

Name _____

Quiz #5 - Closed Book Part

1. Name one mafic volcanic rock and its corresponding plutonic equivalent.

mafic volcanic	mafic plutonic

How would you distinguish the two?

What minerals or other things would be present in each?

mafic volcanic	mafic plutonic

2. Define tuff. How is this formed?

What does a tuff look like in this section?

3. Name a phaneritic rock composed of 16% quartz, 39% alkali feldspar, 14% plagioclase, 13% hornblende, 16% biotite, 1% magnetite and 1% sphene.

4. Draw and Completely label Bowen's Reaction Series. Include minerals, temperatures, and indicate general changes in composition.

5. Define *differentiation* in regard to magmas. What does this do to a magma? How does it involve a “primitive” magma? And, if a magma is NOT primitive, what is it called?

What are the principle mechanisms responsible for differentiation?

6. If the source region for most magmas is the mantle, then why are NOT most magmas the same composition as the mantle (peridotite)?

7. What is a komattite? How does it form? What is the general composition?

8. What is a kimberlite? How does it form? What is the general composition?

9. Where are rhyolites normally found? How do they form? Why are they found in these locations?

10. At the Stillwater complex, we saw lots of rock rich in olivine, chromite, pyroxene and plagioclase. For the most part they were ultramafic. Some (all?) were cumulates.

What is a cumulate?

If the layers are cumulates, then there is something missing. What is missing? Where is it? How would you find it?

11. Sketch the basalt tetrahedron and clearly label the fields.

12. Can you successfully interpret and use the various kinds of phase diagrams we have talked about?

13. Ultramafic rocks can be found in many different geological settings.

What is an ultramafic rock?

What minerals are typical in ultramafic rocks?

Name three kinds of ultramafic rocks? (Give rock names.)

Describe three different kinds of geological settings where ultramafic rocks can be found. For each: how do these geological wonders form?

Name _____

Quiz #5 - Open Book Part

For each of the specimens, describe the texture and minerals present, etc. And, tell us whether it is intrusive or extrusive. And, give the rock a name.

14. (Thin section only)

15. (Thin section only)

16. (Hand specimen only)

17. (Hand specimen only)

18. (Both thin section and hand specimen)

19. (Both thin section and hand specimen)