h @ 250 kPa & 200°C

```
= {[(h@ 300 kPa & 200°C - h @200 kPa & 200°C) / (300 kPa -200 kPa)] × (250 kPa - 200 kPa)} + h
     @200 kPa & 200°C
= {[( 2865.6 kJ/kg - 2870.5 kJ/kg ) / 100 kPa] × 50 kPa}+ 2870.5 kJ/kg
```

= 2868.05 kJ/kg

MODULE 20 (AC) BASIC CONCEPTS ABOUT MATTER

Define matter and explain the states of matter.

Matter can be defined as anything that has mass and occupies space. Matter can exist in three different physical states: solid, liquid, or gas.

Define and give an example of the physical property of a substance.

Physical properties are those characteristics used to describe a substance, of those properties that ca be observed without a change in the composition of the matter. Physical properties include colour, hardness, density, boiling point, electrical conductivity, and many others.

For example, a block of ice is composed of a hydrogen and oxygen compound in the solid state. When the ice melts into water, its physical state changes to a liquid, but it is still chemically composed of the same hydrogen and oxygen compound. co.U

Define and give an example of the chemical property of a substance

Chemical properties describe the way in which a substance can under succeange. They are those properties that matter exhibits as it undergoes a change in its composition. The change usually results from a chemical reaction leading to the formation of a new subreaction leading to the formation of a new subs

anew substance. Sulphur will combine with For example, iron will combine with a gen ton produce rust silver to produce tarnish Marn sium reacts with oxygen to or duce magnesium oxide, a white powder.



Physical changes occur when physical properties are altered without a change in chemical composition. After the physical change, the original substances remain no new substance is formed. A change in physical state (for example, changes in water from a liquid to solid or gaseous state) is perhaps the most common type of physical change.

Define and give an example of the chemical change of a substance.

Chemical change involves a change in the chemical composition of a substance. The original substance or substances are used up and a new substance or substances formed. Each new substance is different both chemically and physically from the original.

Substances display their chemical properties whenever they undergo a chemical reaction. When fuel gases react with air in a combustion reaction, carbon dioxide and water are formed as products. These products differ both chemically and physically from the original reactants.

Define and give an example of:

an element

Elements are pure substances that cannot be decomposed into simpler forms of matter. For example, calcium is an element that occurs naturally.

a compound

A compound is a pure substance that consists of two or more elements, chemically bound together in fixed proportions by mass. Water, for example, is a compound composed of hydrogen and oxygen.

a mixture

They are combinations of two or more pure substances that aren't chemically bound to each other. For example,