practice test chapter 3 (Homework)

1.
Convert 125.8°C to K. Enter the correct number of significant figures.

2.
Classify the following as homogenous mixtures, heterogenous mixtures, elements or compounds.
(a) salt water

(b) water

(c) magnesium oxide

(d) shampoo

(e) salad dressing

3.
Select the best separation technique that could be used to separate each of the following mixtures.
(a) two colorless liquids

(b) a nondissolving solid mixed with a liquid

(c) red and blue marbles of same size and mass

4.
Which of the following are examples of substances?

Explain why each is a substance. (3.1)

5.
Identify each of the following as an extensive or intensive physical property. (3.1)
(a) melting point

(c) density

(d) length

6.
Is a change in phase a physical change or a chemical change? (3.2)

Explain.

7.
Which of the following indicators suggest that a chemical change has probably taken place? (Select all that apply.) (3.2)
8.
Which of the following are characteristics of a mixture? (3.3)

9.
Classify each of the following as a homogeneous mixture or a heterogeneous mixture. (3.3)
(a) brass (an alloy of zinc and copper)

(b) a salad

(c) blood

(d) powder drink mix dissolved in water

10.
A 4.90 g nugget of pure gold absorbed 288 J of heat. What was the final temperature of the gold if the initial temperature was 24.0°C? The specific heat of gold is 0.129 J/(g·°C).

11.
A 155 g sample of an unknown substance was heated from 25.0°C to 40.0°C. In the process, the substance absorbed 5696 J of energy. What is the specific heat of the substance?
Identify the substance among those listed in Table 16-2.

Specific Heats of Common Substances at 298 K (25°C)

Substance	Specific heat J/(g·°C)
Water(l) (liquid)	4.184
Water(s) (ice)	2.03
Water(g) (steam)	2.01
Ethanol(l) (grain alcohol)	2.44
Aluminum(s)	0.897
Granite(s)	0.803
Iron(s)	0.449
Lead(s)	0.129
Silver(s)	0.235
Gold(s)	0.129

Table 16-2

12.
What is the specific heat of an unknown substance if a 2.39 g sample releases 13.1 cal as its temperature changes from 25.7°C to 20.3°C?

13.
If 313 g water at 66.9°C loses 9760 J of heat, what is the final temperature of the water?

14.
How is a qualitative observation different from a quantitative observation? Give an example of each.

15.
Are the following physical changes or chemical changes?
(a) Water boils.

(b) A match burns.

(c) Sugar dissolves in tea.

(d) Sodium reacts with water.

(e) Ice cream melts.

16.
Classify these as heterogeneous or homogeneous mixtures.
(a) salt water

(b) blood

(c) 14 k gold

(d) concrete

17.
Nickel freezes at 1455°C. What is the melting point of nickel?

18.
Is the overall processing of food in your body an exothermic or endothermic process?

19.
Is the melting of candle wax an exothermic or endothermic change?

20.
Identify the following as an element, compound, homogeneous mixture, or heterogeneous mixture.
(a) nitrogen

(b) polyethylene plastic

(c) clear apple juice

(d) wood

(e) syrup

(f) granite

(g) soda

21.
Identify each of the following as either chemical or physical properties of the substance.
(a) Copper is drawn into wires.

(b) Salt dissolves in water.

(c) Magnesium burns in air.

(d) Gold jewelry is unaffected by perspiration.

(e) Baking soda is a white powder.

(f) Potassium is a highly reactive element.

22.
Identify each of the following as either chemical or physical changes.
(a) Magnesium burns in air.

(b) Air is squeezed by a pump and forced into a tire.

(c) A lump of gold is pounded into a large, thin sheet.

(d) Baking powder bubbles and gives off CO_2 when it is moistened.

(e) A pan of water boils on the stove.

(f) Hydrogen sulfide gas causes silver to tarnish.

23.
What Celsius temperature corresponds to absolute zero?