

1. Briefly describe the rock cycle?

The rock cycle describes the process through which the three main rock types (igneous, metamorphic, and sedimentary) transform from one type to another.

B Define igneous, sedimentary and metamorphic and the process that leads to the formation of each.

Igneous rocks - rocks formed through the cooling and solidification of magma or lava.

Metamorphic rock- rocks that have become changed by intense heat or pressure while forming.

Sedimentary rocks- rocks that are formed by the accumulation or deposition of mineral or organic particles at Earth's surface.

2. Define texture and composition in igneous rock.

Texture -this characteristic of igneous rocks that describe the size ,shape and arrangement of the mineral rock.

Composition of rocks- composition of igneous rocks reflects the chemistry of the original magma.

3. Define the following igneous rocks textures, aphanitic, phaneritic , porphyritic, vesicular, glassy and pegmatitic.?

Aphanitic texture- igneous rock that form on the earth surface and have very fine grained texture because the crystals are too small without magnification.

Phaneritic - is an igneous rock with large, visible crystal because the rock formed slowly in an underground magma chamber.

Porphyritic texture- it's an igneous rock texture in which large crystals are set in a finer grained or Glassy ground mass.

Vesicular texture - it's a volcanic rock texture characterized by a rock being pitted with many cavities at its surface and inside.

Glassy texture -this is an extrusive or volcanic igneous rocks showing a very coarse texture with large interlocking crystals usually greater in size than 1cm.

4. List four common igneous rocks and with their formulas.

Quartz -SiO₂

Feldspar -KAlSi₃O₈



Mica- $KAl_2(AlSi_3O_{10})(OH)_2$

Pyroxene - $(Ca,Na)(Mg,Fe,Al)Si_2O_6$

Amphibole- $Ca(Mg,Fe)_5Si_8O_{22}(OH)_2$

Olivine - $(Mg,Fe)_2SiO_4$

Plagioclase- $NaAlSi_3O_8$ - $CaAl_2Si_2O_8$

Hornblende- $Ca_2(Mg,Fe,Al)_5(Al,Si)_8O_{22}(OH)_2$

5. Define Ultramafic, Mafic, Intermediate and Felsic

Ultramafic rock- rock formed from the metamorphism of mantle rocks and some oceanic crust.

Felsic -refers to silicate minerals, magma and rocks which are lighter in elements.

Mafic-is a type of rock rich in iron and magnesium and has dark colour.

Intermediate rocks-is a type of igneous rock that has a medium silica composition and is equally rich in Felsic minerals and mafic minerals.

6. For each of the following igneous rocks, state if it's extrusive or intrusive and whether it's Ultramafic, Mafic, Intermediate or Felsic : Peridotite Basalt Gabbro Andesite.

Peridotite - Ultramafic rock, composed of olivine and pyroxene

Basalt- Mafic rock, composed of olivine and pyroxene.

Gabbro -Intrusive plagioclase, composed of pyroxene and olivine.

Andesite - Intermediate rock composed of plagioclase, composed of pyroxene and hornblende.

Diorite - intrusive, composed of plagioclase hornblende, biotite.

Rhyolite -Felsic rock, composed of quartz, feldspar and biotite.

7. List and briefly describe three types of volcanoes.

Shield volcanoes - they are shaped like bowl or shield in the middle with long gentle slopes made by basaltic lava flows.

Strata volcanoes - steep sided volcanoes composed of many layers of volcanic rocks usually made from high viscosity lava, ash and rock debris.

Lava domes- formed when erupting lava is too thick to flow and makes a steep sided



mound as the lava piles up near the volcanic vent.

