Write what the following refer to:

Thermal energy:	.....
Temperature:	....
Heat Transfer Methods:	.....

Temperature:	.....
Thermal equilibrium:	....
Calorie:	.....

Heat Conducting Materials:	.....
Heat Insulating Materials:	.....

Law of Conservation of mass:	....

Complete:

1. The temperature at which the solid matter turns into a liquid matter is .....
2. ..... points and ..... points are physical properties of matter.
3. Temperature is a measure of ..... energy of molecules of matter.
4. When heating air, its volume is .....
5. Moving particles of matter ..... when thermal energy increased.
6. The higher the temperature of an object, the increasing the ..... energy of its atoms and molecules.
7. Heat is transferred from the object with ..... temperature to the object with ..... temperature.
8. Temperature is a measure for the ..... energy of matter molecules.
9. The metal doorknob looks ..... cooler than wooden doorknob.
10. Metals, such as ..... are good heat conducting materials.
11. Some materials prevent the transfer of heat through them, such as .....
12. When the toy car is above an inclined surface, it stores energy ..... energy.
13. When the toy car moves on an inclined surface, the potential energy turns into ..... energy.
14. A smart material that can ..... in the dark or remain .....
15. Heat is transferred from the material of ..... to the material with .....
16. Heat is transferred by convection in the molecules of ..... materials.
17. The material in the gaseous state has ..... volume and in ..... shape.

Write what the statement refers to:

1. The energy that the body gains due to its movement and increases with the speed of the body. (.....)
2. The volume of water increases as a result of its temperature increasing. (.....)
3. Matter converts from solid to liquid. (.....)
4. The smallest building unit of the matter. (.....)
5. The sum of the kinetic energies of atoms and molecules of matter. (.....)
6. The state of the matter that has a fixed shape and volume. (.....)
7. Energy is flows from a hotter object to the colder one. (.....)
8. The temperature at which the material turns from the liquid state to the gaseous state. (.....)
9. The temperature at which the material turns from the solid state to the liquid state. (.....)
10. A change that occurs to the molecules that make up the material, resulting in an increase in their movement. (.....)
11. The energy that is transferred from one object to another as a result of different between them in the temperature. (.....)
12. Materials that do not allow heat to pass through them easily. (.....)
13. The measurement unit of heat. (.....)
14. Matter cannot be destroyed or created out of nothing. (.....)
15. The way of heat transfer from the sun to the earth through space. (.....)
16. Heat transfer due to the movement of a particles in liquid or gas. (.....)
17. Transfer of heat through space. (.....)
18. Transfer of heat when contacting objects. (.....)
19. A material consisting of mixing iron and other elements. (.....)
20. A mixture of rock, sand and water, which becomes solid when it dries. (.....)
21. A material consisting of sand, limestone and soda ash. (.....)
22. The way in which the sun's heat travels through space. (.....)
23. The energy produced by the movement of the molecules of matter. (.....)
24. A tool used to measure the temperature of liquids. (.....)
25. Converting the material from the gaseous state to the liquid state. (.....)
26. The temperature at which the material turns from a liquid to a gaseous state. (.....)

Correct the underlined words:

1. The higher the temperature, the <u>slower</u> the particles move. (.....)
2. An object with a temperature of 60° C in order for heat to be transferred to it must touch an object with a temperature of <u>60° C</u>. (.....)
3. When building a pyramid of cubes, the mass of the pyramid is <u>greater than</u> the sum of the masses of the individual cubes that make up the pyramid. (.....)
4. Heat in liquids is transferred by <u>radiation</u>. (.....)
5. Contraction of materials occurs due to their <u>constant</u> temperature. (.....)
6. The bonding force of molecules is <u>weak</u> in cold materials. (.....)
7. Molecules of matter move away when exposed to <u>low</u> heat. (.....)

8. The higher the temperature, the lower the thermal energy of the material. (.....)
9. The mass of the material after its melting is less than its mass before its melting. (.....)
10. When the material is exposed to cooling, the bonding force between its molecules is reduced. (.....)
11. When the material loses thermal energy, it expands. (.....)
12. Concrete between railroads tracks is used to allow it to expand in a safe manner. (.....)
13. Thermal equilibrium occurs between two objects in contact when the temperature of the objects is greater than the temperature of the second object. (.....)
14. When you put a piece of chocolate in the sun, the distance between is particles decreases. (.....)
15. Metals are bad heat conductivity. (.....)
16. Electric wires are made of wood and covered with an aluminum layer. (.....)
17. Thermal equilibrium occurs when the temperature of the two objects varies. (.....)

Give reason:

1. You feel cold when you hold an ice cube in your hand.

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2. The color of food spreads in hot water faster.

.....

3. The thermometer alcohol level rises when the temperature rises.

.....

.....

4. Leave defined distances between railways.

.....

5. The matter can be changed from one state to another.

.....

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6. All materials have thermal energy.

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7. Ice melts when placed in a hot cooking pot.

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8. The molten glass is cooled with water when it is formed.

.....

9. The explosion of some car tires in the summer.

.....

10. Coldness is not a form of energy.

.....

11. Hot dinner plates become cold, while they put on the table.

.....

12. Cooking pot is made of aluminum.

.....

13. We do not feel the thermal energy in cold objects.

.....

14. The metal doorknob looks cooler than the wooden door, although they are at same temperature.

.....

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15. The mass of popcorn is less than the mass of corn kernels after heating them.

.....

16. Concrete is used the construction of buildings and bridges.

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17. Scientists must study the properties of molecules for different materials.

.....

18. The tires of the moving car are overheating.

.....

19. Leave joints between railroads tracks.

.....

20. The amount of heat energy of molten wax is greater than that of solid wax.

.....

21. Rubber gloves are preferred when removing hot cookware from the fire.

.....

22. Glass is a heat-insulating material.

.....

23. The liquid state of the material has more thermal energy than the solid state.

.....

24. Heat is transferred through space by radiation.

.....

25. The kidney contains nephrons.

.....

26. The speed of spreading the color of food in cold water is less than the speed of spreading it in hot water.

.....

What happens when:

1. You hold a hot cup in your hand.

.....

2. Adding two equal amounts of food colors in hot water and in cold water.

.....

.....

3. Build bridges without expansion joints.

.....

4. Cooling a liquid (in term of both the intermolecular distance and the volume of the material).

.....

5. Touch a hot cup of tea (for heat transfer).

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6. Touch a piece of ice (for heat transfer).

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7. Heating a piece of butter (for a change of state)

.....

8. Putting the thermometer in cold water in relation to the volume of liquid inside the thermometer.

.....

9. Build bridges without expansion joints in the summer?

.....

10. Matter has acquired thermal energy in relation to the kinetic energy of the particles and the distances between them.

.....

11. The handle of the iron is made of metal.

.....

12. There is thermal equilibrium between hot food and air in contact with it.

.....

13. A lizard stands on a rock with a high temperature (due to sunlight).

.....

14. An object heat is increasing.

.....

15. All materials have become good heat conductors.

.....

16. Your face is exposed to the sun.

.....

17. Measuring the mass of ice cube then measure its mass after heating (for the mass of the ice cube).

.....

18. Some chemical changes are made to some petroleum compounds.

.....

19. Leave concrete to dry.

.....

20. The solid material gains thermal energy.

.....

.....

21. The material has lost heat energy.

.....

22. Increasing the velocity of matter molecules.

.....

23. We expose water vapor to a cold surface.

.....

24. Exposure of air inside car tires to extreme heat.

.....

25. A lot of water entered the cell and did not come out of it.

.....

26. Contraction and relaxation of heart muscle.

.....

27. The body is at risk.

.....

What happens to:

1. The particles of matter when they reach freezing point?

.....

2. Each of the following when the material heats up:

a. Kinetic energy of particles. .....

b. Velocity (speed) of particles. .....

c. Distances between particles. .....

3. The matter when it loses heat energy?

.....

.....

Explain

1. How temperature affects the movement and speed of particles.

.....

2. Meteorologists must understand thermal convection and radiation.

.....

3. What engineers do when making or inventing a new material?

.....

.....

.....

4. How the following materials are made: steel, shrink-wrap.

.....

.....

.....

5. How the following materials are made: concrete-glass.

.....

.....

6. The method of heat transfer through the following: metals - air and water – space.

.....

.....

.....

Compare between:

1. Melting and freezing& Evaporation and condensation.

.....

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.....

.....

2. The spread of food color in hot water and its spread in cold water.

.....

3. Thermal expansion and thermal contraction.

.....

.....

4. Heat-insulating materials and Heat-conducting materials.

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.....

5. Petroleum and Plastic.

.....

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6. Chloroplasts and mitochondria.

.....

.....

7. Small intestine and large intestine. (In terms of function)

.....

.....

What is meant by the following:

1. Thermal equilibrium- Heat transfer.

.....

.....

.....

2. Thermal conductivity.

.....

3. Convection and Radiation.

.....

.....

Check in front (✓) of the correct statements and (x) in front of the wrong statements:

1. Glass manufacturing needs low temperatures. (...)
2. The mass of a solid piece of ice is greater than the same mass when it melts. (...)
3. When you stir a cup of hot tea with a plastic spoon, the heat is transferred from the spoon to your hand. (...)
4. In chemical change, the characteristics of the new material are different from the characteristics of the material from which it is made. (...)

Cross out the odd word:

1. Melting- freezing- condensation- conduction.
2. Steam- snow- rock- glass.
3. Water- milk- glass- oil.

Choose the correct answer from the brackets:

1. Thermal energy is .....

   (Body temperature - heat transfer - mass of matter - total kinetic energies of molecules and atoms)
2. ..... is used in the measurement of liquid volumes.

   (Thermometer - Measuring Tape - Graduated cylinder - graduated Ruler)
3. Heat transfer from the sun to the earth through .....

   (convection-conduction - radiation - convection and conduction together)
4. ..... is a material that are attracted to magnets.

   (Copper - Aluminum - Gold - Nickel)

List the benefit or function of each of the following:

1. **Heart:** .....
2. **Pancreas:** .....
3. **Thermometer:** .....
4. **Kidney:** .....
5. **Eye Muscles:** .....

Answer the questions.

1. **Which** of the of the following is heat insulator? **Which** ones is heating conductor?

   (a pot handle - bird feathers - roofs of houses- the body of cooking pots).

Heat insulator	Heating conductor
.....	.....

2. **Follow the processes:** that happen to a piece of ice until it reaches the water vapor.

   .....

   .....

3. You have two glasses of water, one hot and the other is cold. **Which** one has more heat energy? **Why**?

.....

4. **When** are the electric wires expanded? **Why**?

.....

.....

5. **What** is the importance of thermal expansion joints?

.....

6. **Mention** the scientific idea of making thermometers.

.....

7. **How** does hot water help to open the sealed lid of the jar?

.....

8. **Do** all objects transfer heat? **Explain** your answer.

.....

9. **What** are the factors affecting the rate (speed) of heat transfer?

.....

.....

.....

10. **What factors** does thermal insulation depend on.

.....

.....

11. **Why** does water seem to disappear when it boils?

.....

12. **What** are the advantages of smart clothes over regular clothes?

.....

.....

.....

13. **What** are the components of the following materials: Concrete - Glass?

.....

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14. **When** a cube of ice melts with a mass of 10 grams, what is the mass of the resulting water? Explain your answer.

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