

IQRA NATIONAL UNIVERSITY



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A. Figure 1:

Show part of the Earth's Crust and the locations where some Rock Cycle processes takes place.

A ⇒ By geological weathering the rocks break down into small pieces ⇒ So the loose sediments are available for movements by some agencies.

⇒ For Example the metamorphic rocks igneous rock are eroded by rain, chemical, animal etc.

B ⇒ The loose particle are eroded by water from the hilly areas and due to specific energy carry particle like Cobble, pebble etc are settled and due to overburden pressure convert to sedimentary rock.

⇒ Like lime stone the sedimentary particles are deposited by the pressure of water

(1)

C \Rightarrow Due to sedimentary process the loose sediments which are settled down in the oceanic beds after a long transportation. Every size of particle have own energy and deposited on their own place.

\Rightarrow Due to water and atmospheric pressure these sediments convert into sedimentary rocks.

D \Rightarrow Metamorphism is a process in which we face the textural and mineralogical changes.

\Rightarrow When the pressure are increase the most hotter will be the environment.

\Rightarrow Due to more burden over the mantle the pressure and temperature will be high.

\Rightarrow So the surrounding igneous rocks mineralogically and texturally changed to metamorphism occur.

B Figure 2: Below shows the size and shape of typical sediment particles from the deposit produced.

Clay mud: Mud is a soil, silt or clay mixed with water. It usually forms after rainfall or near water source. Ancient mud deposits harden over geological time to form sedimentary rock such as shale or mudstone (generally called lutites). When geological deposit of mud are formed in estuaries, the resultant layers are formed by muds.

2 Rounded pebbles and sand:

Conglomerate is a sedimentary rock made of rounded pebbles and sand, held together or cemented by silica, calcite or iron oxide.

ii) Explain in your own words that how sediments are formed, transported and changed through river.

⇒ In geological site, the rocks which are exposed to Atmosphere.

⇒ The exposed site is weathered by rain, chemical etc

⇒ The loose particles are transported mean eroded from that area.

⇒ Different sized particles having different settling energy.

⇒ Mean By river or water which transport the eroded particle and sorted

⇒ Sorting mean same sized particle and same weightable are deposited with each other. of the same place

⇒ So the loose particles are eroded transported by water and slowly through water energy decreasing the particle deposited

formed different types of sedimentary rocks. Eg. Mud rocks, Sand rocks etc.

Fig B ⇒ Angular Boulder:

These broken or blasted irregularly shaped boulders tend to have multiple flat sides and sharp corners and are the most common boulders in the southwest.

Figure 1-

Shows the structure of a volcano and the rock layers beneath.

1) What type of volcano is shown in figure by shape and if eruption is more often which category it fits?

⇒ In the figure by shape Cinder Cone volcano is shown. which is differ from Composite volcano by side vent.

⇒ The eruption is more often so the said volcano is active volcano.

2) The eruption show in figure 3 is producing an Ash column that rises thousand of meter above the volcano Summit.

3) Explain how gases trapped in the magma help produce the ash column.

⇒ Magma contain dissolved gases which providing the driving force that cause most volcano eruption.

⇒ The gases are in liquid form under a high pressure.

⇒ So the gases in the magma beneath the crust are in melted form.

⇒ If the magma rise toward the Crust Surface the pressure released and gases escaped in the side vent of the strata.

⇒ Some goes along the magma on Center vent and at last eruption occur.

⇒ During Eruption the gases along with volcanic ash rise in the Atmosphere upto several kilometer.

⇒ which make an eruption column and injected in the stratosphere, which cause climate changes.

⇒ But at a certain height the column collapse because of air.

2) It fall down on the side of volcano. It form a pyroclastic flow. and upto some distance form gaseous envelop.

b) Many people around the world live close to volcanoes so, when a volcano erupts. Thousand of lives may be at risk.

i) Suggest one sign that might indicate if a volcano is about to erupt.

Earth quake is major sign which indicate the lava eruption.

ii) Suggest two dangers that might result from Ash fall near a volcano.

⇒ Dangerous to human and animals' health.

⇒ Damage of building.

⇒ Damage of telecommunication.

⇒ harmful for Drinking water.

D Answer the following questions.

(1) In the table are statements that refer to either weathering or erosion. Complete the table by writing weathering or erosion in the spaces provided.

Statement:

i Breakdown of rock without it being moved. (Weathering)

ii Wearing away of rock during transport of rock particles. (Erosion)

iii A process caused by wind, running water and moving ice. (~~Weathering~~)
Erosion

iv An effect of plant roots growing in rock joints and fractures. (Weathering).

Qii
D

A statue was made from limestone. Rain makes limestone weather more quickly than sandstone. What substance in the rain water causes this?

Ans

When rain falls on limestone or marble, a small amount of calcium carbonate dissolves into calcium and carbonate ions. The hydrogen and nitrate or sulfate ions from acid rain react with calcium and carbonate ions. The carbonate atoms react with water to form bicarbonate, which reacts further with the hydrogen ions from the acid to create water and carbon dioxide gas. The reaction leaves calcium and nitrate or sulfate ions, which wash away. The carbon dioxide is why limestone fizzes when you drop strong acid onto it.

But the 1st sandstone is slowly weathered than limestone because of chemical composition. The mineralogy of sandstone is less soluble in acidic rain than limestone. So the acid rain having sulphuric acid quickly weathered the limestone.

iii) Why igneous rocks never contain fossils?

⇒ First of all fossils are present in layering rocks.

⇒ In layering rocks the temperature is in moderate mode which is suitable for fossils and fossils cast.

⇒ Unlike igneous rocks are formed directly from lava and magma.

⇒ Igneous rocks being high temperature which crush the fossils.

⇒ So the fossils are not present in igneous rocks.

(v) Granite takes much longer to cool deep underground than basalt. Why granite differ from basalt.

→ Granite takes much longer time to cool than basalt.

→ One of the granite is intrusive rocks.

⇒ Intrusive rocks cool slowly because no air or humidity touch to release the temperature suddenly.

⇒ Intrusive rocks having large crystal b/c of slowly cooling.

⇒ While Basaltic rocks are formed by cooling of lava.

⇒ Extrusive rocks having air touch directly, so suddenly cooling occur.

⇒ Due to suddenly cooling small or no crystals are formed.

⇒ Granite and Basalt of the same composition but the only difference is granular size.

Q:5= Describe one process that might be responsible for producing the large, angular, poorly sorted fragment in the sand sediment collecting at

the bottom of the cliff?

Ans 5

Sedimentary process that might be responsible for producing the large, angular, poorly sorted fragment in the scree sediment collecting at the bottom of the cliff.