1. Which property of water makes frost action a common and effective form of weathering?
   1) Water dissolves many earth materials.
   2) Water expands when it freezes.
   3) Water cools the surroundings when it evaporates.
   4) Water loses 334 Joules of heat per gram when it freezes.

2. Which process involves either a physical or chemical breakdown of earth materials?
   1) deposition  3) weathering
   2) sedimentation  4) cementing

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. 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

5. Which geologic feature is caused primarily by chemical weathering?
   1) large caves in limestone bedrock
   2) a pattern of parallel cracks in a granite mountain
   3) blocks of basalt at the base of a steep slope
   4) the smooth, polished surface of a rock in a dry, sandy area

6. Landscapes will undergo the most chemical weathering if the climate is
   1) cool and dry
   2) cool and wet
   3) warm and dry
   4) warm and wet

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

![Diagram of tree stump and bedrock](image)

The action of the root splitting the bedrock is an example of
1) chemical weathering
2) deposition
3) erosion
4) physical weathering
Base your answers to questions 8 through 10 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

8. Which weathering process is most common in a hot, dry environment?
   1) abrasion  
   2) carbonation  
   3) frost action  
   4) hydrolysis

9. Which term best identifies the type of weathering represented by A?
   1) physical  
   2) biological  
   3) chemical  
   4) glacial

10. Which substance is represented by X on both sides of the flowchart?
    1) potassium feldspar  
    2) air  
    3) hydrochloric acid  
    4) water