**Unit 4 Quiz 3 Energy and Location / Manufacturing**

**Answer the following questions: [7 total marks]**

1. An example of an alternative energy source is:
   1. Hydro-electrical
   2. Thermal-electrical
   3. **Wind**
   4. Nuclear-electrical
2. This is the basic unit used to measure energy:
   1. Watt
   2. Amp
   3. Jolt
   4. **Joule**
3. Why might a geologist use seismic surveys?
   1. Search for dead people
   2. **Search for gas or oil bearing structures**
   3. Search for Cthulhu before he awakens
   4. Search for underground caverns
4. Secondary recoveries are other ways to get to oil, besides merely drilling and sucking it up through pipes. Why are secondary recoveries necessary?
   1. **As oil is drained, it becomes increasingly difficult to drain more oil, until it’s impossible to get more than 60% of the oil using conventional methods**
   2. Sometimes the oil is able to hide in side pocket locations, and secondary recoveries are necessary to find them
   3. Oil recovery is such a long process that often the first drillers to find the oil retire or die before they’re empty, and bringing in the next group to work is called a second recovery
   4. They aren’t necessary, but people do it anyway because it takes more time, and most workers get paid by the hour
5. What is bitumen?
   1. Natural oil, already in liquid form that can be drilled and harvested
   2. **An oil-like substance that coats sand, and can be used to create synthesized crude oil**
   3. The name of the process whereby oil is taken from the ground naturally
   4. The unit used to measure how much oil is harvested (bitumens per hour)
6. This is the name for the lines that are used to transfer electrical energy to distant cities:
   1. Energy Lines
   2. Electrical Lines
   3. Telephone poles
   4. **Transmission lines**
7. What is the only method that can be used to move natural gas in between areas?
   1. Tanker ships
   2. Gas wires
   3. **Gas pipelines**
   4. Railways

**Short Answer: [12 total marks]**

1. Explain how plants and animals from hundreds of millions of years ago turned into fossil fuels (oil and gas) [2 marks][1 Bonus if you can tell me the name of the dome-shaped rock structures that the fossil fuels are trapped between]

There used to be oceans covering large parts Canada hundreds of millions of years ago. As the animals and plants died, they collected to the bottom of the oceans in thick layers, which then were covered by layers of sand and salt. The immense weight of all the layers compressed everything into sedimentary rock, and then from bacterial action, heat, and the compressive force the animals and plants were turned into oil and gas. (Anticlinal traps)

1. What is the difference between a “flowing well” and a “non-flowing well?” Be specific, don’t just tell me one flows and the other doesn’t. [2 marks]

Flowing well: wells that have enough natural pressure to force the oil or gas to the surface, and must be controlled via a series of valves called Christmas Trees

Non-Flowing wells: wells that do not have enough pressure to force the oil or gas to the surface, and therefore must be pumped using electric or gas powered machines

1. Pick 1 of the electrical generating stations, and provide a pro and a con specific for that station. [2 marks]

Hydro-electrical generating station. Pros: cheap, no air pollution, renewable resource

Cons: very costly build, far away from cities, building a dam requires flooding (can leech mercury into water)

1. Pick a second electrical generating station, and provide a pro and a con specific for that station. [2 marks]

Thermal-Electric generating station. Pros: plants can be built where electricity is needed / where fuel is cheap

Cons: fuel costs, produces greenhouse gases, coal and oil produce the gases that contribute to acid precipitation

Nuclear-Electric generating station. Pros: built where electricity is needed, low operating costs, lots of uranium, no air pollution

Cons: radioactive materials are hazardous, waste products remain dangerous for 100,000 years, life of a powerplant is very short and therefore must be refurbished or rebuilt

1. List 2 pros and 2 cons for the Alberta oil sands [4 marks]

Pros: Canada is the number 1 foreign supplier of oil to the states because of the oil sands, relatively secure source of energy

Cons: damaging to the environment, damaging to local wildlife and animal life, unrenewable resource

1. When looking at political factors in regards to location factors that influence businesses, there can be direct and indirect factors. Direct factors are decisions or laws the government directly makes to promote or attract new businesses. What are indirect factors? [1 mark, 1 bonus if you can give an example of an indirect factor]

Laws or rules the government sets that bring businesses or industries to an area, that were not originally intended to bring new businesses to the area. An example is building a new highway creates new transportation routes, so it attracts new businesses or industries.

**Long Answer: [10 total marks]**

1. You have decided to produce and market your super-amazing-yet-extremely hot pasta sauce, made with ghost peppers (the hottest pepper in the world). Choose 5 of the 7 location factors we discussed in class that you feel are important to your new business, and explain why each factor is so important. [1 mark for each factor, 1 mark for each explanation. 10 marks total]

**Availability of Raw Materials:** If raw materials are only available in a certain location, that dictates where the industry can be built, as transportation costs and resource management can become too high if the industry is far away.

**Location of Markets:** Industries often choose to create their business close to known markets.

**Availability of Fresh Water and Power**: Some businesses require a lot of water (aluminum manufacturing) and all businesses require large amounts of cheap power and electricity to function.

**Labour Supply:** businesses want to be near a potential labour force, so they can hire from a wide selection of people, and so they do not have to build housing to accommodate their employees.

**Transportation:** businesses want to be near fast and efficient transportation routes, in order to ensure they can export their goods cheaply and efficiently.

**Political Factors:** governments might create new laws or tax incentives, to attract new businesses. Can direct or indirect.

**Circumstance:** people or companies seeing a need or a potential for a business, and then seizing the opportunity to build upon it (you saw the opportunity to market your pasta sauce, and you decided to create a business based on that).