

**Due Thursday March 19, 2009 (Please write CLEARLY)**  
**Read each question carefully.**

1. Trace fossils (e.g. *agrichnia*) are? (please circle one) **[1 pt.]**
  - A. Fossilized imprints of soft-bodies animals and plants.**
  - B. Segmented worms that existed during the late Precambrian.
  - C. Vestiges of fossilized tracks, trails and burrows made by ancient animals.
  - D. Small bits or remnants of the hard body parts of ancient marine animals.
  - E. Partially metamorphosed fossils of which only a “trace” remains.
  
2. Widespread deposition of a kind of sediment called “banded iron-formation” (“BIF”) ceased about 1.9 billion years ago. The paleoenvironmental conditions for BIF deposition imply that ocean water mixing was subdued and ocean dissolved-oxygen levels were extremely low. Why then do they REAPPEAR in the rock record 900 million years ago? [hint: look in your reading! Consider what we talked about in lecture!]. **[2 pts.]**

**Simply put, BIFs can only form when oceanic concentrations of iron become very high because of completely anoxic conditions in the marine system. Before the advent of abundant free oxygen in the atmosphere starting in the Paleoproterozoic. Once oxygen rose in the atmosphere, the iron in the oceans was whisked away and this led to the demise of the banded iron-formations by about 1.8 billion years ago.**

**However, BIFs reappear in the Neoproterozoic because of the Snowball Earth. When the oceans became completely ice covered, this effectively cut off photosynthesis. Without oxygen and any significant primary productivity from cyanobacteria (and other microbes) iron could build up again and precipitate BIF.**

3. Early Cambrian fauna can be categorized by the means in which they obtained food. [2 pts.]

- *Deposit feeders – that eat organic matter in sediments*
- *Grazers – that eat algae growing on surfaces*
- *Suspension feeders – that eat food particles in seawater*

- A. *Contrast* the different categories listed above.  
B. *Name* an early Paleozoic fossil example for each category

(Use the space below)

3 A. **Contrast** the different categories

**Deposit feeders gain their food from sedimentary organic matter, whereas Grazers feed off of living microbial mats on top of sediments and Suspension feeders consume organic debris from the water column.**

3 B. **Name** an early Paleozoic fossil example for each category



**DEPOSIT FEEDER**

**Any clam-like mollusk such as Brachiopods.**



**GRAZER**

**Any grazing mollusk will do, such as Snails.**



**SUSPENSION FEEDER**

**Any suspension feeder will do, such as Crinoids.**

