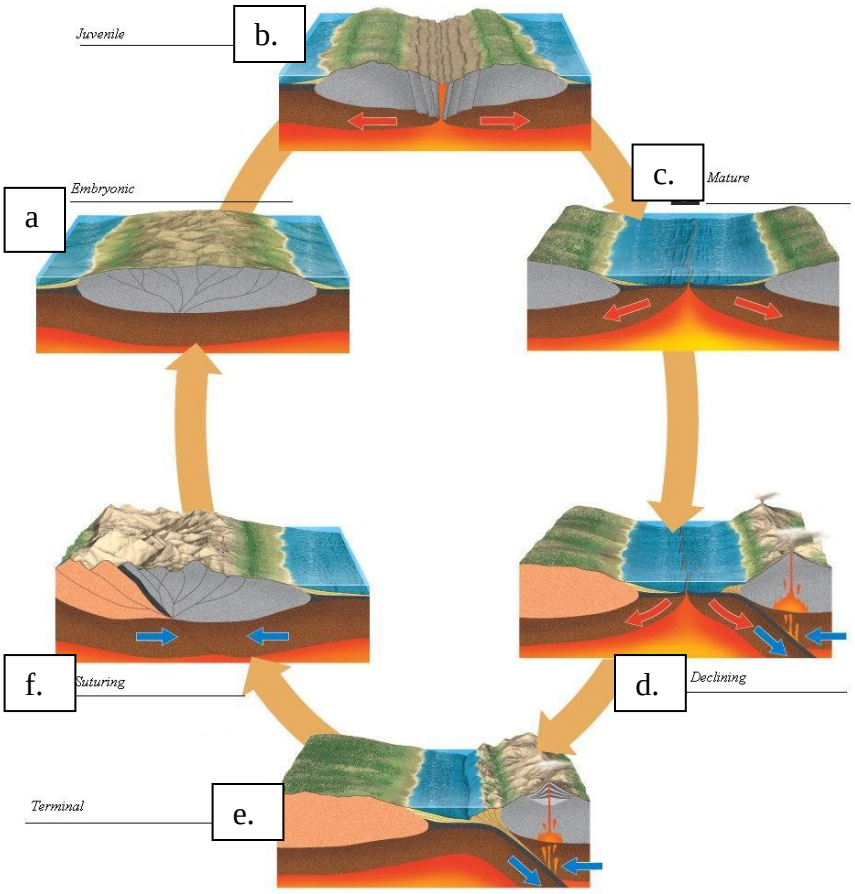
ANSWER **ANSWER** **ANSWER**

Round: 5A

1. Use the figure of the Wilson cycle below to answer questions on page 2.



2. Explain what is occurring in each phase in the figure on page 1 and give one (1) example of where this phase is currently occurring on Earth. (*18 pts, 2 pts per explanation and 1 pt per example*)

a. *The crust splinters forming rift valleys and fault lines, Basalt escapes to the surface and spills out onto the sea floor. Uplifting motion. (2 pts) Example: East African Rift Valleys (1 pt)*

b. *Continents are separated into 2 masses, Basaltic crust forms between the 2 masses along a young spreading ocean ridge. Divergence. (2 pts)Example: Red Sea (1 pt)*

c. *The masses spread until they form an ocean basin. Sea floor ruptures along continental margins due to instability in the older lithosphere. Divergence. 2 pts)Example: Atlantic Ocean OR Arctic Ocean (1 pt)*

d. *Subduction begins at the continental margins, and the basin begins to close up. Convergence. (2 pts) Example: Pacific Ocean OR Peru-Chile Trench (1 pt)*

e. *Convergence, collision and uplift. As the ocean basin continues to close, convergence occurs on either side of the basin crushing and uplifting sedimentary deposits into a young mountain belt (2 pts) Example: Mediterranean Sea (1 pt)*

f. *The two colliding land masses become fused together and begin to buckle forcing upward into mountains. Convergence and uplift. (2 pts)Example: Himalayas (Mt. Everest) OR the Alps (1 pt)*

3. How long is the residence time of the Earth's oceanic crust?

100 million years (2 pts)

REFERENCES:

Graphic: Note, has been altered to fit question better. http://hays.outcrop.org/GSCI100/lecture19s.html
Pinet, P. R. 2006. *Invitation to Oceanography fourth edition*. Jones and Bartlett: Sadbury, MA. pg 78-82.
http://www.as.wvu.edu/biology/bio463/Nance%20et%20al%201988%20Supercontinent%20Cycle.pdf