Short Answer

11.1 Temperature and Thermal Energy 31.

What is *absolute zero* on the Fahrenheit scale?

a. 0 °F
b. 32 °F
c. -273.15 °F
d. -459.67 °F

32.

What is *absolute zero* on the Celsius scale?

a. 0 °C
b. 273.15 °C
c. -459.67 °C
d. -273.15 °C

33.

A planet's atmospheric pressure is such that water there boils at a lower temperature than it does at sea level on Earth. If a Celsius scale is derived on this planet, will it be the same as that on Earth?

a. The Celsius scale derived on the planet will be the same as that on Earth, because the Celsius scale is independent of the freezing and boiling points of water.
b. The Celsius scale derived on that planet will not be the same as that on Earth, because the Celsius scale is dependent and derived by using the freezing and boiling points of water.
c. The Celsius scale derived on the planet will be the same as that on Earth, because the Celsius scale is an absolute temperature scale based on molecular motion, which is independent of pressure.
d. The Celsius scale derived on the planet will not be the same as that on Earth, but the Fahrenheit scale will be the same, because its reference temperatures are not based on the freezing and boiling points of water.

34.

What is the difference between the freezing point and boiling point of water on the Reaumur scale?

a. The boiling point of water is 80° on the Reaumur scale.
b. Reaumur scale is less than 120°.
c. 100°
d. 80°

11.2 Heat, Specific Heat, and Heat Transfer 35.

In the specific heat equation what does c stand for?

a. Total heat
b. Specific heat
c. Specific temperature
d. Specific mass

36.

Specific heat may be measured in J/kg · K, J/kg · °C. What other units can it be measured in?

a. kg/kcal · °C
b. kcal · °C/kg
c. kg · °C/kcal
d. kcal/kg · °C

37.

What is buoyancy?

a. Buoyancy is a downward force exerted by a solid that opposes the weight of an object.
b. Buoyancy is a downward force exerted by a fluid that opposes the weight of an immersed object.
c. Buoyancy is an upward force exerted by a solid that opposes the weight an object.
d. Buoyancy is an upward force exerted by a fluid that opposes the weight of an immersed object.

38.

Give an example of convection found in nature.

a. heat transfer through metallic rod
b. heat transfer from the sun to Earth
c. heat transfer through ocean currents
d. heat emitted by a light bulb into its environment

39.

Calculate the temperature change in a substance with specific heat 735 J/kg · °C when 14 kJ of heat is given to a 3.0-kg sample of that substance.

a. 57 °C
b. 63 °C
c. 1.8×10^{-2} °C
d. 6.3 °C

40.

Aluminum has a specific heat of 900 J/kg · ºC. How much energy would it take to change the temperature of 2 kg aluminum by 3 ºC?

a. 1.3 kJ

b. 0.60 kJ
c. 54 kJ
d. 5.4 kJ

11.3 Phase Change and Latent Heat 41.

Upon what does the required amount of heat removed to freeze a sample of a substance depend?

a. The mass of the substance and its latent heat of vaporization
b. The mass of the substance and its latent heat of fusion
c. The mass of the substance and its latent heat of sublimation
d. The mass of the substance only

42.

What do latent heats, L_f and L_v, depend on?

a. L_f and L_v depend on the forces between the particles in the substance.
b. L_f and L_v depend on the mass of the substance.
c. L_f and L_v depend on the volume of the substance.
d. L_f and L_v depend on the temperature of the substance.

43.

How much energy is required to melt 7.00 kg a block of aluminum that is at its melting point? (Latent heat of fusion of aluminum is 380 kJ/kg.)

a. 54.3 kJ
b. 2.66 kJ
c. 0.0184 kJ
d. 2.66×10^3 kJ

44.

A 3.00 kg sample of a substance is at its boiling point. If 5,360 kJ of energy are enough to boil away the entire substance, what is its latent heat of vaporization?

a. 2,685 kJ/kg
b. 3,580 kJ/kg
c. 895 kJ/kg
d. 1,790 kJ/kg