

ANSWERS --CHAPTER 1 PREPARING FOR THE AP EXAM

MULTIPLE CHOICE QUESTIONS

1. Which of the following events has increased the impact of humans on the environment?

I Advances in technology

II Reduced human population growth

III Use of tools for hunting

(a) I only

(b) I and II only

(c) II and III only

(d) I and III only

(e) I, II, and III

2. As described in this chapter, environmental indicators

(a) always tell us what is causing an environmental change.

(b) can be used to analyze the health of natural systems.

(c) are useful only when studying large-scale changes.

(d) do not provide information regarding sustainability.

(e) take into account only the living components of ecosystems.

3. Which statement regarding a global environmental indicator is not correct?

(a) Concentrations of atmospheric carbon dioxide have been rising quite steadily since the Industrial Revolution.

(b) World grain production has increased fairly steadily since 1950, but worldwide production of grain per capita has decreased dramatically over the same period.

(c) For the past 130 years, average global surface temperatures have shown an overall increase that seems likely to continue.

(d) World population is expected to be between 8.1 billion and 9.6 billion by 2050.

(e) Some natural resources are available in finite amounts and are consumed during a one-time use, whereas other finite resources can be used multiple times through recycling.

4. Figure 1.8 (on page 10) shows atmospheric carbon dioxide concentrations over time. The measured concentration of CO₂ in the atmosphere is an example of

(a) a sample of air from over the Antarctic.

(b) an environmental indicator.

(c) replicate sampling.

(d) calculating an ecological footprint.

(e) how to study seasonal variation in Earth's temperatures.

5. In science, which of the following is the most certain?

(a) Hypothesis

(b) Idea

(c) Natural law

(d) Observation

(e) Theory *Friedland & Relyea Environmental Science for AP** © BFW Publishers 16

6. All of the following would be exclusively caused by anthropogenic activities except
- (a) combustion of fossil fuels.
 - (b) overuse of resources such as uranium.
 - (c) forest clearing for crops.
 - (d) air pollution from burning oil.
 - (e) forest fires.**

7. Use figure 1.6 (on page 9) to calculate the approximate rate of change in world grain production per person between 1950 and 2000.

- (a) 10 percent
- (b) 20 percent**
- (c) 30 percent
- (d) 40 percent
- (e) 50 percent

8. The populations of some endangered animal species have stabilized or increased in numbers after human intervention. An example of a species that is still endangered and needs further assistance to recover is the

- (a) American bison.
- (b) peregrine falcon.
- (c) bald eagle.
- (d) American alligator.
- (e) snow leopard.**

Questions 9 and 10 refer to the following experimental scenario:

An experiment was performed to determine the effect of caffeine on the pulse rate of five healthy 18-year-old males. Each was given 250 mL of a beverage with or without caffeine. The men had their pulse rates measured before they had the drink (time 0 minutes) and again after they had been sitting at rest for 30 minutes after consuming the drink. The results are shown in the following table.

Subject	Beverage	Caffeine content (mg/serving)	Pulse rate 0 minutes	Pulse rate 30 minutes
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1	Water	0	60	59
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2	Caffeine-free soda	0	55	56
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3	Caffeinated soda	10	58	68
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4	Coffee, decaffeinated	3	62	67
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5	Coffee, regular	45	58	81
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9. Before the researchers began the experiment, they formulated a null hypothesis. The best null hypothesis for the experiment would be that caffeine

- (a) has no observable effect on the pulse rate of an individual.
- (b) will increase the pulse rates of all test subjects.
- (c) will decrease the pulse rates of all test subjects.
- (d) has no observable effects on the pulse rates of 18-year-old males.**
- (e) from a soda will have a greater effect on pulse rates than caffeine from coffee.

10. After analyzing the results of the experiment, the most appropriate conclusion would be that caffeine

- (a) increased the pulse rates of the 18-year old males tested.**
- (b) decreased the pulse rates of the 18-year-old males tested.
- (c) will increase the pulse rate of any individual that is tested.
- (d) increases the pulse rate and is safe to consume.
- (e) makes drinks better than decaffeinated beverages.