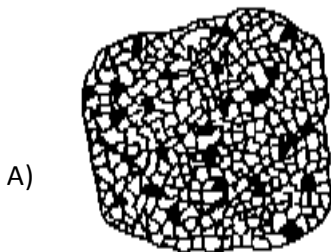


Name: _____ Period: _____ Date: _____

WS Igneous Rocks

___ 1) The diagrams below represent four rock samples. Which rock took the longest time to solidify from magma deep within the Earth?



Interlocking
0.5-cm-diameter
crystals of various colors



Easily split layers of
0.0001-cm-diameter
particles cemented together



Glassy black rock
that breaks with a
shell-shape fracture



Bands of alternating
light and dark
minerals

___ 2) According to the "Scheme for Igneous Rock Identification" in the *Earth Science Reference Tables*, compared to basalt, granite is

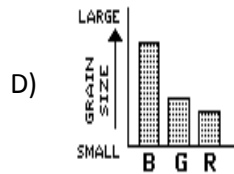
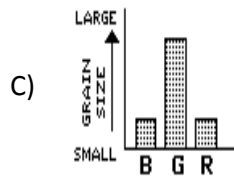
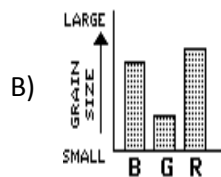
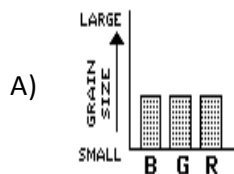
- A) more fine grained in texture
- B) lighter in color
- C) more mafic in composition
- D) greater in density

___ 3) The grouping of rocks as igneous, sedimentary, and metamorphic is based primarily upon differences in

- A) origin
- B) hardness
- C) size
- D) age

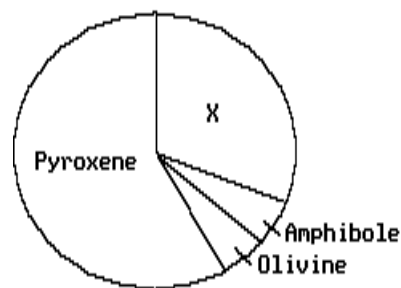
___ 4) According to the *Earth Science Reference Tables*, which graph best represents the comparison of the average grain sizes in basalt, granite, and rhyolite?

KEY TO GRAPH ABBREVIATIONS: B - Basalt, G - Granite, R - rhyolite



- ___ 5) Sand collected at a beach contains a mixture of pyroxene, olivine, hornblende, and plagioclase feldspar. According to the *Earth Science Reference Tables*, the rock from which this mixture of sand came is best described as
- dark-colored with mafic composition
 - light-colored with a mafic composition
 - dark-colored with a felsic composition
 - light-colored with a felsic composition
- ___ 6) An igneous rock which has crystallized deep below the Earth's surface has the following approximate composition: 70% pyroxene, 15% plagioclase, and 15% olivine. According to the *Earth Science Reference Tables*, what is the name of this igneous rock?
- gabbro
 - rhyolite
 - granite
 - basalt
- ___ 7) According to the *Earth Science Reference Tables*, rhyolite and granite are alike in that they *both* are
- dark-colored
 - fine-grained
 - mafic
 - felsic
- ___ 8) According to the *Earth Science Reference Tables*, which is the best description of the properties of basalt?
- fine-grained and mafic
 - coarse-grained and mafic
 - coarse-grained and felsic
 - fine-grained and felsic
- ___ 9) According to the *Earth Science Reference Tables*, which mineral is most abundant in gabbro?
- quartz
 - mica
 - potassium feldspar
 - pyroxene
- ___ 10) Most igneous rocks form by which processes?
- heat and pressure
 - erosion and deposition
 - melting and solidification
 - compaction and cementation

- ___ 11) The diagram below represents the percentage by volume of each mineral found in a sample of basalt. Which mineral is represented by the letter X in the diagram?

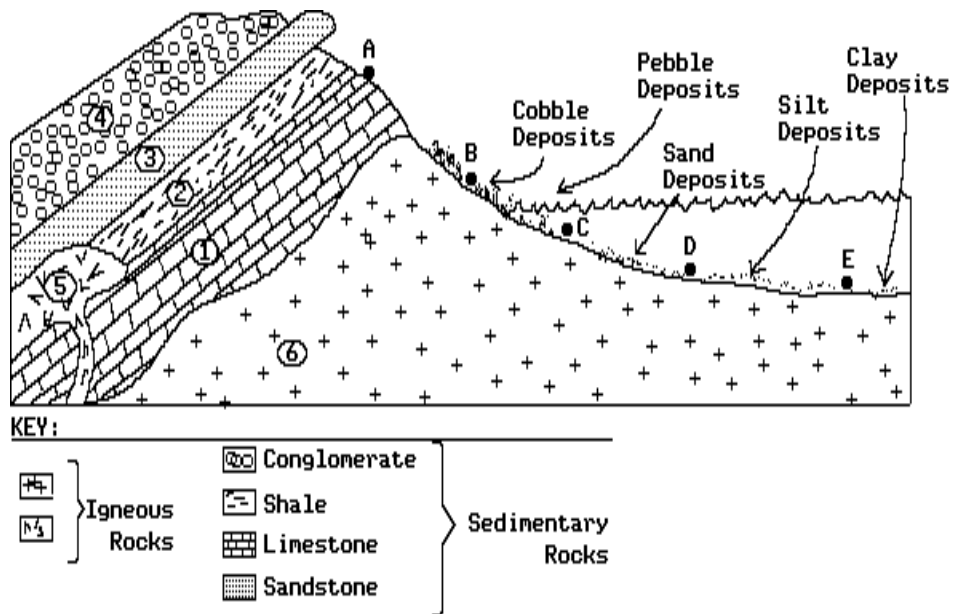


- mica
 - potassium feldspar
 - quartz
 - plagioclase feldspar
- ___ 12) According to the *Earth Science Reference Tables*, which is a fine-grained igneous rock made up primarily of pyroxene and plagioclase feldspar?
- basalt
 - rhyolite
 - granite
 - gabbro
- ___ 13) Large crystal grains in an igneous rock indicate that the rock was formed
- near the surface
 - at a low temperature
 - under low pressure
 - over a long period of time
- ___ 14) According to the *Earth Science Reference Tables*, which minerals could *both* be contained in the rocks gabbro and granite?
- quartz and pyroxene
 - potassium feldspar and olivine
 - plagioclase and nepheline
 - mica and hornblende
- ___ 15) Larger crystal size in one of two igneous rocks of similar composition usually indicates that the rock with the larger crystals cooled for
- a shorter period of time than the other
 - a longer period of time than the other
 - the same amount of time than the other

- ___ 16) According to the "Scheme for Igneous Rock Identification" in the *Earth Science Reference Tables*, basalt contains the *greatest* quantity of which mineral?
- A) quartz
 - B) pyroxene
 - C) potassium feldspar
 - D) mica
- ___ 17) Which characteristic provides the *best* evidence that obsidian rock formed in an extrusive environment?
- A) noncrystalline glassy texture
 - B) distorted bands of large mineral crystals
 - C) layers of rounded fragments
 - D) mineral cement between grains
- ___ 18) A fine-grained igneous rock composed mostly of plagioclase feldspar and hornblende and containing no quartz or pyroxene would be classified as
- A) scoria
 - B) peridotite
 - C) granite
 - D) andesite
- ___ 19) According to the *Earth Science Reference Tables*, rhyolite is an example of a
- A) polymineralic igneous rock
 - B) monomineralic sedimentary rock
 - C) monomineralic igneous rock
 - D) polymineralic sedimentary rock
- ___ 20) Which relative concentrations of elements are found in a felsic rock?
- A) a high concentration of magnesium and a low concentration of aluminum
 - B) a high concentration of magnesium and a low concentration of iron
 - C) a high concentration of aluminum and a low concentration of iron
 - D) a high concentration of iron and a low concentration of aluminum
- ___ 21) An extrusive igneous rock with a mineral composition of 35% quartz, 35% potassium feldspar, 15% plagioclase feldspar, 10% biotite, and 5% amphibole is called
- A) basaltic glass
 - B) gabbro
 - C) rhyolite
 - D) granite
- ___ 22) For an igneous rock to be classified as rhyolite, it must be light colored, be fine grained, and contain
- A) olivine
 - B) pyroxene
 - C) calcite
 - D) quartz
- ___ 23) A fine-grained igneous rock contains 11% plagioclase, 72% pyroxene, 15% olivine, and 2% amphibole. According to the *Earth Science Reference Tables*, this rock would most likely be classified as
- A) rhyolite
 - B) gabbro
 - C) basalt
 - D) granite

Questions 24 and 25 refer to the following:

The diagram below represents a cross section of a portion of the Earth's crust. The letters indicate points on the Earth's surface. The numbers identify specific rock units.



- ___ 24) Igneous rock unit 6 is a dark-colored mafic rock with large grains. According to the *Earth Science Reference Tables*, it is probably
- | | |
|-----------|-------------|
| A) basalt | C) granite |
| B) gabbro | D) rhyolite |

- ___ 25) The crystal size of the minerals contained in rock unit 6 is much larger than the crystal size in rock unit 5. The best explanation for this observation is that the rocks in the two units
- | |
|--------------------------------------|
| A) are of greatly different ages |
| B) contain different-sized sediments |
| C) contain different minerals |
| D) cooled at different rates |