

- M1.** (i) conduction, convection
answer can be in either order
- (ii) traps (lots of) air
*do **not** accept heat is trapped in the fibre*
- air is a (good) insulator **or** poor conductor

1

1

[3]

- M2.** (a) any **three** from:
ignore reference to skewer
- (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
*do **not** accept particles expand*
 - air becomes less dense
 - warm / hot air rises
*do **not** accept heat rises*
*if credit is to be given for answers in terms of particles it must be clear they are air particles **not** gas particles*

3

- (b) conduction
accept conductor

1

- (c) any **one** from:
- temperature of the potato
*do **not** accept heat for temperature*
 - temperature of the surroundings / room / surface / atmosphere
accept how hot the potato / room is
 - size / mass / weight / volume of the potato
 - shape of the potato
 - surface area of the potato
potato cut open insufficient
 - nature of the surface of the potato

- type of surface it is placed on
- in a draught
- type of potato
- whether the skewers are left in or taken out

1

(d) (foil) reflects heat (back towards potato)
reduces heat loss is insufficient
*do **not** accept reflects hot air*

or (foil) is a poor emitter (of heat radiation)
accept reduces / stops heat loss by radiation
*do **not** accept heat is trapped*

1

[6]

M3. (a) ions / electrons gain (kinetic) energy
accept atom / particles / molecules for ion
accept ions vibrate faster
accept ions vibrate with a bigger amplitude
accept ions vibrate more
do not accept ions move faster

1

(free) electrons transfer energy by collision with ions
or energy transferred by collisions between vibrating ions

1

(b) move faster or take up more space
*do **not** accept start to move / vibrate*

1

(warmer) water expands **or** becomes less dense (than cooler water)
*do **not** accept answers in terms of particles expanding*

1

warm water rises (through colder water) **or** colder water falls to take its place

1

(c) transfer of energy by waves / infrared (radiation)
accept rays for waves
*do **not** accept transfer of energy by electromagnetic waves*
ignore reference to heat

1

[6]