

Nuclear Energy Fundamentals

Nuclear Energy · Answer Key · 20 Questions

1. What is the most common fuel used in nuclear power reactors?

- A) Coal
- B) Uranium-235**
- C) Hydrogen
- D) Natural Gas

2. Which process involves splitting an atom's nucleus into smaller parts to release energy?

- A) Nuclear Fusion
- B) Chemical Combustion
- C) Nuclear Fission**
- D) Radioactive Decay

3. What is the primary product of a nuclear power plant?

- A) Electricity**
- B) Steam
- C) Waste heat
- D) Radioactive isotopes

4. Inside a nuclear reactor, what are used to absorb neutrons and control the speed of the chain reaction?

- A) Coolant pipes
- B) Turbine blades
- C) Control rods**
- D) Concrete shields

5. Which subatomic particle is released during nuclear fission to trigger further reactions?

- A) Proton
- B) Electron
- C) Neutron**
- D) Positron

6. What is the main role of the cooling system in a nuclear power plant?

- A) To produce steam
- B) To prevent the reactor from overheating**
- C) To generate electricity
- D) To store spent fuel

7. Which part of a nuclear power plant generates the electricity?

- A) Reactor core
- B) Cooling tower
- C) Turbine and generator**
- D) Containment building

8. Nuclear power is considered a 'low-carbon' energy source because it does not produce what during operation?

- A) Carbon dioxide**
- B) Water vapor
- C) Thermal energy
- D) Radioactive waste

9. Where is the nuclear fuel stored inside a reactor?

- A) In the turbine
- B) In the reactor core**
- C) In the cooling tower
- D) In the steam generator

10. What is the purpose of the containment building in a nuclear power plant?

- A) To boil water
- B) To store electricity
- C) To prevent the release of radioactive materials**
- D) To house the staff

11. Which of the following is a byproduct of nuclear fission that requires long-term management?

- A) Oxygen gas
- B) Spent nuclear fuel**
- C) Helium
- D) Water

12. What state of matter is the water inside the reactor's primary loop usually kept in to transfer heat?

- A) Plasma
- B) Solid
- C) Liquid**
- D) Gas

13. What is the source of the heat that turns water into steam in a nuclear plant?

- A) Friction
- B) Chemical burning
- C) Nuclear fission**
- D) Sunlight

14. Approximately what percentage of the world's electricity is generated by nuclear power?

- A) 10%**
- B) 50%
- C) 75%
- D) 90%

15. Which element is often used as a moderator to slow down neutrons in a reactor?

- A) Lead
- B) Gold
- C) Water or Graphite**
- D) Iron

16. What is the primary function of the steam generated in a nuclear plant?

- A) To power the turbine**
- B) To cool the fuel
- C) To produce hydrogen
- D) To clean the reactor

17. Nuclear fusion, the process that powers the Sun, involves doing what to atomic nuclei?

- A) Splitting them
- B) Combining them**
- C) Cooling them
- D) Freezing them

18. Which of these describes the main advantage of nuclear energy in terms of resource density?

- A) It requires no maintenance
- B) It uses very little fuel to produce large amounts of energy**
- C) It is free to build
- D) It never creates waste

19. What do we call the specific type of chain reaction that continues on its own inside a reactor?

A) Self-sustaining

B) Explosive

C) Intermittent

D) Flickering

20. In a nuclear power plant, what is the role of the condenser?

A) To turn steam back into water

B) To split uranium atoms

C) To store electricity

D) To burn excess fuel