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ID No : 16317

Subject : Engineering Geology

Section : A

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Q: Shows Part of the earth crust and the location where some rock cycle process take place?

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

Ans: The process is Physical / Mechanical weathering.

b) How is sediment grain in a river changed during transport from A to B? two difference in the likely appearance of the grains?

Ans: Sediments grains in a river are changed by clay, sand and silt and by accumulation and deposition

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of small other Particles and Subsequent Cementation of mineral or organic particles on the floor of river.

* The first difference in the likely appearance of the grains is "size" they are different from each other on the basis of size.

* The second difference in the likely appearance of the grain is its "texture" they are different from each other on the basis of texture.

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

Ans: Sediments are squeezed together by the weight of overlying sediment on the top of them. fluid fill in the spaces b/w the loose particle of sediment and crystallized to create a rock by cementation calcite and silica are common mineral that cement the sediment together and form a solid rock.

D) Rock that deeply buried in the

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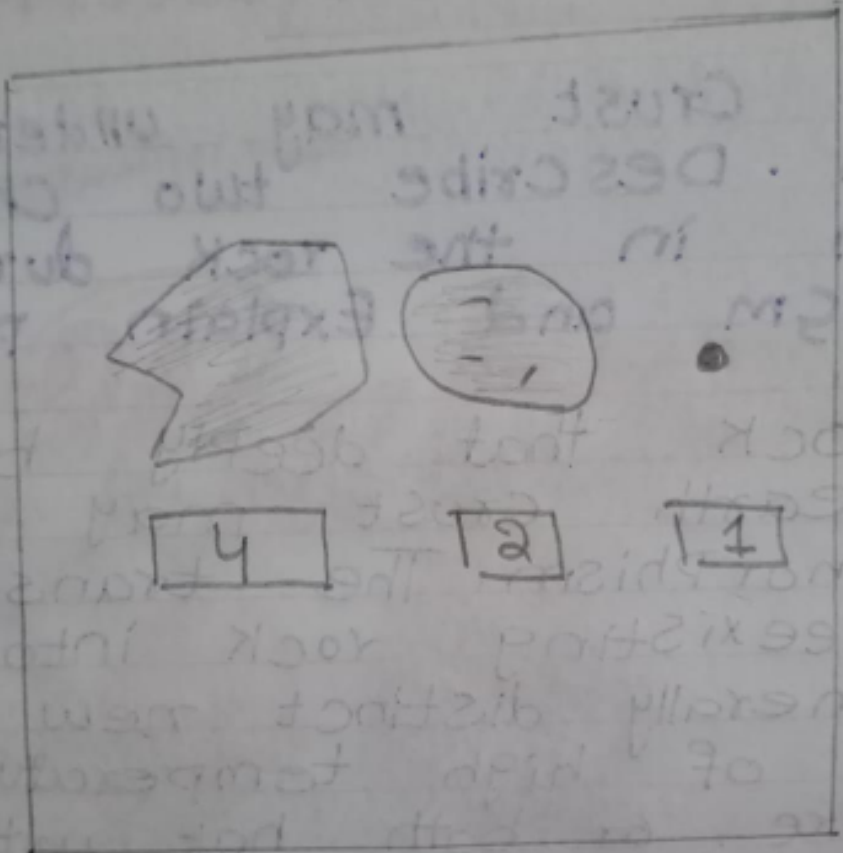
earth crust may undergo metamorphism. Describe two changes that happen in the rock during metamorphism and explain point D?

Ans: Rock that is deeply buried in the earth crust may undergo metamorphism. The transformation of preexisting rock into texturally or mineralogically distinct new rock is a result of high temperature, high pressure, or both, without the rock melting in the process.

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

- 1) Clay mud.
- 2) Rounded pebbles and sand.
- 3) Sloping sand layer.
- 4) Angular boulders.

1) In each box, write down the most likely number from the deposit produced column in the table above!



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ii) In your own words, Explain how sediment particles change as they are transported downstream by a river?

Ans: During transportation the abrasion and sorting occurs to the sediment particles.

Sorting: ○○○

Abrasion is the process of friction of particles with one another during transportation.

Sorting:

Describes the distribution of grain size of sediment either in unconsolidated deposit or in sedimentary rock.

c) Figure 3:

Show the structure of a volcano and the rock layer beneath?

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

Ans: Composite volcano is shown in the figure.

11) The eruption shown in figure 3 is producing an "ash column" that rises thousand of meter above the volcano summit.

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

Ans: The composition of the gases in magma are:

* Mostly H_2O (water vapor) and some CO_2 .

* Minor amount of sulfur, chlorine and fluorine gases.

2) Many people around the world live close to volcano so, when a volcano erupt, thousand of lives

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may be a risk;

1) Suggest one sign that might indicate if a volcano is about to erupt;

Ans: An increase in the frequency and intensity of felt earthquakes.

:Extra:

* Small changes in heat flow.

* Subtle swelling of the ground.

2) Suggest two dangers that might result from ash fall near volcanoes?

Ans: Health concerns after a volcano eruption include infection disease, respiratory illness, burns, injuries from falls and vehicle accidents related to the slippery, hazy condition caused by ash.

:Figure 4:

① In the table below are statements that refer to either weathering

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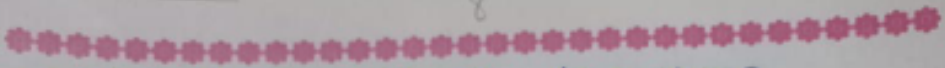
or erosion.

- | | |
|---|-------------|
| 1) Breakdown of rock without being moved | Weathering. |
| 2) Wearing away of rock during transport of rock particle. | Erosion. |
| 3) A process caused by wind, running water and moving ice | Erosion. |
| 4) An effect of plant roots growing in rock joint and fracture. | Weathering. |

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

Ans: Carbon dioxide dissolves in rain forming very dilute carbonic acid (this is the reaction that turns the indicator yellow when you blow into it). The dilute carbonic

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acid then attack limestone.

iii) why igneous rock never contain fossils?

Ans: If the magma cools slowly large crystal form in the rock they are intrusive igneous rock because they form from magma underground. Unlike sedimentary rock, igneous rock do not contain any fossils in the original rock will have melted when the magma formed.

iv) How and why is the size of the crystal in granite different from the size of the crystal in basalts?

Ans: Igneous rock contain randomly arranged interlocking crystals. the size of the crystal depend on how quickly the molten magma solidified: magma that cools slowly form an igneous rock with large crystal. lava that cool quickly will form igneous rock with small crystal.

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

Ans: 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.

