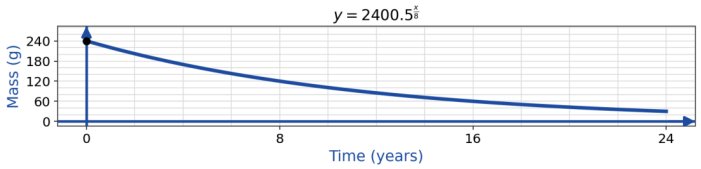
ALBERTA SCIENCE 30 · UNIT D · 10 QUESTIONS

Energy and the Environment — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **The graph below shows the mass of a radioactive sample against time. After 16 years, the mass remaining is**



- **A** 30 g
- **B** 60 g
- **C** 120 g
- **D** 240 g

Understand It with Pulse | Flag a mistake

2 **Which of the following gases is a greenhouse gas that absorbs infrared radiation emitted by the Earth?**

- A Methane
- B Oxygen
- C Nitrogen
- D Argon

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3 **The main sequence of energy conversions in a hydroelectric generating station is**

- A chemical → kinetic → electrical
- B gravitational potential → kinetic → electrical
- C thermal → kinetic → electrical
- D radiant → electrical → kinetic

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4

$^{235}_{92}U + {}^{1}_{0}n \rightarrow {}^{140}_{54}Xe + A_{38}Sr + 2\,{}^{1}_{0}n$

In the fission reaction above, the value of A is _____

ANSWER _____

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5

The melting of polar ice is an example of a positive feedback in the climate system because melting ice

A. increases the albedo of the polar regions

B. causes the oceans to absorb less solar radiation

C. exposes dark ocean water that absorbs more solar radiation, causing further warming and further melting

D. releases stored carbon dioxide directly into the atmosphere

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6 **A solar thermal collector differs from a photovoltaic panel because a solar thermal collector**



A converts light directly into electricity

B uses sunlight to generate a magnetic field

C operates only at night

D uses sunlight to heat a fluid such as water

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7 **Some events that occur in a hydroelectric generating station are listed below. 1 The generator converts kinetic energy into electrical energy 2 Water stored behind a dam has gravitational potential energy 3 Falling water spins a turbine 4 Water gains kinetic energy as it flows down the penstock The order in which the events occur, from first to last, is _____ Record your answer as a four-digit number.**



ANSWER

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8 **Compared with burning coal, burning natural gas to produce the same amount of electrical energy**

A produces less carbon dioxide

B produces more carbon dioxide

C is a renewable source of energy

D produces no waste thermal energy

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9 **Adding insulation to the walls of a house reduces the energy needed to heat the house mainly by**

A generating additional thermal energy

B reducing the rate at which thermal energy escapes to the surroundings

C raising the temperature of the furnace

D reflecting sunlight away from the house

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10 **The fuel for most proposed fusion reactors would be obtained from**

A uranium mines

B coal seams

C hydrogen isotopes that can be extracted from water

D natural gas wells

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ANSWER KEY

1. B
2. A
3. B
4. 94
5. C
6. D
7. 2431
8. A
9. B
10. C

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