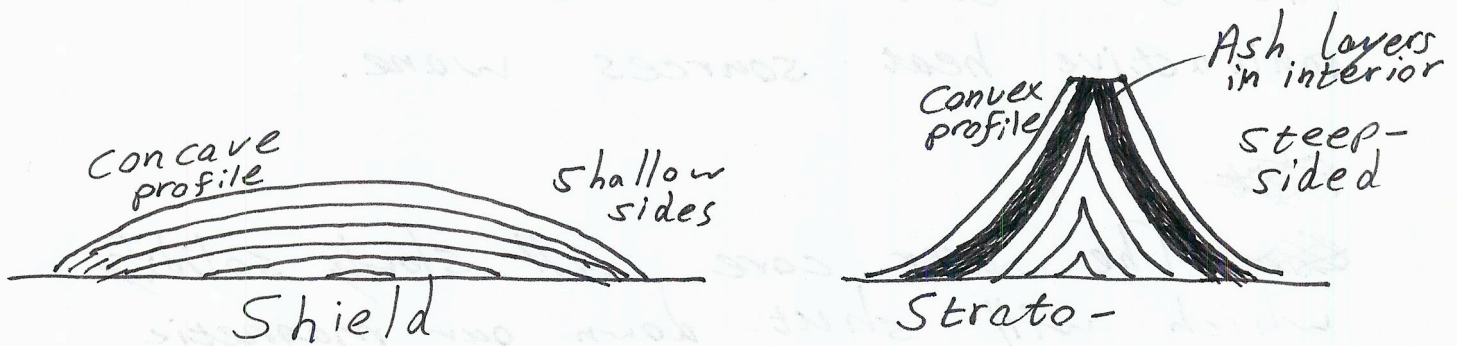


PTYS/ASTR 206 – Section 3 – In-Class Activity 1 – Assigned 2/10/09

NAME: \_\_\_\_\_ (PRINT CLEARLY)

Question 1: Sketch a shield volcano and a stratovolcano side by side at the same scale.



Question 2: Heat within the Earth is currently being generated by (circle one):

- a) Radioactivity
- b) Burning of buried oil and gas
- c) Nuclear fusion of hydrogen atoms
- d) There's no new heat being generated within the Earth

Question 3: A geologist digs a large trench through a volcano and sees alternating layers of ash and volcanic rock. What kind of volcano is this? What does that mean for the composition of the volcanic rock?

It's a stratovolcano, the ash comes from explosive eruptions.

The rock is high in silica which makes it viscous when molten.

Question 4: We don't have any seismic instruments on Mars, why are we pretty sure that the core is completely (or almost completely) solid? Why has Mars cooled off so much more than the Earth?

There is no magnetic field on Mars despite the fact that it rotates just as fast as the Earth, so there is unlikely to be a liquid core.

Mars is smaller and so has a higher surface area to volume ratio so it cools off faster.

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Question 5: (Save this for the last 5 minutes) – Fast forward the Earth a few more billion years into the future, what will happen to the core? What effects will that have at the surface?

The Earth continues to cool off as radioactive heat sources wane.

~~Plot~~

~~Plot~~ The outer core will slowly solidify which will shut down our magnetic field.

Convection in the mantle will stop which will end the decompression melting that drives volcanism.

Plate tectonics will freeze-up and stop as mantle convection stops.

Tectonic activity will wane as this happens.

Earth will basically turn into Mars.