ANSWER **ANSWER** **ANSWER**

Round: 1A

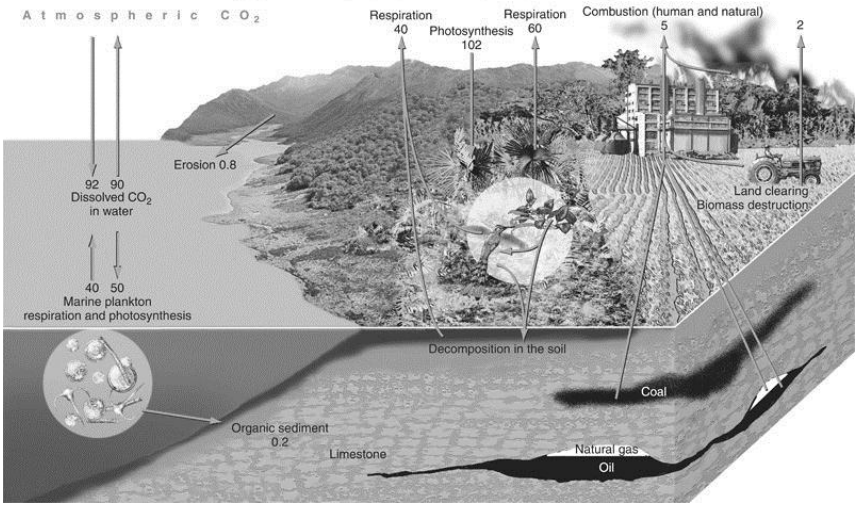

Figure 1: Illustration of Hypothetical Environment

1. What does the illustration in Figure 1 depict?

Carbon Cycle (1 pt)

2. List two (2) sinks and two (2) sources of carbon in the atmosphere.

Sources (4 pts total):
Dissolved CO_2 in water
Respiration
Combustion
Land Clearing Biomass destruction

Sinks (2 pts each)
Dissolved CO_2 in water
Photosynthesis

3. List two (2) sinks and two (2) sources of carbon in the ocean.

Sources (4 pts total):
Dissolved CO_2 in water
Marine plankton respiration
Erosion

Sinks (4 pts total):
Dissolved CO_2 in water
Marine plankton
Photosynthesis
Organic sediments

4. Based on the numbers provided in the illustration (in gigatons per year) calculate the net annual exchange of carbon in the atmosphere. Show your work.

Sources
90 Dissolved CO_2 in water
100 Respiration
5 Combustion
2 Land Clearing Biomass destruction
Total = 197 gt/year

Sinks
92 Dissolved CO_2 in water
102 Photosynthesis
Total = 194 gt/year

Net change is 3 gt/year (3 Pts)
(1 pt partial credit for work shown)

Reference/Copyright Information:
Principles of Environmental Science, Inquiry and Applications, 3rd ed., by W.P. Cunningham and M.A. Cunningham (ISBN 0-07-282339--9) Figure 2-19 page 41