

Nuclear power LEDE-HISTORY version D

1. In 1953, "Atoms for Peace" was

- a) a protest movement centered in US universities
- b) a presidential speech promoting nuclear energy production
- c) a presidential speech warning of the need for nuclear arms agreements
- d) a congressional committee

2. According to Wikipedia, the amount of green house gasses associated with the construction and maintenance of nuclear power plants is _____ than the emissions associated with other renewable sources (wind, solar, and hydro power.)

- a) less
- b) greater
- c) about the same

3. According to Wikipedia, the prediction made in 1954 that electricity would someday be "too cheap to meter" was

- a) an argument that fossil fuels are so abundant that we don't need nuclear energy
- b) an effort to promote nuclear fusion as an energy source
- c) an effort to promote nuclear fission as an energy source

4. Which was developed first, nuclear power generation or nuclear weapons?

- a) nuclear weapons
- b) they were developed simultaneously
- c) nuclear power generation

5. In terms of lives lost per unit of energy generated, evidence suggests that nuclear power has caused _____ fatalities per unit of energy generated than the other major sources of energy.

- a) comparable
- b) less
- c) more

6. The Manhattan project made

- a) plutonium and enriched uranium
- b) uranium and enriched plutonium
- c) plutonium and enriched hesparium

7. What fraction of the world's electricity was produced by nuclear power in 2012?

- a) 13%
- b) 3%
- c) 63%
- d) 33%

8. The worldwide number of nuclear reactors and their net capacity grew steadily from 1960, and

- a) briefly fell sharply after Three Mile Island (1979), rose again, and again fell after Chernobyl (1986)
- b) did not begin to level off until Chernobyl (1986)
- c) fluctuated randomly but with a strong correlation with the world economy and price of oil
- d) leveled off between Three Mile Island (1979) and Chernobyl (1986).

9. It was discovered that radioactive elements released immense amounts of energy according to the principle of mass–energy equivalence in the _____

- a) late 19th century
- b) early 19th century
- c) early 20th century

10. The first nuclear power plant to contribute to the grid was situated in

- a) Oak Ridge
- b) Great Britain
- c) Russia
- d) Virginia

11. From the figure depicting percentage of power produced by nuclear power plants, we see that the proper ranking from greatest to least reliance on nuclear power for three nations is

- a) France ,Turkey , with the United States least reliant.
- b) United States, France, with Turkey least reliant.
- c) France, United States, with Turkey least reliant.
- d) United States, Turkey, France least reliant.

12. The worst nuclear disaster on record occurred in Russia

- a) true
- b) false

13. Fermi thought he had discovered _____, when he actually discovered _____

- a) fusion; hesparium
- b) hesperium; fission
- c) fission; hesparium
- d) hesperium; fusion

14. Ernest Rutherford's "moonshine" was

- a) what he called the idea of harnessing nuclear power
- b) what he called the idea of relying on fossil fuels
- c) what called neutrons
- d) what he called alpha particles

15. Chadwicks discovery of the neutron was significant because

- a) neutrons are stable
- b) neutrons permit induced radiation
- c) neutrons are slow

16. How does Wikipedia assess the prospects of commercial fusion power production before 2050?

- a) unlikely
- b) likely
- c) impossible
- d) expected

17. More US nuclear submarines sank due to nuclear accidents than did Russian submarines

- a) true
- b) false

18. Estimates of additional nuclear generating capacity to be built by 2035 fell by _____ percent after the Fukushima nuclear accident in 2011.

- a) 90
- b) 10
- c) 50

19. Fermi used _____ to create what he thought was _____

- a) transuranic (heavy) elements; a new source of slow neutrons
- b) slow neutrons; "moonshine"
- c) "moonshine"; fast neutrons
- d) slow neutrons; a new element heavier than uranium (called a transuranic element)

20. Neutrons and protons both have "strong" short range interactions with the nucleus. Why can't slow protons be used to cause nuclei to undergo fission?

- a) protons are positively charged
- b) protons move at the speed of light
- c) slow protons are attracted to the nucleus
- d) slow protons can induce fission but they are too expensive to produce

21. The Atomic Age, published in 1945, predicted ...

- a) widespread radiation poisoning
- b) that fossil fuels would go unused
- c) nuclear war
- d) a world government to prevent nuclear war

22. Chadwick's discovery of the neutron was significant because neutrons

- a) are an excellent fuel for nuclear power
- b) can be used to create radioactive material at a low price
- c) are not radioactive

23. The third worst nuclear disaster occurred in Russia (1957) and was kept secret for 30 years

- a) true
- b) false