

CHAPTER 06

A list of bullet points with important information is given to help you learn the subject matter of this chapter.

- 1.- The fuel for a fission reactor such as that at Chernobyl is $U235$
- 2.- The fuel for a breeder reactor is $U238$
- 3.- The most abundant naturally-occurring isotope of uranium is $U238$
- 4.- The principal use of nuclear power is electricity generation
- 5.- A likely fuel for use in a fusion reactor is $H2$
- 6.- The fuel produced by an anaerobic digestion is methane
- 7.- Gasohol is a mixture of gasoline with ethyl alcohol
- 8.- The country that is leading the way in the use of gasohol as a fuel for nearly all of its vehicles is Brazil
- 9.- The rates of natural nuclear fission may be accelerated
- 10.- A chain reaction is the process by which the fission of uranium atoms is accelerated by the fission adjacent uranium atoms
- 11.- During the process of radioactive fission: (1) heavier atoms decompose; and (2) large amounts of energy are released
- 12.- "Yellowcake" is a mixture of uranium oxides used to prepare nuclear fuel rods
- 13.- The only known natural fission chain reaction occurred in Gabon
- 13.- The advantage(s) of the breeder reactor over the conventional fission reactors is that they use a much more abundant isotope of uranium
- 14.- The Chernobyl reactor near Kiev in the Soviet Union became famous in April 1986 because it was the scene of a massive explosion, fire, and radiation release
- 15.- In terms of the conversion of energy to electricity, the most efficient process is hydroelectric power
- 16.- The famous windmills of Holland were first used to: (1) grind grain; and (2) pump water
- 17.- The areas with the greatest potential for future development of hydroelectricity are South America and Africa
- 18.- The significant problem(s) with wind-generated electricity is (are): (1) wind does not blow constantly; (2) the large number of machines needed; and (3) noise generation
- 19.- The Rance Estuary on the Brittany coast of France is the site of the world's largest tidal power station
- 20.- The average geothermal gradient is $25^{\circ}C/km$
- 21.- The country with the largest geothermal power generation is United States
- 22.- The world's major geothermal areas are located along major tectonic plate boundaries
- 23.- Geothermal energy arises from decay of natural radioactive isotopes in the Earth
- 24.- The Sun supplies most of the energy reaching the Earth's surface. The second most important source is geothermal heat
- 25.- The uranium ores in the Witwatersrand deposits of South Africa are detrital, similar in origin to the Blind River deposits in Canada
- 26.- The difference between high quality and low quality solar energy is the difference between focusing the Sun's rays before use and not focusing them
- 27.- Photovoltaic cells have the power to produce an electric current from the Sun's rays
- 28.- Hydroelectric power systems have limited lives because reservoirs eventually silt up and lose capacity
- 29.- Use of wind power for the generation of electricity is not likely to exceed today's use of petroleum because wind is intermittent and variable in velocity, so the efficiency of power conversion is low
- 30.- An element commonly used in nuclear reactors as a "moderator" is graphite
- 31.- Pitchblende is the common name for the ore of uranium
- 32.- A photogalvanic cell produces electricity from sunlight
- 33.- The abbreviation OTEC refers to a method of generation of power from the thermal energy of the oceans