Name: Answer
Class: Sheet

/85 65

HEAT UNIT TEST

1. Define and give an example of the following. (2 marks each)

a) convection -
the transfer of heat by the movement of particles from one part of a fluid to another
ex. water boiling

b) conduction -
the transfer of heat by the collision of particles in a solid.
ex. stove to frying pan.

c) radiation -
the transfer of heat by waves of energy
ex. the sun

2. Different substances are made of different particles, so they have different melting and boiling temperatures. In the chart, write the melting and boiling point for a substance other than the one given. (2 marks)

SUBSTANCE	MELTING POINT(Celsius)	BOILING POINT (Celsius)
Water	0	100
~~Sodium~~ Gold	1064°C	2808 °C

3. List the 3 states of matter. Explain in detail the characteristics of each state. (6 marks)

State of matter — Characteristic

a) solid: A solid has a set volume and rigid shape; it cannot flow as a gas or liquid can, and it is very hard to compress
b) liquid: A liquid has a set volume, but it takes the same shape as the container it is in; a liquid can flow, but it is difficult to compress
c) gas: A gas fills any container it is in, and takes on the shape of the container; a gas can flow and is easy to compress

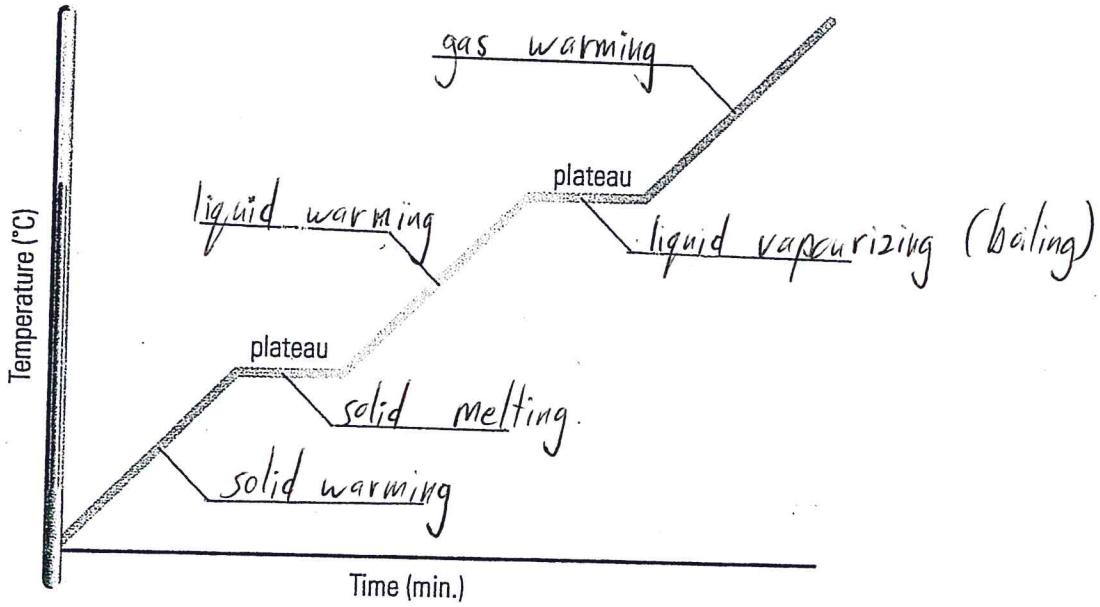
4. Explain with concrete details and examples the differences between *heat* and *temperature*. (3 marks)

heat: energy that is transferred from the particles of hotter substances to the particles of colder ones.

temperature: a measure of the average energy level of the particles in a substance. Temp. Scale: °C, °F, °K

Heat is always present.

5. Properly fill out the graph below. Choose your answer from the list below. (5 marks)



A graph of a change of state is called a **heating curve**. The flat part of the curve, where the substance is melting or boiling, is called a plateau.

gas warming

liquid warming

liquid vapourizing (boiling)

solid warming

solid melting

6.

Use this list to fill in the following chart. Choose the most appropriate answer. Write the entire answer not just the number. (14 marks)

1. coldest temperature possible (absolute freezing)
2. surface of the sun
3. comfortable bath water
4. ice cream
5. air in a refrigerator
6. freezing water
7. hot tea
8. inside of the sun
9. boiling water
10. oven temperature for cooking a pizza
11. hottest day recorded on earth's surface
12. comfortable room temperature
13. healthy human's body temperature
14. coldest weather recorded on earth's surface

TABLE OF TEMPERATURES

TEMPERATURE	EXAMPLE
-273 °C.	Coldest Temperature Possible (absolute freezing)
-89 °C.	Coldest weather recorded on Earth's surface
-10 °C.	Ice Cream
0 °C.	Freezing Water
7 °C.	Air in a Refrigerator
20 °C.	Comfortable Room Temperature
37 °C.	Healthy Human's Body Temperature
40 °C.	Comfortable Bath Water
58 °C.	Hottest Day Recorded on Earth's Surface
80 °C.	Hot Tea
100 °C.	Boiling Water
160 °C.	Oven Temperature for cooking a pizza
6000 °C.	Surface of the Sun
15 000 000 °C.	Inside of the Sun

The diagram shows the relationship between heat and changes in "states of matter."

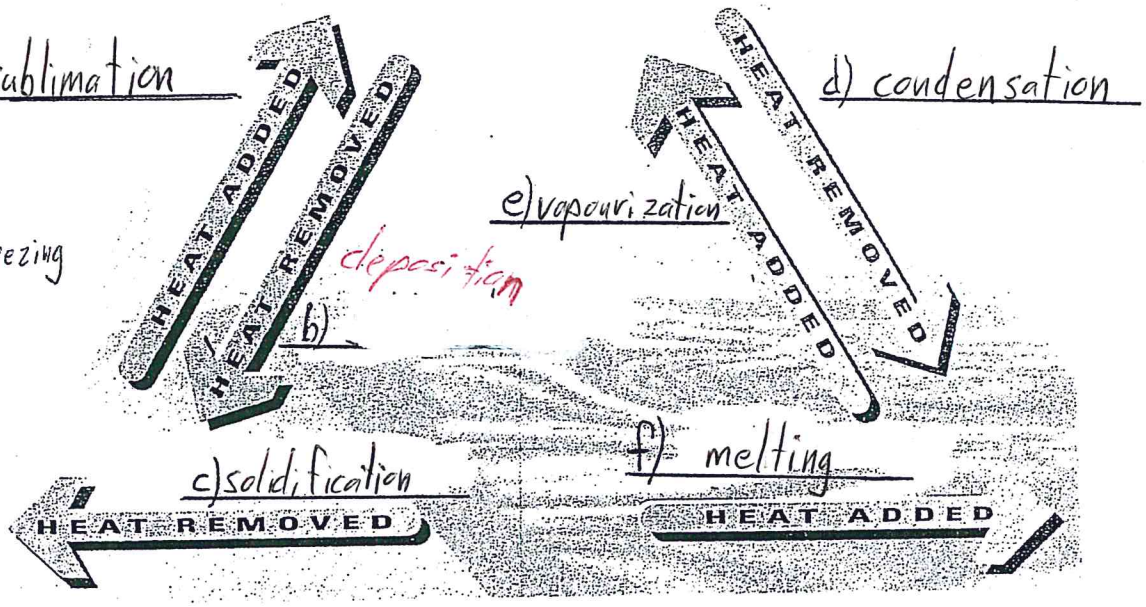
7. Fill in the blanks using the list. (6 marks)

GAS

a) sublimation

d) condensation

sublimation
sublimation
solidification/freezing
vapourization
condensation
melting



SOLID

LIQUID

8. Fill in the blanks with the words given. (8 marks)

sublimation
condensation
melting
evapouration
freezing
boiling
solidification
vapourization

The six changes of state

Melting is the change from a solid to a liquid.

Vapourization is the change from a liquid to a gas. Slow vaporization is called evapouration. Fast vaporization is called boiling.

Condensation is the change from a gas to a liquid.

Solidification or freezing is the change from a liquid to a solid.

Sublimation is either the change from a solid directly to a gas, or the change from a gas to a solid. Notice that sublimation is the name for two possible changes of state.

10. **TRUE - FALSE QUESTIONS** (1 mark each)

False - 1. Heat flows from an area of low heat to an area high in heat.
True - 2. The Kelvin temperature scale is designed for use in scientific experiments.
True - 3. The freezing point of water is 0 Celsius and water will expand when frozen by almost 9% in volume.
False - 4. Touching a hot stove is an example of convection.
True - 5. The faster the molecules of a substance are moving, the higher the the temperature.
True - 6. When heat is added to an object, particles move faster and take up more space. (expand)
True - 7. Particles move faster in hot water than in cold water.
False - 8. A glass of water is heated from 10 degrees Celsius to 40 degrees Celsius, therefore the number of particles of water in the glass would have changed.
True - 9. In the Kelvin temperature scale each degree Kelvin equals one degree Celsius and the Kelvin scale has no negative numbers.
True - 10. Water freezes at 273 K and boils at 373 K.

11. Explain what the term "*Absolute Freezing*" means. Be detailed. (3 marks)
- Name of a theory that states that all particles cease motion. FAbsolutely no heat. - Not possible. This is at 0Kelvin / or - 273 °C

12. In your own words please explain how a thermometer works. (2 marks)
- device used to measure the temperature of substances. It uses a set scale. It relies on the expansion + contraction of using a fluid. Heat is transfered to the device + measured on the scale. - (Man-made concept or idea)