

Review of Extrusive Igneous Rocks

The following homework is based on the lab lectures for labs 4 and 5. The PowerPoint versions are available on the web pages.

1-2 Which type of extrusive igneous rock may be confused with which type of intrusive rock?

1) Lava flow may be confused with 2) hypabyssal rock.

F 3. (T-F) Mineral names preceding a rock name are names of essential minerals. (i.e., hornblende granodiorite)

C 4. (M-C) Andesite is closest to which corner of the QAPF diagram?

A. A

B. Q

C. P

D. F

5. The major igneous rock type found in ocean crust is basalt.

6-8. The major minerals of basalt are:

6) major felsic mineral (name and chemical type) Calcic Plagioclase

7-8 most common mafic minerals 7) pyroxene and/or 8) olivine

9. How does a pillow basalt form? Pillow lava forms when eruptions are underwater or when lava flows enter a body of water

10-11. Two features which distinguish opx from cpx in thin section observations are:

10) Low order interference colors

11) Parallel extinction

12. What is an ophitic texture? The granular texture of an igneous rock (especially diabase) in which lath-shaped plagioclase crystals are partially or completely included in pyroxene crystals, typically augite

T 13. (T-F) High silica magmas typically contain a dissolved aqueous phase, which separates near the surface, forming a two stage system with a large increase in volume.

14. The rock name of a rock composed of pyroclastic fragments mainly in the 2-64 mm range is Lapilli Tuff.

15. The fragment name of a fragment the is 105 mm in size is Bomb.

16. Large fragments which are angular to subangular, because they were solidified before the explosion and simply represent shrapnel, are called Blocks.

A 17. (M-C) Trachyte is closest to which corner of the QAPF diagram?

A. A

B. Q

C. P

D. F

D 18. Which of the following statements is true of silica-rich magmas?

A. Silica-rich magmas crystallize at lower temperatures than mafic magmas

B. Chains of SiO_4 tetrahedra are more common, and usually longer, than in mafic magmas

C. Silica-rich magmas often crystallize at depth

D. All of the above

19. The general term for all pyroclastics erupted by a volcano is tephra.

F 20. (T-F) Tuff is a general term for all unconsolidated pyroclastic rocks, especially those whose fragments are less than 2 mm across.

21. Trachyte is the extrusive equivalent of syenite.

T 22. (T-F) Glass is less stable than crystalline material of the same composition

D 23. Obsidian most often has a composition equivalent to which rock type?

A. Andesite

B. Basalt

C. Latite

D. Rhyolite

C 24. Which type of rock sometimes floats on water?

A. Andesite

B. Dacite

C. Pumice

D. Rhyolite

C 25. The most common type of vitrophyre:

A. Obsidian

B. Perlite

C. Pitchstone

D. Pumice