

## 2008 AP<sup>®</sup> ENVIRONMENTAL SCIENCE FREE-RESPONSE QUESTIONS

3. For decades, forest fires in the United States have been suppressed. In 2003 legislation was passed under the Healthy Forests Initiative (HFI) in response to the record-breaking wildfires that had occurred in the early 2000s. Some environmental and conservation groups fear that negative impacts could result if timber companies are encouraged to harvest medium- and large-size trees in federally owned forests while clearing away the smaller trees and underbrush.
- (a) Identify TWO characteristics of forests that develop when fires are suppressed, and explain why the practice of fire suppression does not reduce, but actually increases, the risk of intense and extensive forest fires.
  - (b) The effects of the HFI are expected to extend beyond fire reduction. Excluding fire reduction, describe ONE positive and ONE negative effect likely to result from the implementation of the provisions of the HFI.
  - (c) Describe TWO ecosystem services provided for humans by forests. Explain how clear-cutting would affect each ecosystem service you describe.
  - (d) Identify a specific type of plant community or biome (other than a forest) that is naturally maintained by fire. Explain how the fire maintains the community or biome.

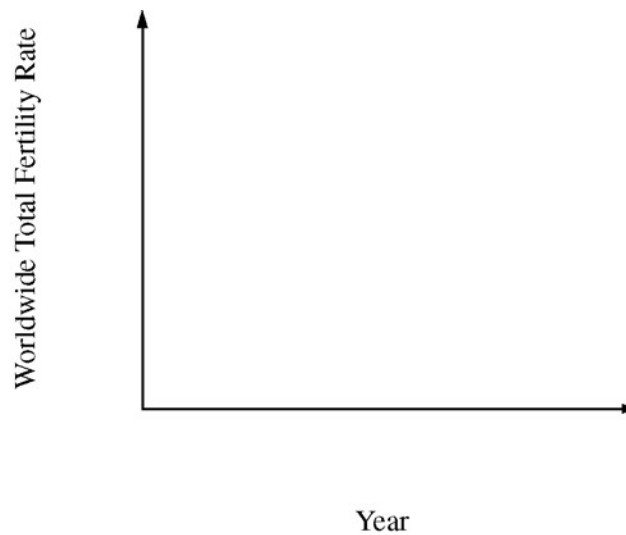
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4. Answer the following regarding world human population.

(a) Create a graph of the data from table 1 below on the axes provided.

Table 1:  
Worldwide  
Total Fertility  
Rate (TFR)

Year	TFR
1950	5.0
1960	4.9
1970	4.7
1980	3.7
1990	3.4
2000	3.0



(b) Identify and discuss TWO of the causes for the trend in the worldwide TFR that you graphed in part (a).

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Table 2: Population Data for Selected Nations (2005)

Country	TFR	Crude Birth Rate*	Crude Death Rate*	Infant Mortality Rate*	Per Capita Income (U.S. dollars)
China	1.6	12	7	27	6,500
Japan	1.3	9	8	2.8	31,400
Kenya	5.9	43	19	100	1,000
United States	2.0	14	8	6.7	42,000

\* rates are per thousand per year

- (c) Consider the data in table 2 above. Identify and discuss TWO economic or societal factors that account for the difference between the TFR of Kenya and that of the United States.
- (d) Describe TWO human activities related to the rapidly growing world population that are having an impact on Earth's biodiversity.

**STOP**

**END OF EXAM**