

Name of the Student: _____

Max. Marks : 19 Marks

Time : 19 Minutes

Mark Schemes

Q1.

(a) conduction

1

(b) 35 000

1

(c) 500

*their (b) = $2 \times c \times 35$ correctly calculated scores 2 marks**allow 1 mark for correct substitution,**ie $35000 = 2 \times c \times 35$* **or***their (b) = $2 \times c \times 35$*

2

J / kg°C

1

(d) energy lost to surroundings

or

energy needed to warm heater

*accept there is no insulation (on the copper block)**do **not** accept answers in terms of human error or poor results or defective equipment*

1

[6]**Q2.**

(a) there are strong forces (of attraction) between the particles in a solid

*accept molecules / atoms for particles throughout**accept bonds for forces*

1

(holding) the particles close together

particles in a solid are less spread out is insufficient

1

or

(holding) the particles in a fixed pattern / positions

but in a gas the forces between the particles are negligible

accept very small / zero for negligible

accept bonds for forces

1

so the particles spread out (to fill their container)

accept particles are not close together

gas particles are not in a fixed position is insufficient

1

(b) (i) particles are (shown) leaving (the liquid / container)

accept molecules / atoms for particles throughout

accept particles are escaping

particles are getting further apart is insufficient

1

(ii) accept molecules / atoms for particles throughout

accept speed / velocity for energy throughout

particles with most energy leave the (surface of the) liquid

accept fastest particles leave the liquid

1

so the mean / average energy of the remaining particles goes down

1

and the lower the average energy (of the particles) the lower the temperature (of the liquid)

1

[8]

Q3.

(a) any **two** from:

- (air) particles / molecules / atoms gain energy
- (air) particles / molecules / atoms move faster
do **not** accept move more
do **not** accept move with a bigger amplitude / vibrate more
- (air) particles / molecules / atoms move apart
- air expands
ignore particles expand
- air becomes less dense
ignore particles become less dense
- warm / hot air / gases / particles rise
do **not** accept heat rises
answers in terms of heat particles negates any of the mark points that includes particles

2

(b) (i) any **two** from

- free / mobile electrons gain (kinetic) energy
accept free / mobile electrons move faster
accept vibrate faster for gain energy

- free electrons collide with other (free) electrons / ions / atoms / particles
- atoms / ions / particles collide with other atoms / ions / particles
answers in terms of heat particles negates this mark point

2

- (ii) (faster) energy / heat transfer to room(s) / house
accept room(s) / house gets warm(er)
accept lounge / bedroom / loft for rooms

1

[5]