Name

Regents Review
Weathering MC

1. Base your answer to the following question on on the photographs and news article below.

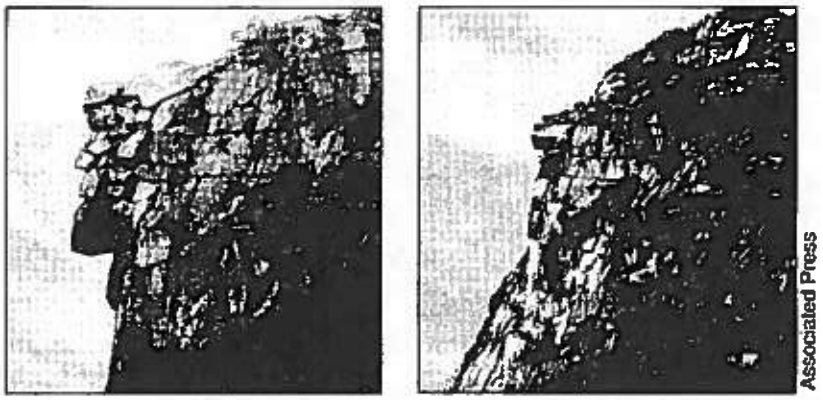
Old Man's Loss Felt in New Hampshire

FRANCONIA, N.H. — Crowds of visitors were drawn to Franconia Notch on Sunday to mourn the loss of New Hampshire's well-known symbol — the Old Man of the Mountain granite profile.

The 700-ton natural formation was just a pile of rocks after breaking loose from its 1,200-foot-high mountainside perch. It was unclear when the outcropping fell because clouds had obscured the area Thursday and Friday; a state park trail crew discovered the collapse Saturday morning.

The famous mountain's history dates millions of years. Over time, nature carved out a 40-foot-tall profile resembling an old man's face, and it eventually became New Hampshire's most recognizable symbol.

The Buffalo News, May 5, 2003



Granite profile of the Old Man of the Mountain is shown before the collapse, and after

Which agent of erosion is most likely responsible for the collapse of the granite profile?

1) running water 2) glacial ice 3) wave action 4) mass movement

2. Which characteristic would most likely remain constant when a limestone cobble is subjected to extensive abrasion?
   1) shape 3) volume
   2) mass 4) composition

3. Which type of climate has the greatest amount of rock weathering caused by frost action?
   1) a wet climate in which temperatures remain below freezing
   2) a wet climate in which temperatures alternate from below freezing to above freezing
   3) a dry climate in which temperatures remain below freezing
   4) a dry climate in which temperatures alternate from below freezing to above freezing

4. In which climate would the chemical weathering of limestone occur most rapidly?
   1) cold and dry 3) warm and dry
   2) cold and humid 4) warm and humid

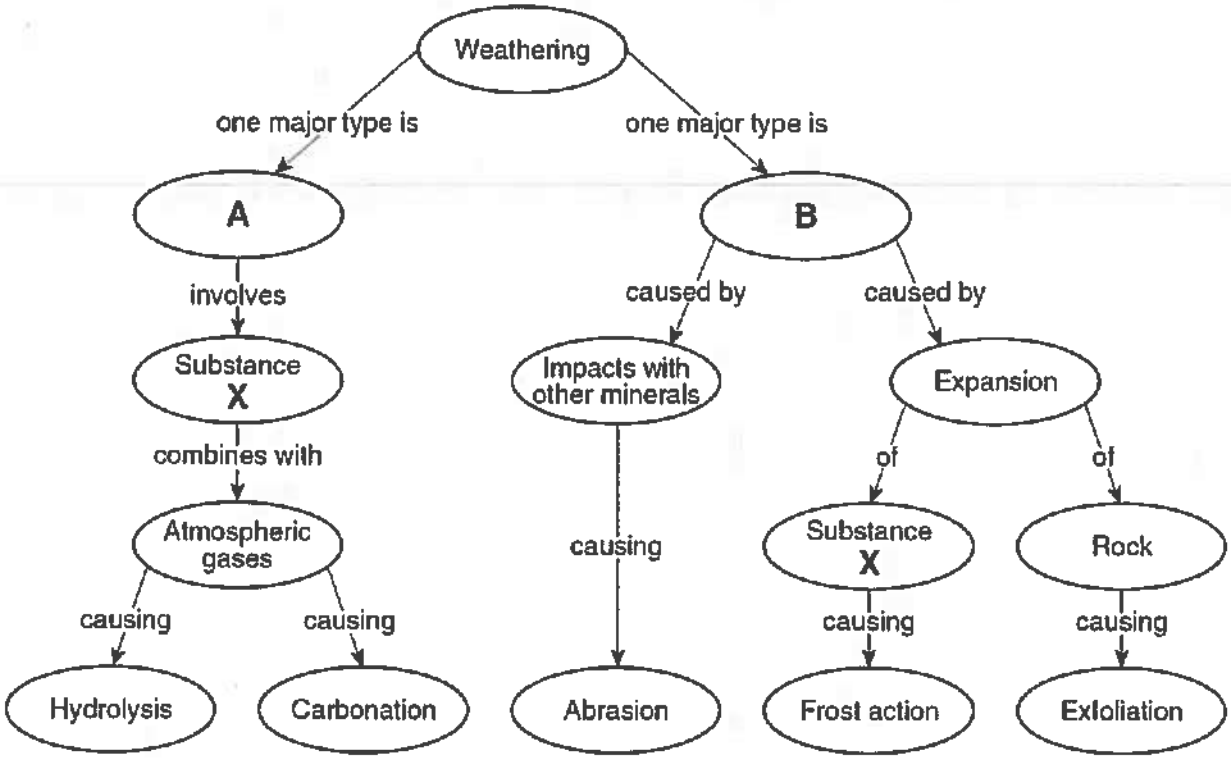
5. Which factor has the greatest influence on the weathering rate of Earth's surface bedrock?
   1) local air pressure 3) age of the bedrock
   2) angle of insolation 4) regional climate

6. By which processes are rocks broken up and moved to different locations?
   1) evaporation and condensation
   2) weathering and erosion
   3) burial and cementation
   4) compaction and transportation

7. Which event is an example of chemical weathering?
   1) rocks falling off the face of a steep cliff
   2) feldspar in granite being crushed into clay-sized particles
   3) water freezing in cracks in a roadside outcrop
   4) acid rain reacting with limestone bedrock

8. Rock samples brought back from the Moon show absolutely no evidence of chemical weathering. This is most likely due to
   1) the lack of an atmosphere on the Moon
   2) extremely low surface temperatures on the Moon
   3) lack of biological activity on the Moon
   4) large quantities of water in the lunar "seas"

9. Base your answer to the following question on flowchart below, which shows a general overview of the processes and substances involved in the weathering of rocks at Earth's surface. Letter *X* represents an important substance involved in both major types of weathering, labeled *A* and *B* on the flowchart. Some weathering processes are defined below the flowchart.

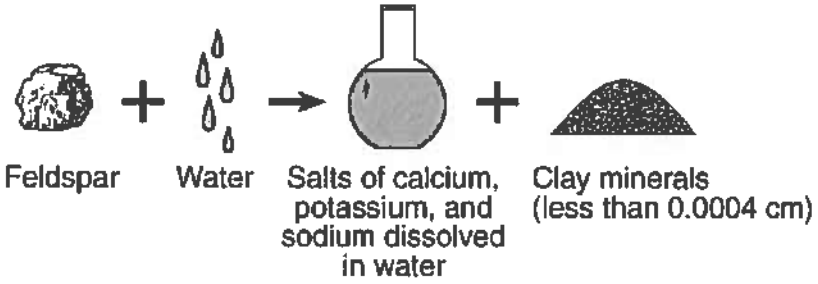


Definitions
Frost action – the breakup of rocks caused by the expansion of substance **X**
Abrasion – the wearing down of rocks or particles as they rub or bounce against other rocks
Exfoliation – the peeling away of large sheets of loosened material at the surface of a rock
Hydrolysis – the change in a material caused by contact with substance **X**
Carbonation – the change in a material caused by contact with carbonic acid

Which weathering process is most common in a hot, dry environment?

1) abrasion 2) carbonation 3) frost action 4) hydrolysis

10. The diagram below represents a naturally occurring geologic process.



Which process is best illustrated by the diagram?

1) cementation 2) erosion 3) metamorphism 4) weathering

11. Base your answer to the following question on the diagrams below. Diagrams *A*, *B*, and *C* represent three different river valleys.

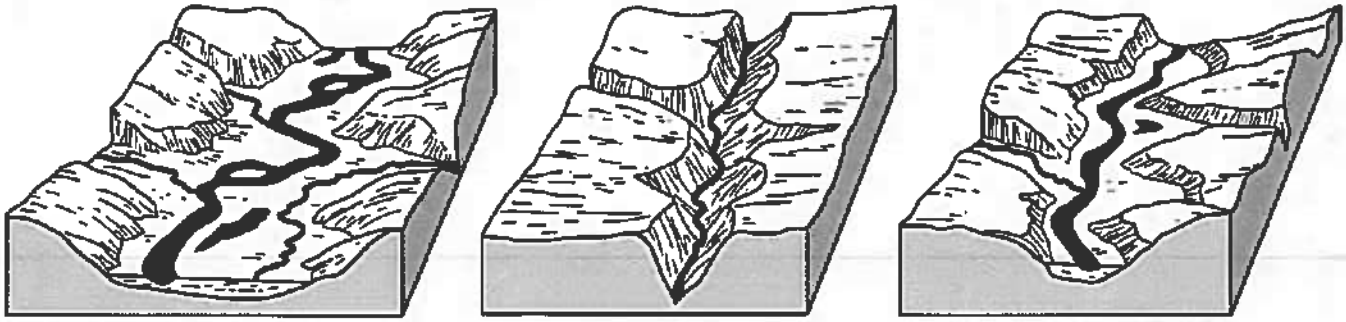
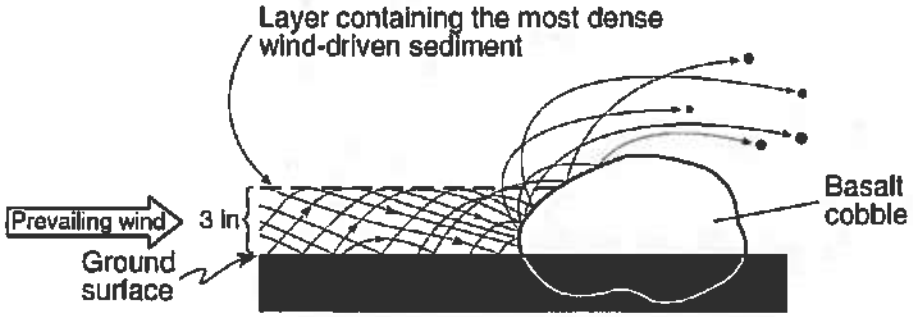


Diagram A Diagram B Diagram C

Most sediments found on the floodplain shown in diagram *A* are likely to be

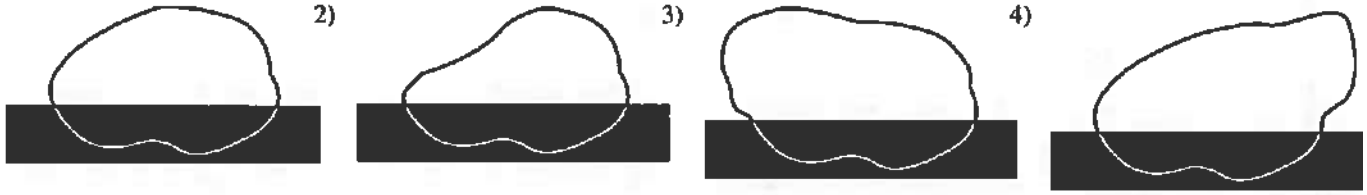
1) angular and weathered from underlying bedrock
2) angular and weathered from bedrock upstream
3) rounded and weathered from underlying bedrock
4) rounded and weathered from bedrock upstream

12. The cross section below shows the movement of wind-driven sand particles that strike a partly exposed basalt cobble located at the surface of a windy desert.



Which cross section best represents the appearance of this cobble after many years of exposure to the wind-driven sand?

1) 2) 3) 4)



13. Chemical weathering will occur most rapidly when rocks are exposed to the

1) hydrosphere and lithosphere
2) mesosphere and thermosphere
3) hydrosphere and atmosphere
4) lithosphere and atmosphere

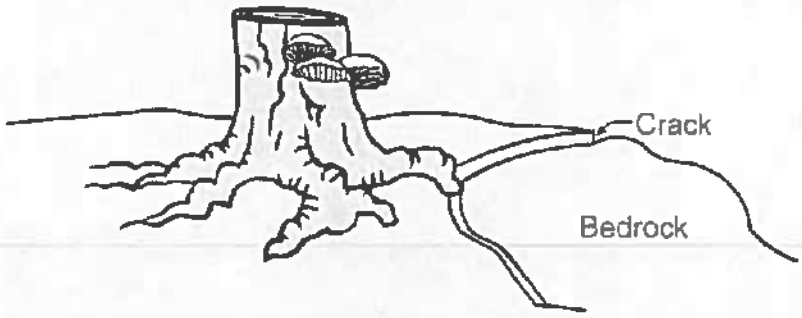
14. Water is a major agent of chemical weathering because water

1) cools the surroundings when it evaporates
2) dissolves many of the minerals that make up rocks
3) has a density of about one gram per cubic centimeter
4) has the highest specific heat of all common earth materials

15. What occurs when a rock is crushed into a pile of fragments?

1) The total surface area decreases and chemical composition changes.
2) The total surface area decreases and chemical composition remains the same.
3) The total surface area increases and chemical composition changes.
4) The total surface area increases and chemical composition remains the same.

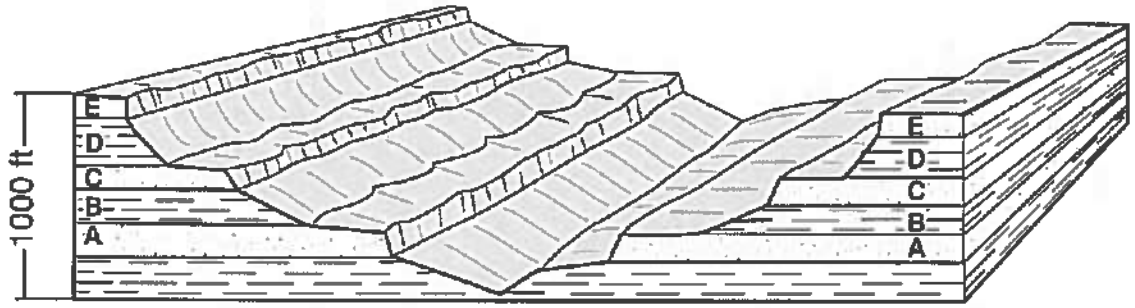
16. The diagram below shows the stump of a tree whose root grew into a small crack in bedrock and split the rock apart.



The action of the root splitting the bedrock is an example of

1) chemical weathering 2) deposition 3) erosion 4) physical weathering

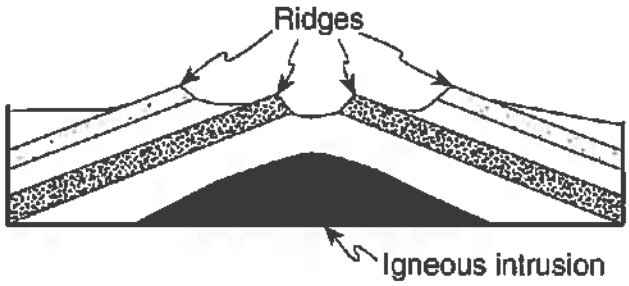
17. The block diagram below shows a cross section of a landscape. Letters *A*, *B*, *C*, *D*, and *E* represent different rock layers.



Which rock layers appear to be most resistant to weathering?

1) *A* and *B* 2) *B* and *D* 3) *C*, *D*, and *E* 4) *A*, *C*, and *E*

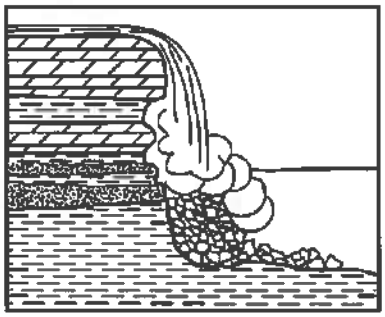
18. The cross section below shows rock layers that underwent crustal movement during an igneous intrusion in the Cretaceous Period.



Which statement best describes the cause of the ridges shown?

1) The rock layers were evenly weathered.
2) Some rock layers were more resistant to weathering and erosion.
3) The igneous intrusion flowed over the surface.
4) More deposition occurred at the ridge sites after uplift.

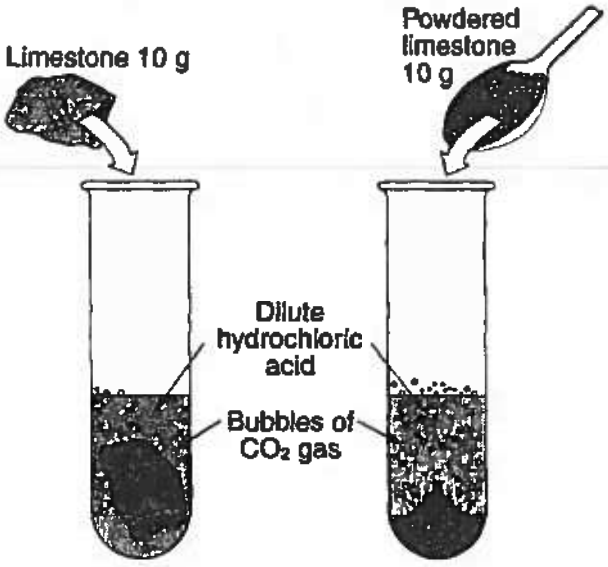
19. The cross section below shows sedimentary rocks being eroded by water at a waterfall.



The sedimentary rock layers are being weathered and eroded at different rates primarily because the rock layers

1) formed during different time periods
2) contain different fossils
3) have different compositions
4) are horizontal

20. The demonstration shown in the diagram below indicates that powdered limestone reacts faster than a single large piece of limestone of equal mass when both are placed in acid.



The most likely reason powdered limestone reacts faster is that it has

1) less total volume
2) more chemical bonds
3) more total surface area
4) lower density

Regents Review
Answer Key
[New Exam]

1. 4
2. 4
3. 2
4. 4
5. 4
6. 2
7. 4
8. 1
9. 1
10. 4
11. 4
12. 2
13. 3
14. 2
15. 4
16. 4
17. 4
18. 2
19. 3
20. 3