

Chapter 19 Temperature, Heat, and the First Law of Thermodynamics**19-2 The Zeroth Law of Thermodynamics**

19-02

Question 181

The condition of thermal equilibrium between two objects is that the two objects

- (a) have the same temperature.
- (b) have the same volume.
- (c) have the same area.
- (d) have the same pressure.
- (e) be of the same material.

19-02

Question 182

Body A is at a higher temperature than Body B. When they are placed in contact, heat will flow from A to B

- (a) only if the thermal conductivity of A is greater than that of B
- (b) only if A has the greater internal energy content
- (c) only if the specific heat of A is larger than that of B
- (d) only if the volume of A is larger than that of B
- (e) until both have the same temperature

19-3 Measuring Temperature

19-03

Question 1830.51-27^oc

In a constant-volume gas thermometer, the pressure is 0.019 atm at 100 degrees Celsius. Find the temperature when the pressure is 0.027 atm.

- (a) 132 degrees Celsius
- (b) 340 degrees Celsius
- (c) 257 degrees Celsius
- (d) 531 degrees Celsius
- (e) 321 degrees Celsius

19-03

Question 184

Which one of the following statements is wrong?

- (a) Most solid materials contract when cooled
- (b) Generally liquids expand more than solids for the same temperature change
- (c) If two bodies are in thermal equilibrium then they must have the same temperature
- (d) The density of most substances decreases when they are heated
- (e) Two bodies can be in thermal contact for a very long time without being in thermal equilibrium

19-4 The Celsius and Fahrenheit Scales

19-04

0.53-32^oc**Question 185**

Specify the WRONG statement:

- (a) Celsius, Fahrenheit and Kelvin are three temperature scales.
- (b) If two bodies are in thermal contact, they can have initially different temperatures.
- (c) Two bodies in thermal equilibrium with a third, are in thermal equilibrium with each other.
- (d) A thermometer is an instrument that measures temperature.
- (e) Two bodies are in thermal equilibrium with each other if their temperatures are different.

19-04

Question 186

Fahrenheit and Kelvin scales agree at a reading of:

- (a) 574.
 - (b) 273.
 - (c) -40.
 - (d) Zero.
 - (e) 301.
-

19-04

0.20-27%

Question 187

A new temperature scale is called Z. On that scale, the boiling point of water is 150 degree Z and the freezing point is -10 degree Z. Find the corresponding 70 degree Z in degree C.

- (a) 50 degree C.
 - (b) 70 degree C.
 - (c) 80 degree C.
 - (d) 90 degree C.
 - (e) 150 degree C.
-

19-04

0.40-33%

Question 188

It is recommended to use a new temperature scale called Z. On Z scale, the boiling point of water is 65.0 degrees Z and the freezing point is -15.0 degrees Z. To what temperature on the Fahrenheit scale would a temperature of -100 degrees Z correspond? [Note: both scales are linear]

- (a) -15 Degrees Fahrenheit.
 - (b) -159 Degrees Fahrenheit.
 - (c) +15 Degrees Fahrenheit.
 - (d) -110 Degrees Fahrenheit.
 - (e) -100 Degrees Fahrenheit.
-

19-04

0.19-18%

Question 189

The temperature difference of 45 Celsius degrees is equivalent to

- (a) 11 Fahrenheit degrees.
 - (b) 81 Fahrenheit degrees.
 - (c) 25 Kelvin.
 - (d) 81 Kelvin.
 - (e) 25 Fahrenheit degrees.
-

19-04

0.48-45%

Question 190

A bottle of soft drink is placed in a refrigerator and left there until its temperature drops by 15 K from its original value. What is the corresponding change in temperature on the Fahrenheit scale?

- (a) -31 Fahrenheit degrees.
 - (b) 59 Fahrenheit degrees.
 - (c) 27 Fahrenheit degrees.
 - (d) 3.3 Fahrenheit degrees.
 - (e) 258 Fahrenheit degrees.
-