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x ————— x ————— x ————— x

'A' Figure 1, Shows part of Earth's crusts and the locations where some Rock cycle processes take place.

(a) Rock is broken down by frost, rain and sun at A, what name is given to this process?

Answer:- When rock is broken down by frost, rain and sun at A, the process is called Geological weathering.

Weathering:- weathering is the breakdown of Rocks at the earth's surface.



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By the action of rainwater, extremes of temperature and biological activity, it does not involve the removal of Rock material.

X ——— X ——— X ——— X

(b) How sediment grains in a river changed during transport from A to B? State two differences in the likely appearance of the grains.

Answer: Sediment transport

~~due to~~ ~~fluid motion~~ occurs in natural systems where the particles are clastic rocks (sand, gravel, boulders etc) the fluid air, water or ice and the force of gravity acts to move the particles along the sloping surface on which they



are resting.

=> The two differences in the likely appearance of the grains are grain size and Roundness.

Grain Size: Grain size is the diameter of individual grains of sediment, or the lithified particles in clastic Rocks.

Roundness: Roundness refers to the sharpness of the corners and edges of the grain.

=> Roundness was defined Wadwell (1932) as the ratio of the average radius of curvature of the corners to the radius of the largest inscribed circle.





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(c) How do loose sediments at C become changed into solid rock?

Answer: Once the particles have been transported to a new area, they must be transformed from a collection of loose sediment into new solid rock. This process is called lithification.

Lithification:-

lithification is a Greek word lithos meaning 'rock' and the latin-derived suffix (-ific).

⇒ Lithification is the process of in which sediment compact under pressure, expel connate fluids, and gradually become solid rock.

⇒ Essentially, lithification is  
P-T-O



A process of porosity  
destruction through  
Compaction and cementation.

X ——— X ——— X ——— X

(d) Rocks are deeply buried in  
the earth's crust may  
undergo metamorphism.

Describe two changes that  
happen in rocks during  
metamorphism and explain  
point D?

Answer: Rocks are deeply buried  
undergo two main changes:

(1) Mineralogical:

The scientific study  
of minerals.

(2) Structural: Scientific discipline  
that is concerned with  
Rock deformation on both a  
large and a small scale.

X ——— X ——— X ——— X

X ——— X ——— X ——— X



(C) Figure 3, Shows the structure of a volcano and the rock layers beneath.

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

Answer: The type of volcano is shown in the figure by shape is composite volcano.

### Composite volcano:-

Stratovolcano is also known as composite volcano, is a conical volcano built up by many layers of hardened lava, tephra, pumice and ash.

The lava flowing from stratovolcanoes typically cools and hardens before spreading far, due to high viscosity.

⇒ Some small volcanoes are only



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Erupt once in their lives,  
While other volcanoes erupt  
multiple times.

x ——— x ——— x ——— x

(ii) The eruption shown in fig 3  
is producing an "Ash column"  
that rises thousands of  
metres above the volcano summit.

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

Answer:- Gas trapped in the  
magma cause the volcano to  
build pressure and is  
released with great violence  
when reaches the vent.

x ——— x ——— x ——— x

(b) Many people around the  
world live close to volcanoes  
so, when a volcano erupts,  
thousand of life may



At rest.

(i) Suggest ONE sign that might indicate if a ~~volcano~~ volcano is about to erupt.

Answer The sign may include very small earthquakes beneath the volcano, slight inflation, or swelling of the volcano and increased the emission of heat and gas from vents to the volcano.

x ————— x ————— x ————— x

(ii) Suggest Two dangers that might result from ash fall near a volcano.

Answer

- (1) Threat to life of humans etc.
- (2) Ash particles penetrates machinery causing damage to them.

x ————— x ————— x ————— x  
x ————— x ————— x ————— x



(D) Answer the following question?

(9) (i)

Statement

weathering  
or Erosion

⇒ Breakdown of Rock ('weathering')  
without it being moved.

⇒ Wearing away of Rock  
during transport of  
Rock particles. 'Erosion'

⇒ A process caused 'Erosion'  
by wind, running  
water and moving ice.

⇒ An effect of plant 'Weathering'  
roots growing in rock  
joints and fractures.

x ——— x ——— x ——— x



(ii) A statue was made from limestone. Rain makes limestone weather more quickly than sandstone. What substance in the rainwater causes this?

Answer - Dissolved  $\text{CO}_2$  in rainwater causes limestone to be dissolved quickly than sandstone.

x ————— x ————— x ————— x

(iii) Why igneous rocks never contain fossils?

Answer - Igneous ~~is~~ never contain fossils. Because igneous rocks are formed at high temperature and pressure which destroyed the fossils if present in the surrounding rocks or in its parental materials.

x ————— x ————— x ————— x



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(iv) Granite takes much longer to cool deep underground than basalt lava at the Earth's surface. How and why is the size of the crystals in granite different from the size of the crystals in basalt?

Answer Granite has large size crystals than basalt because granite takes longer time to cool due to low temperature differences at greater depth.

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(v) Describe one process that might be responsible for producing the large, angular, poorly sorted fragments in the scree sediment collecting

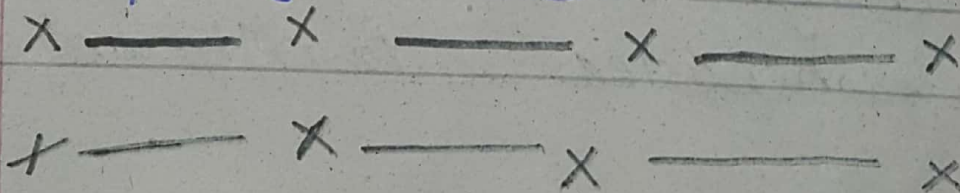


the bottom of the cliff?

Answer: Scree sediments at the bottom of a cliff are large, angular and poorly sorted because of the process of Glacial Transport.

Glacial Transport: Ice is the poorest

sorter of sediment. Glaciers can transport almost any size sediments easily, and when ice flow slows down or stops, the sediment is not deposited, due to the density of the ice. As a result sediment deposited directly by ice when it melts are usually very poorly sorted.

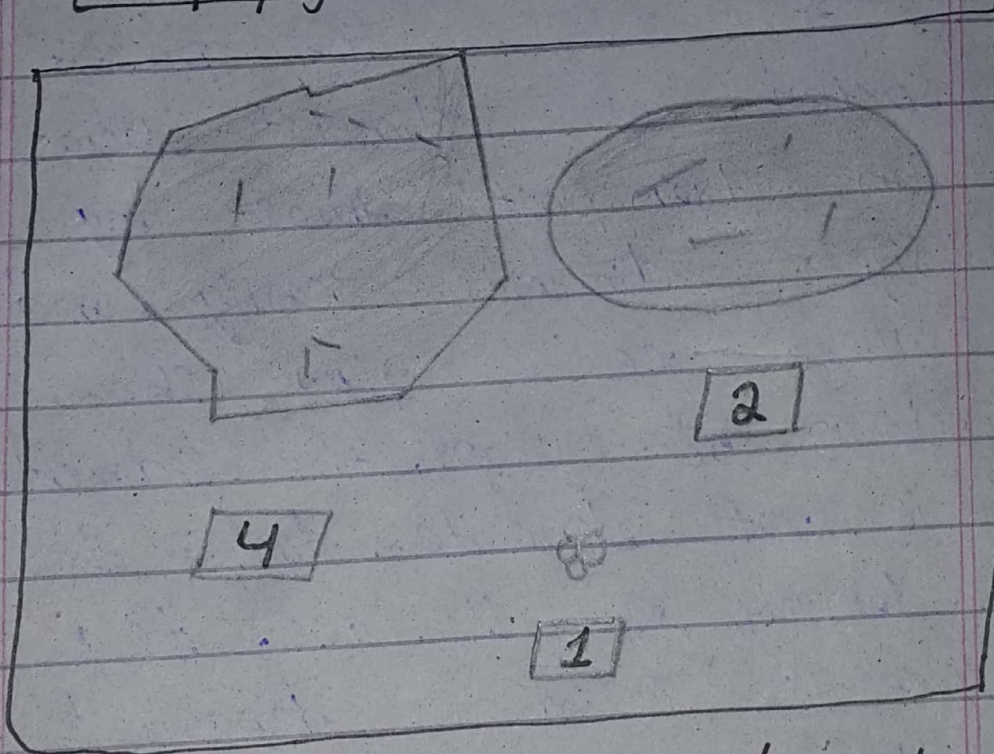




(B) Figure 2, Below shows the size and shape of typical sediment particles from the deposits produced.

Answer (i)

1	clay mud
2	rounded pebble and sand
3	sloping land layers
4	angular boulders



(ii) In your own words explain how sediment particle change as they are transported downstream



by a river?

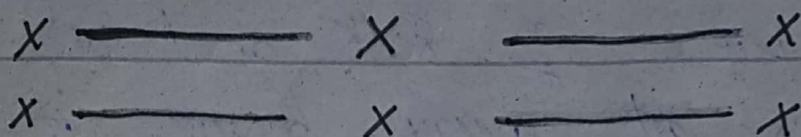
⇒ Answers:-

Moving water also has the ability to move a piece of rock and soil. Water gets energy because it moving. Moving water has kinetic energy. When water stops ~~at~~ moving it will have no energy to move any particle.

⇒ When a sediment in water collides with rock in and along the stream. pieces of rock are chipped away and rough edges in rocks and sediments themselves become rounded. The bedrock beneath stream is also eroded by abrasion. Sediments flowing in the water can cut deeply into



the bedrock. Some living thing (dead) also attached with it and ~~the~~ take it's shape permanently.



The end