

## Section 12.3 Stationary Power – Answer Key

- 1) Where does Canada get most of its electrical energy from? **Most of Canada's electrical energy comes from hydro electric dams, burning fossil fuels and nuclear power.**
- 2) What is a hydro-electric plant? **A hydro electric plants use water pressure to make electrical energy.**
- 3) Explain how a hydro-electric plant works. **A hydro electric plant works by keeping a large amount of water behind a dam. When the water is released, it turns the turbine and this generates electrical energy.**
- 4) What type of potential energy is used to power a hydro-electric plant? **Gravitational potential energy is used to power a hydro-electric plant.**
- 5) Explain how the water cycle works. **The water cycle works using the sun's energy by evaporating water from the oceans and lakes. The water vapour rises high above land and soon starts to condense and form clouds. Shortly after, rain or snow falls.**
- 6) Define fossil fuels. **Fossil fuels are fuels partially made of decomposed organisms buried millions of years ago.**
- 7) Define thermo-electric. **Thermo-electric is when heat is used to generate electricity.**
- 8) Explain how a coal burning plant works. **It all starts when coal starts to burn. This intense heat is used to convert water into steam. This high pressure steam is then flows through pipes and rotates a turbine. The turbine turns a generator, which makes electrical energy.**
- 9) How is a coal burning plant similar to a hydro-electric plant? **They both have spinning turbines that turn a generator.**
- 10) Define fission products. **Fission products are the atoms left over after nuclear fission has occurred.**
- 11) Define nuclear fission. **Nuclear fission is the release of lots of energy by splitting the nucleus of uranium atoms.**
- 12) Define thermonuclear. **Thermonuclear is when the heat produced by nuclear reactions are used to generate electricity.**
- 13) How did fossil fuels get their energy? **Fossil fuels originally got their energy from the sun.**

- 14) How do fossil fuels release their energy? **Fossil fuels release their energy when they are burned.**
- 15) Define fuel rods. **Fuel rods are devices found in nuclear reactors that contain balls of uranium fuel.**
- 16) How are nuclear plants similar to hydro-electric plants? **Both use turbines to turn the energy of motion into electrical energy.**
- 17) Where are hydro-electric and thermonuclear plants usually located? **They are usually located long distances from where lots of people live.**
- 18) What is a consequence to the answer in question 17? **Electricity must be transmitted over large distances through power lines.**
- 19) What happens when you transmit power at a very high voltage and low current? **When you do this, it reduces the loss of power because energy isn't lost from the heating of the power lines.**
- 20) Define transformer. **A transformer is a device that increases or decreases the potential difference (voltage) across power lines.**
- 21) What are the two types of current that transmit power? **Two types of current that transmit power are direct current (DC) and alternating current (AC).**
- 22) Define alternating current. **Alternating current is when the current rapidly changes direction back and forth.**
- 23) Define direct current. **Direct current is current where electrons only travel one direction. Batteries usually produce direct current.**
- 24) What is a disadvantage of direct current in transmitting electricity? **The disadvantage of direct current in transmitting electricity is that it is very difficult to increase or decrease the voltage.**
- 25) What is an advantage of using alternating current? **When using alternating current, it is much easier to increase or decrease the voltage.**