:

- (a) Greek philosopher Aristotle in Antiquity
- (b) Greek historian Herodotus in Antiquity
- (c) German philosopher Christian Wolff in 1728
- (d) German professor Johann Beckmann in 1777 ✓

4) The five most important large mammals domesticated by humans are:

- (a) the horse, cow, pig, dog, and cat
- (b) the horse, cow, pig, goat, and sheep ✓
- (c) the horse, cow, pig, sheep, and dog
- (d) the horse, cow, pig, sheep, and chicken ✓

5) Approximately speaking, the initial development of agriculture and the taming of cats may be dated to which date before the present:

- (a) 50,000 years BP
- (b) 15,000 years BP
- (c) 10,000 years BP ✓
- (d) 5,000 years BP

6) Which of the following may be considered the earliest historian of technology, chronologically speaking?

- (a) Pliny the Elder ✓
- (b) Cicero
- (c) Polydore Vergil
- (d) Herodotus ✓

7) In any given area, the adoption of agriculture by early humans resulted in:

- (a) a more numerous population, but a lower population density
- (b) a less numerous population, and a less healthy one
- (c) a more numerous population, and a higher population density ✓
- (d) a higher population density, and a healthier population

8) Alien, invasive species may threaten native species as a result of which of the following:

- (a) competition, ecosystem destruction, increased reproduction
- (b) climate alterations, increased resource consumption, diseases
- (c) predation, diseases, ecosystem alterations ✓
- (d) predation, more efficient resource use, economic effects

9) When it became commercially useful, it turned out the Rideau Canal was most important as:

- (a) an intraregional canal ✓
- (b) an interregional canal
- (c) a side canal
- (d) none of the above

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10) In Canada, the consolidation of many competing railway companies into a few large ones occurred:

- (a) during the final decades of the 19th century, with the help of New York banker J. P. Morgan
- (b) just before World War I, to prepare for the military's transportation requirements
- (c) after World War I, in 1918-1923, due to reduced inputs of capital and immigrants ✓
- (d) during World War II in order to afford the more expensive diesel engines

11) In Ottawa, the railway lands accumulated by J. R. Booth to bring railroads into the heart of the city included properties now used by:

- (a) the residence of the prime minister (24 Sussex)
- (b) the Queensway (from Lees to Bayshore) ✓
- (c) Laurier Street
- (d) the Rideau Canal cut opened from Dow's Lake to Hog's Back Dam

12) British engineer Robert Stephenson built which two famous bridges in Great Britain and Canada?

- (a) the Britannia Bridge over Menai Straits and the Victoria Bridge in Montreal ✓
- (b) the Niagara Suspension Bridge and the Bytown Suspension Bridge
- (c) the second Tay Bridge and the original Quebec City cantilever bridge
- (d) the 1855 Niagara Suspension Bridge and the Brooklyn Bridge

13) Baron Haussmann's broad Parisian boulevards were intentionally designed to

- (a) carry large numbers of motor vehicles
- (b) leave room for an elevated railway
- (c) facilitate troop movements and stifle street fighting ✓
- (d) have space for parking and trees

14) The Morse telegraph system proved superior to its competitors in North America because:

- (a) it produced an audible signal and transmitted messages faster
- (b) it needed only one wire, wrote on paper, and used a simple alphabetical code ✓
- (c) it moved needles that pointed automatically to the right letter on a dial
- (d) it could be employed by men, women, or children

15) In 1882, the world's first known hydroelectric plant in Appleton (Wisconsin) used:

- (a) Westinghouse generators
- (b) Edison technology ✓
- (c) Tesla AC motors
- (d) all of the above

16) The Erie Canal connects

- (a) Lake Ontario to Lake Huron
- (b) Lake Ontario to Lake Erie
- (c) the Hudson River to Lake Ontario
- (d) the Hudson River to Lake Erie ✓

17) A reverse salient is:

- (a) an architectural term applied to a shaped cavity or niche
- (b) a problem that holds up the general improvement or progress of an entire system ✓
- (c) a step in a linear process that cannot handle the same throughput as the other steps
- (d) a military maneuver ✓

18) From first to last, biologist Edward O. Wilson ranks the top three causes of species extinction in the U.S. today as:

- (a) habitat destruction, biological "pollution", chemical pollution ✓
- (b) biological "pollution", habitat destruction, chemical pollution
- (c) chemical pollution, biological "pollution", habitat destruction
- (d) biological pollution, chemical "pollution", habitat destruction

19) In the United States, mechanization had the greatest effect (as defined by the workplace's transformation and measured by financial return) on which industry during the early nineteenth century?

- (a) the textile industry
- (b) steam engine construction
- (c) flour milling ✓
- (d) bicycle manufacturing ✓

20) In 1790, John Fitch's *Steamboat* running on the Delaware River between Philadelphia and Trenton could not compete profitably with

- (a) barges
- (b) canoes
- (c) sailboats
- (d) stagecoaches ✓

21) The first aerial (or optical) telegraph line in what is now Canada began operating in:

- (a) 1738
- (b) 1768
- (c) 1798 ✓
- (d) 1828
- (e) 1858

22) The first electrical telegraph line in Canada was completed and opened in

- (a) 1796
- (b) 1821
- (c) 1846 ✓
- (d) 1871
- (e) 1896

23) Eli Whitney advocated speed and interchangeability in the manufacturing of

- 18
- (a) cotton gins
 - (b) guns ✓
 - (c) flour mills
 - (d) textile mills

24) Before women took over, the first wave of telephone operators was mainly composed of:

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- (a) engineering students
 - (b) boys ✓
 - (c) convicts
 - (d) immigrants

25) The following propulsion systems were experimented on the first steamboats:

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- (a) hydrofoils, paddles, aerial propellers
 - (b) paddles, paddlewheels, water jets ✓
 - (c) aerial propellers, paddlewheels, steam jets
 - (d) aerial propellers, paddlewheels, rockets

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C) [10 points] Answer 2 of the following in the booklet provided. If you answer more, only the first 2 answers will be marked.

1) Name five (5) distinct technological systems that used the wires strung above city streets in North American towns by 1890.

2) Name and describe briefly five (5) types of water craft (new or old) used on the lakes and rivers of North America in the eighteenth and nineteenth centuries. Which one came to predominate? Suggest a couple of reasons for its success.

3) Identify some of the terms that have been applied throughout history to what we would call technology today. Explain briefly the context of their use.

4) In the age of European discoveries and settlement of lands outside Europe, why did the native inhabitants of North America fare so much worse against the Europeans than the native inhabitants of tropical Africa?

1 - new diseases
2 - new crops

✓ 5) Identify five social consequences, economic applications or societal uses of the expansion of rail in the nineteenth century. Describe as needed.

1 - transportation of goods
2 - change of habitat
3 - regions

6) What is the earliest technology discussed in this course that was greeted with enthusiastic pronouncements touting its world-transforming potential? What kind of things were said about it?

4 - steam
5 - war