

TEST PREP FOR AP[®] COURSES

29 What property of water makes it a good insulator within the bodies of endothermic (warm-blooded) animals?

- A** Adhesion
- B** Surface tension
- C** Heat of vaporization
- D** Specific heat capacity

Solution The solution is (D). Specific heat is defined as the amount of heat one gram of a substance must absorb or lose to change its temperature by 1 °C. Therefore, warm-blooded animals use water to more evenly disperse heat in their bodies. It takes a large amount of energy to heat or cool water.

30 The unique properties of water are important in biological processes. For the following three properties of water, define the property and give one example of how the property affects living organisms:

- Cohesion
- Adhesion
- High heat of vaporization

A Cohesion is the attraction between water molecules, which helps create surface tension. Insects can walk on water because of cohesion. Adhesion is the attraction between water molecules and other molecules. Water moving up from the roots of plants to the leaves as a result of capillary action is because of adhesion. Heat of vaporization is the amount of energy required to convert liquid into gas. This property helps humans maintain homeostasis of body temperature by evaporation.

B Cohesion is the attraction between water and other molecules, which helps create surface tension. Insects can walk on water because of cohesion. Adhesion is the attraction between water molecules. Water moving up from the roots of plants to the leaves as a result of capillary action is because of adhesion. Heat of vaporization is the amount of energy required to convert liquid into gas. This property helps humans maintain homeostasis of body temperature by evaporation.

C Cohesion is the attraction between water molecules, which helps create surface tension. Insects can walk on water because of cohesion. Adhesion is the attraction between water molecules and other molecules. Water moving up from the roots of plants to the leaves as a result of capillary action is because of adhesion. Heat of vaporization is the amount of energy required to convert solid into gas. This property helps humans maintain homeostasis of body temperature by evaporation.

Solution The solution is (A). Cohesion is the attraction between water molecules, which helps create surface tension. Insects can walk on water because of cohesion. Adhesion is

the attraction between water molecules and other molecules. Water moving up from the roots of plants to the leaves as a result of capillary action is because of adhesion. Heat of vaporization is the amount of energy required to convert liquid into gas. This property helps humans maintain homeostasis of body temperature by evaporation.