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QUESTION # 1

A. Figure shows part of Earth's crust and the locations where some rock cycle process take place.

(a) Rock is broken down by frost, rain and sun. What name is given to that process?

Ans→ When rock is broken down by frost, rain and sun, this process is called Weathering.

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

Ans→ Sediment transport occurs in natural systems where the particles are clastic rocks (sand, gravel etc) the fluid air 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 two grains are;→

→ Change in grain size
→ Roundness changes.

- GRAIN SIZE

  - Grain size is the diameter of individual grains of sediment.

- ROUNDNESS

  - It refers to the shapeness of the corners and edges of the grain.

(c) How do loose sediments at "c" changes into solid rock?

Ans→ The loose sediments at "c" changes into solid rock by Lithification.
The loose sediments compact under pressure, expel connate fluids and gradually becomes solid rock.

(d) Rocks that are burried deep in Earth's crust may undergo metamorphism. Describe two changes that happen in rocks during metamorphism & explain point "D"?

Ans→ The two changes that occur to the rocks deeply burried in the earth's crust are:→
- Morphological changes
- structural changes.

QUESTION # 2→

The figure shows the size & shape of typical sediment particles from the deposit produced.

1- clay mud
2- Rounded pebbles & Sand.
3- Sloping sand layers
4- Angular boulders.

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

Ans→ 1- Rounded Pebbles & Sands.
2- Sloping sand layers.
3- Angular boulders.

(2) In your own words, explain how sediment particles change as they are transported downstream by a river?

Ans→ The sediment particles change due to it's continuous transportation in the river water. Initially when the sediments are detached from the source, it's initial position is angular but when it moves downstream it edges and the angularity decrease.

QUESTION # 3 →

Figure 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?

Ans→ The volcano shown in the figure is composite volcano and the category in which it fits is active volcano.

II- The eruption shown in the figure is producing an "ash column" that rises thousands of meters above the volcano summit.

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

Ans→ Magma contains varying amount of gases such as Carbon dioxide in high quantity which builds a very high pressure inside. When eruption occurs the gases are released with high-pressure and violence and as a result the ash column rises.

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

(I) Suggest one sign that might indicate if a volcano is about to erupt?

- Frequent earthquakes occur.

(II) Suggest two dangers that might result from ash fall near a volcano.

- The ash consists of rock particles and natural gases which can threaten the life of people.

- It may pose a hazard to flying jets and aircrafts.

QUESTION #4. Answer the following →

1- In the table below are statements that refer to either weathering or Erosion. Complete the table by writing weathering or erosion in the space provided.

Statement	
- Break down of rock without being moved	→ Weathering
- Wearing away of rock during transport	→ Erosion
- A process caused by wind & moving ice	→ Erosion
- An effect of plant roots growing in rock joints & fractures	→ Weathering

II → A statue was made from limestone. Rain makes limestone weather more quickly than sandstone. what substance in the rainwater cause this?

Ans → The limestone erodes quickly than the sandstone due to it's chemical composition.

The carbon dioxide gas present in the air gets dissolved in the rain and produce carbonic acid. This carbonic acid causes the limestone to be dissolved quickly than the sandstone.

III → Why ingenous rocks never contain fossils?

Ans → The Ingenous rocks are formed at high temperature and pressure. Due to this high temperature and pressure it dissolves the fossils if present in the Ingenous rocks.

IV → Granite takes much longer to cool deep underground than basalt lava at the Earth's surface. How & why is the size of the crystals in granite different from the size of crystals in basalt.

Ans → Granite crystals are larger than

basalt. This is due to the fact that Granite takes longer to cool while basalt cools more rapidly and has short time for crystallization to take place, therefore it's crystals are small.

I→ Describe one process that might be responsible for producing the large, angular, poorly sorted fragments in the scree sediment collecting at the bottom of the cliff?

Ans→ Because of the process of Glacial transport, the scree sediments at the bottom of the cliff are large, angular and poorly sorted.