1. Briefly explain how physical weathering differs from chemical weathering and explain how the former process tends to “promote” the latter.
2. Which of the following physical weathering processes—frost action, salt-crystal growth, exfoliation, thermal action or biological action—is/are likely to be effective on a high mountain versus along a coastline and why?
3. Which of the following chemical weathering processes—oxidation, hydrolysis, or carbonation/dissolution—is likely to be most effective in a terrain underlain by limestone and why?
4. Under what circumstances can water make fine, loose sediment both stronger and weaker than comparable dry sediment?
5. Recognize the major types of mass movements (creep, falls, slides and flows) based on their depictions in photographs or diagrams and briefly explain the rationale for your choices.
6. Soil creep and solifaction are both relatively slow processes that move surface material downhill; so, what’s the major environmental difference that determines which will occur in a given area?

1. Mechanical weathering promotes chemical weathering by _____.
   A. increasing slope angles
   B. releasing gases trapped in rocks
   C. increasing surface area
   D. creating new minerals
   E. effective advertising

2. Frost action operates in seasonally cold climates because water ______.
   A. expands on freezing
   B. expands on melting
   C. is strongly polar
   D. is an excellent solvent
   E. is common to all living things

3. The development of rounded “domes” of relatively unweathered bedrock on granite outcrops like Castle Crags is the result of _____.
   A. exfoliation
   B. frost action
   C. granular disintegration
   D. salt-crystal growth
   E. thermal action

4. Of the following rock types, which is especially susceptible to dissolution (carbonation) in humid climates?
   A. granite
   B. schist
   C. sandstone
   D. obsidian
   E. limestone

5. The reddening of mafic igneous rocks like scoria is a result of ______.
   A. dissolution
   B. hydrolysis
   C. oxidation
D. carbonation  
E. chlorination

6. The characteristic product of the hydrolysis of feldspars is _____.
   A. quartz  
   B. calcite  
   C. pyroxene  
   D. clay  
   E. gypsum

7. Typically, chemical weathering proceeds fastest in _____.
   A. warm, dry  
   B. warm, wet  
   C. cold, dry  
   D. cold, wet  
   E. high elevation

8. As a slope becomes steeper the component of gravity acting _____ to the slope increases.
   A. upward, parallel  
   B. downward, parallel  
   C. upward, perpendicular  
   D. downward, perpendicular  
   E. like a jerk

9. Damp sediment is more cohesive than either dry or saturated sediment because of the _____ of water.
   A. conductivity  
   B. viscosity  
   C. density  
   D. surface tension  
   E. salinity

10. The gradual downslope movement of weathered rock due to repeated freeze and thaw is called _____.
    A. solifluction  
    B. earthflow  
    C. slump  
    D. rockslide  
    E. soil creep

11. The deposit of blocks in the foreground of the accompanying photo was formed when a piece of the cliff in the background broke away, fell and shattered on the ground. As such, this deposit is best described as the product of a _____.
    A. debris flow  
    B. lahar  
    C. rock fall  
    D. translational slide  
    E. rotational slide

12. Debris flows are examples of mass movements that are _____.
    A. fast, coherent
B. slow, coherent
C. fast, incoherent
D. slow, incoherent
E. frequent, fun

13. In areas underlain by permafrost, the relatively slow downslope movement of water-saturated soil is known as _____.
A. creep
B. mudflow
C. slump
D. debris flow
E. solifluction