

ENVIRONMENTAL STUDIES (SC111)
HOMEQUIZ 7(Ch. 9 & 10)

Friday, April 25, 2014
Due: Wednesday, April 30, 2014

NAME: _____

TRUE OR FALSE (20 pts)

- _____ Oil was originally chosen as an alternative to coal because it was more convenient and less expensive.
- _____ Natural gas is still “flared” at the well-head in some places because it is too expensive to transport to those who could use it.
- _____ Black lung disease is a hazard of working on oil rigs.
- _____ In favorable locations wind power is cheaper than other new energy sources.
- _____ Biomass energy is actually solar energy that has been converted to chemical bond energy by photosynthesis.
- _____ Wood burning is the main energy source for a substantial proportion of the world’s population.
- _____ Production and use of methane is an underutilized energy source.
- _____ The major drawback of wind power is the large land area that would be required.
- _____ In a nuclear reactor, the control rods are made from fissionable material and they moderate the speed of the neutrons.
- _____ The United States Department of Energy oversaw the production of nuclear weapons in such a way that there is little, if any, residual radioactive waste that now needs to be disposed of in the nuclear laboratories.
- _____ Despite the nuclear scares at Three Miles Island and Chernobyl, nuclear power plant building projects increased by 200% over what was projected during the 1980s.
- _____ The medical field is a large producer of low-level nuclear waste.
- _____ Commercially useful nuclear energy is produced when the nuclei of two very small atoms combine to form a single larger atom causing the release of a large amount of energy.
- _____ The US has no permanent storage solution for the disposal of high level radioactive waste.
- _____ Disposal of low-level radioactive waste on the ocean floor by the US has been increased.
- _____ The nuclear fuel cycle may include mining and milling.
- _____ Gamma radiation can travel through nearly a meter of concrete.
- _____ Cumulative doses of radiation soon disappear over time.
- _____ Gamma radiation can not penetrate the human body.
- _____ Alpha and beta particles pass through clothing and skin so therefore you must use protective clothing that contains lead.

MULTIPLE CHOICE: (38 pts)

1. Known deposits of a material that can be extracted profitably are called
 - a) Resources
 - b) Undiscovered reserves
 - c) Identified deposits
 - d) Reserves
 - e) None of the above

2. Which of the following processes involves removing materials from the top of a vein of coal to get to the coal beneath?
 - a) Surface mining
 - b) Underground mining
 - c) Acid mine drainage
 - d) Secondary recovery

3. Which of the following is the most abundant fossil fuel?
 - a) Oil
 - b) Natural gas
 - c) Coal
 - d) Gasoline
 - e) None of the above

4. Coal mining and coal burning can produce
 - a) Acid rain
 - b) Increased carbon dioxide levels in the atmosphere
 - c) Environmental degradation
 - d) More than ¼ of the energy the world uses
 - e) All of the above

5. Which of the following is not a renewable energy source?
 - a) Biomass conversion
 - b) Solar
 - c) Hydroelectric
 - d) Oil
 - e) All of the above are renewable energy sources

6. Which of the following names the form of energy that can be successfully used in buildings; is relatively cheap to construct; and simply uses the sun to heat a surface, which warms the inside of the building?
 - a) Photovoltaic cell
 - b) Passive solar
 - c) Active solar
 - d) Geothermal
 - e) None of the above

7. Which of the following is considered a use of biomass conversion to produce energy?
 - a) Burning fuelwood in Micronesia
 - b) Methane digestors in China
 - c) Alcohol creation from sugar cane residues in Brazil
 - d) Burning animal dung for cooking fires in the desert
 - e) All of the above

8. All of the following are examples of fossil fuels except
 - a) Coal
 - b) Biomass
 - c) Oil
 - d) Natural gas

9. About _____ percent of commercial energy used in the world is provided by fossil fuel.
 - a) 25
 - b) 45
 - c) 65
 - d) 80

10. By far the greatest amount of proven natural gas reserves are found in
 - a) Alaska
 - b) Canada
 - c) The former USSR
 - d) The USA
 - e) Iraq

11. From an environmental perspective the most desirable fuel of those listed is
 - a) Coal
 - b) Petroleum
 - c) Natural gas

12. A major problem with burning coal is its release of
 - a) Pollutants that cause acid rain
 - b) Huge quantities of carbon dioxide
 - c) Significant amounts of sulfur dioxide
 - d) All of the above

13. Options for living a more energy-efficient life style include
 - a) Stopping hot water leaks
 - b) Recycling
 - c) Turn off lights, television sets, radios, computers.... when not in use
 - d) Drive less --- join a car pool, ride a bicycle, reduce speeds
 - e) All of the above

14. Substantial energy and costs can be saved by choosing the most energy efficient models of _____ instead of comparable models of average energy efficiency.
 - a) autos
 - b) air conditioners
 - c) refrigerators
 - d) all of the above

15. Photovoltaic systems are characterized by all of the following EXCEPT
 - a) they convert sunlight into electricity
 - b) they are difficult to maintain
 - c) they produce no pollution
 - d) they have no moving parts

16. Methane is
 - a) an excellent fuel
 - b) produced by anaerobic digestion of wet organic matter
 - c) a fuel that can be derived from animal dung to provide an alternative energy source of burning the dung directly
 - d) all of the above

17. Problems associated with large hydropower dams and reservoirs often include
 - a) massive dislocation of humans
 - b) ecosystem destruction
 - c) loss of wildlife
 - d) all of the above

18. Wind power
 - a) is essentially nonpolluting
 - b) creates minimal environmental disruption
 - c) requires expensive-to-build storage capacity
 - d) is all of the above

19. Solar, geothermal, and tidal energy are forms of
- nonrenewable resources
 - fossil fuels
 - renewable resources
 - biomass
20. Environmental problems associated with large hydroelectric dams include:
- air and water pollution and higher crime
 - global warming, ozone destruction and private land rights
 - loss of forests, streams and native peoples
 - loss of fertile farmland, destruction of aquatic communities and relocation of people
21. Which country has the largest active tidal generating station?
- France
 - United States
 - China
 - Ghana
22. Environmental problems associated with geothermal energy include:
- water and noise pollution and devastates caribou herds
 - air pollution, corrosion of pipes, and may be toxic to fish
 - kills birds, noise pollution and is very expensive
 - is non-renewable, smells and has large volumes of waste water
23. Environmental problems associated with wind power are:
- vibrations cause earthquakes, air pollution and radioactive storage
 - transportation required over long distances and toxic to fish
 - hazardous to birds, vibrations cause structural problems and noise and visual pollution
 - interrupts frog mating, mutations in mammals and decreases available nitrogen
24. What is the proposed alternative to drilling for oil in the Arctic National Wildlife Refuge (ANWR)?
- increase energy conservation
 - greater reliance on tidal and wind power
 - lower oil prices from Nigeria
 - an oil treaty with Venezuela
25. Ethanol is produced through the fermentation of
- sugarcane
 - wood
 - straw
 - corn
 - all of the above
 - none of the above
26. Which is NOT a disadvantage of coal mining?
- acid mine drainage
 - black lung disease
 - acid deposition
 - dioxin pollution
27. Which of the following is not a form of nuclear radiation?
- Beta
 - Gamma
 - Omega
 - Alpha
 - All of the above are forms of nuclear radiation

28. A nuclear fission chain reaction produces all of the following except
- Extra neutrons that are split away from a nucleus
 - Smaller atoms
 - Energy
 - Protons that split other atoms
 - All of the above are produced
29. The combining of two lighter atomic nuclei to form a heavier atomic nucleus is called
- Radioactive decay
 - Nuclear fission
 - Nuclear fusion
 - All of the above
30. The degree and kind of damage due to radiation varies in which of the following ways?
- kind of radiation
 - duration of exposure
 - amount of radiation
 - types of cells irradiated
 - all of the above
31. Spent fuel rods and obsolete nuclear weapons are examples of
- decommissioned waste
 - high-level nuclear waste
 - low-level nuclear waste
 - recycled nuclear waste
 - itinerant nuclear waste
32. The chain reaction utilized in nuclear power generation refers to
- a neutron emitted by one atom striking another causing release of other neutrons which in turn strike other atoms which release even more neutrons and so on
 - atoms forcefully combining with each other progressively producing ever larger atoms, ultimately producing plutonium
 - the series of events from mining to concentrating to fuel rod assembly and ultimately to power generation
 - the ultimate safety failure of a nuclear power generator where heat causes atoms ultimately to explode
33. Concerns about nuclear power generation include
- the excessive cost of construction, operation, and eventually closure of such a plant compared to other options
 - the difficulty of safely disposing of long-lived radioactive materials
 - risks associated with power plant accidents
 - all of the above
34. Arguments in support of nuclear power include
- it causes fewer annual deaths and diseases than does coal mining
 - it produces substantially less air pollution than fossil fuel fired power plants
 - its use has no significant effect on global warming
 - all of the above
35. Currently, nuclear power provides approximately _____ of the world's energy.
- Less than 1%
 - About 6-7%
 - About one-third
 - Nearly 75%
36. A commonly used nuclear fuel is
- Potassium
 - Beryllium
 - Carbon
 - Uranium
 - Lead

- 37 The forms of electromagnetic radiation include
- a) X-rays
 - b) light
 - c) radio waves
 - d) All of the above
- 38 Ionizing radiation affects _____ which can lead to mutations.
- a) cell membrane
 - b) cell wall
 - c) DNA
 - d) None of these