

- 100°C to 110°C:

The thermal energy absorbed is used to raise the temperature of the water vapour molecules. The molecules gain kinetic energy and move with greater speeds.

$Q_5 =$

- 4 Fig. 4.1 shows steam from a boiler passing through a turbine connected to a generator.

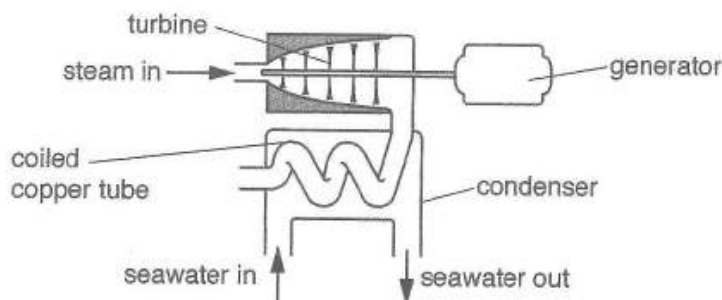


Fig. 4.1

Steam passes through the turbine and condenses in the condenser. The internal energy of the seawater rises.

- (a) State what is meant by *condensation*.

..... [1]

- (b) The steam is not in contact with the seawater. Explain how condensation of the steam causes the internal energy of the seawater to rise and state the effect on the molecules of the seawater.

.....

 [3]

- (c) The seawater enters the condenser at a temperature of 28 °C, and leaves at a temperature of 49 °C. In a certain time, 220 MJ of thermal energy passes into the seawater.

The specific heat capacity of seawater is 3900 J/(kg °C).

Calculate the mass of seawater that enters the condenser in this time.
 Give your answer to an appropriate number of significant figures.

mass = [3]