19-05

Question 206
0.45-60%

A steel gas tank of volume 0.0700 m**3 is filled completely with gasoline. The temperature of the tank increased from 20 to 50 degrees-C. How much gasoline has spilled out of the tank? For steel, the coefficient of linear expansion is 12.0*10**(-6)/degree-C. For gasoline, the coefficient of volume expansion is 9.50*10**(-4)/degree-C.

(a)   2.52*10**(-5) m**3
(b)   2.00*10**(-3) m**3
(c)   7.56*10**(-5) m**3
(d)   1.92*10**(-3) m**3
(e)   1.69*10**(-3) m**3

19-05

Question 207
0.52-28%

An iron ball has a diameter of 6.00 cm and is 0.01 cm larger than the diameter of a brass ring. Both are at a temperature of 20 degrees Celsius. To what temperature should the brass ring be heated so that the ball just passes through the hole? [The coefficient of linear expansion of brass = 1.9*10**(-5) K**-1]

(a)   32 degrees Celsius.
(b)   165 degrees Celsius.
(c)   108 degrees Celsius.
(d)   430 degrees Celsius.
(e)   590 degrees Celsius.

19-6	Temperature and Heat

19-06

Question 208
0.22-13%

Which of the following statements is True:
(a)   When the temperature of an object increases by one degree-C it means that it has increased by less than one degree-F.
(b)   272 Kelvin is warmer than zero degree-C.
(c)   If two objects are in thermal equilibrium they must have the same temperature
(d)   if an object (A) is warmer than a second object (B) in the Fahrenheit scale then object (B) must be warmer than object (A) in the Celsius scale.
(e)   The coefficient of linear expansion is the same for all materials.

19-7	The Absorption of Heat by Solids and Liquids

19-07

Question 209

A 20-g ice cube at 0 degree C is heated until 15 g has become water at 100 degree C and 5.0 g has been converted to steam. How much heat is added to do this? (L(melting)=80 cal/g, L(vaporization) = 540 cal/g, c(water) = 1 cal/g/C).

(a)   3.3*10**3 cal.
(b)   6.3*10**3 cal.
(c)   5.2*10**3 cal.
(d)   9.0*10**3 cal.
(e)   2.3*10**3 cal.