

Weathering – Practice Questions and Answers
Revised August 2007

1. The process by which Earth material is broken down in situ into smaller pieces is called _____.
2. The chemical alteration of Earth materials brought on by reactions with some fluid or gas phase while at the Earth's surface is called _____.
3. A joint is a surface across which Earth material has lost cohesion, and across which _____ displacement has occurred.
4. A set of joints that parallel the land surface are probably _____ or _____ joints.
5. Joints that form parallel to some applied tectonic pressure are likely to be _____ joints.
6. The weathering process by which blocks bounded by joint surfaces are reduced to spheroidal shapes is called _____.
7. When water freezes its volume increases by as much as _____.
8. _____ is produced by the expansion of water upon freezing.
9. Root growth enlarges joint openings and is therefore a process associated with _____.
10. During transportation by wind, water, or ice, particles bounce and are scrapped against other. This process is referred to as _____.
11. When blocks of solid material are broken down into smaller and smaller pieces the overall _____ is increased.
12. When surface area increases chemical reactivity likely _____.
13. Carbonic acid forms when CO₂ (carbon dioxide) is mixed with _____.
14. Brick red colors in weathered rock likely indicate the presence of _____.
15. If calcite is introduced to significant quantities of rain water mixed with CO₂ (carbon dioxide), then it will _____.
16. Earth materials weather at different rates. The previous statement refers to the process of _____.

17. In the following photograph what are the surfaces called that bound the tabular sheets of granite paralleling the land surface (i.e., the surfaces that the white arrows point to)?



Yosemite National Park

18. In the following photograph there are two different sets of joints. The black arrows point to examples of one set while the red arrows point to the other. What are the surfaces called that the black arrows point to? What are the surfaces called that the red arrows point to?

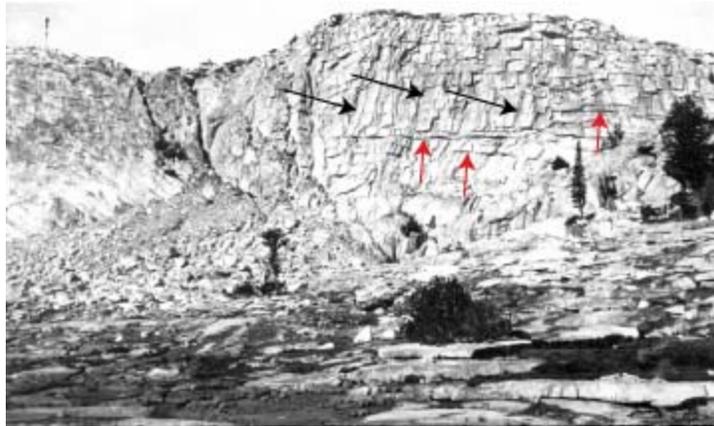


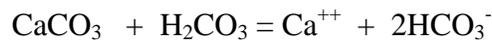
Photo from USGS - ID. Calkins, F.C. 333 cfc00333
Yosemite National Park

19. In the following photograph, what is the name of the process that produced the large spherical shaped feature that the arrow points to?



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20. If the following reaction goes from left to right, then what weathering process is occurring?



21. What is the name of the ionic molecule represented by HCO_3^- ?

22. What is H_2CO_3 ?

23. What mineral is represented by CaCO_3 ?

24. What weathering process is represented by the following chemical reaction?



25. What mineral has the formula Fe_2O_3 ?

26. What is the oxidation state of iron in Fe_2O_3 ?

27. Hematite is a _____ belonging to which of the following groups?

- (A) Carbonates
- (B) Halides
- (C) Phosphates
- (D) Oxides
- (E) Sulfates

28. Calcite is a _____ belonging to which of the following groups?

- (A) Carbonates
- (B) Halides
- (C) Phosphates
- (D) Oxides
- (E) Sulfides

29. **Answers**

1. physical weathering
2. chemical weathering
3. imperceptible
4. expansion, sheeting
5. extension
6. spheroidal weathering
7. 9 percent
8. frost wedging
9. physical weathering
10. abrasion
11. surface area
12. increases
13. rain water
14. hematite
15. dissolve
16. differential weathering
17. exfoliation sheets or pressure-release joints
18. black arrows point to extension joints, red arrows point to exfoliation (pressure-release) joints
19. spheroidal weathering
20. calcite dissolves so the process is dissolution
21. bicarbonate
22. carbonic acid
23. calcite
24. oxidation
25. hematite
26. +3
27. non-silicate, (D) oxides
28. non-silicate, (A) carbonates