

## Nuclear Power NUCLEAR POWER PLANT - NUCLEAR PROLIFERATION version B

1. High-level radioactive waste management is a daunting problem because

- a) they cannot be stored underground
- b) the isotopes are short-lived
- c) the isotopes are long-lived

2. The Waste Isolation Pilot Plant in New Mexico

- a) can no longer nuclear waste from production reactors because it is full
- b) is currently taking nuclear waste from production reactors
- c) was originally a research and development facility but is now under private ownership

3. Uranium is approximately \_\_\_\_\_ than silver in the Earth's crust.

- a) 40 times less common
- b) 4 times less common
- c) 4 times more common
- d) 40 times more common

4. The reprocessing of spent Uranium worsens the problem of long term waste storage

- a) true
- b) false

5. It has been estimated that if Japan had never adopted nuclear power, the use of other fuels would have caused more lost years of life.

- a) true
- b) false

6. One concern about fast breeder reactors is that the uranium reserves will be exhausted more quickly

- a) true
- b) false

7. The Megatons to Megawatts Program

- a) purchases spent fuel that could otherwise be used to make weapons, and is considered a failure
- b) converts weapons grade uranium into fuel for commercial reactors, and is considered a success
- c) converts weapons grade uranium into fuel for commercial reactors, and is considered a failure
- d) purchases spent fuel that could otherwise be used to make weapons, and is considered a success

8. Fast breeder reactors use uranium-238, an isotope which constitutes \_\_\_\_\_ of naturally occurring uranium

- a) 3%
- b) 99%
- c) 30%
- d) 60%
- e) 1 %

9. A 2008 report from Oak Ridge National Laboratory concluded that the dose to the public from radiation from coal plants is \_\_\_\_\_ the radiation nuclear plants (excluding the possibility of accidental discharges of radioactive material)

- a) 100 times more than
- b) 10 times more than
- c) about the same as
- d) 10 times less than
- e) 100 times less than

10. Fuel rods spend typically \_\_\_\_\_ total now inside the reactor, generally until \_\_\_\_\_ of their uranium has been fissioned

- a) 6 months; 3%
- b) 6 months; 30%
- c) 6 years; 3%
- d) 6 years; 30%

11. After about \_\_\_\_\_ in a spent fuel pool the spent fuel can be moved to dry storage casks or reprocessed.

- a) 5 months
- b) 50 years
- c) 5 years

12. In a PWR reactor, the water is kept under high pressure

- a) to reduce the heat required to boil it
- b) to prevent it from boiling
- c) only in the reactor core
- d) to slow down the neutrons

13. It has been estimated that farmland lost due to Fukushima accident will not be farmed for centuries

- a) true
- b) false

14. It has been estimated that farmland lost due to Fukushima accident will be again useful for farming in 40-60 years

- a) true
- b) false

15. A 2008 report from Oak Ridge National Laboratory concluded that the dose to the public from radiation from properly run nuclear plants is \_\_\_\_\_ the radiation created by burning coal

- a) 10 times less than
- b) 100 times less than
- c) 10 times more than
- d) about the same as
- e) 100 times more than

16. Reactors that use natural (unenriched) uranium are

- a) considered impossible
- b) are already in use
- c) are likely to emerge in the next few decades

17. Nuclear power plants typically have

- a) low capital costs and high fuel costs
- b) high capital costs and low fuel costs
- c) high capital costs and high fuel costs
- d) low capital costs and low fuel costs

18. The reprocessing of spent Uranium helps alleviate the problem of long term waste storage

- a) true
- b) false

19. One concern is that long term nuclear waste management is now being performed by a number of private waste management companies

- a) true
- b) false

20. In the United States, reprocessing of spent Uranium

- a) provides 5% of our fuel needs which is consumed within the United states
- b) is not allowed due to waste management concerns
- c) provides 20% of our fuel needs and allows the United States to export nuclear fuel
- d) is not allowed due to nuclear weapon proliferation concerns

21. How many latent (cancer) deaths are estimated to result from the Three Mile Island accident?

- a) zero
- b) from 0 to 1000
- c) from 4000 to 25,000