## Quiz 4: Transform faults and Polar Wander (Ch. 4-5)

1. Typical magnetic stripes on the seafloor may be about 10-20 km wide. What factors control this width?

spreading rate, duration of magnetic field stability or frequency of reversals

2. Explain why ocean ridge earthquake have, in general, shallower epicenters than earthquakes on the adjacent transform faults.

Higher heat flow - thinner brittle layer/seismogenic zone, most of crust is ductile/plastic.

3. What type of plate boundary is most commonly observed to accommodate oblique motion? Is this a stable configuration?

Subduction zones, yes, because they can partition the motion on multiple fault systems. Ridges are always normal to extension and strike slip plate boundaries tend to be andersonian or nearly. ALTERNATE ANSWER BECAUSE I WROTE THE QUESTION THAT COULD BE INTERPRETED TWO WAYS: transform faults take up the obliquity when it's resolved on a spreading ridge.

4. A "Cretaceous super plume" has been proposed by some researchers. Give one argument for, and one argument against this idea.

for: pacific seamounts, faster spreading, hot climate in cretaceous. against: lack of mechanism, lack of thermal signature (well, the central pacific is controvertible) and that coincidence of sea floor spreading with lack of reversals isn't really supportive since we don't know what causes reversals. why would a plume in one place accelerate spreading worldwide? why would plume volcanism contribute more atmospheric carbon?