HEAT TRANSFER

1. C

2. A
3. C
4. A
5.

black or black cools quickly
better emitter (of heat) A1 OR better radiator/black
radiates white doesn't
radiation/infra-red A1 of heat/infra-red
Accept in terms of white teapot (NOT better emitter and absorber/conductor)

[Total 3]

6.

(a) (i) chemical)
internal OR heat OR thermal) any 2
but also accept)
nuclear OR kinetic OR potential for one of the
marks
2F
B1,
B1
(ii) radiation F B1
(b) (i) K.E. OR kinetic OR motion C B1
(ii) conduction F B1
(iii) 1 gravitational OR P.E. OR potential OR
position
F B1
2 chemical/fuel/food C B1
7

7.

(a) cool air more dense OR cool air falls
OR warm air rises so it can be cooled B1
(b) energy/heat removed from store must be released outside store B1
heat developed by refrigeration unit B1
(c) reduce/prevent heat coming in from outside NOT cold getting out B1
reduce/prevent conduction NOT convection/radiation B1
(d) idea that heat gained from outside = heat removed by refrigeration unit B2
allow B1 for idea of thermostatic control [7]

8.

(a) (i) evaporation at all temperatures - boiling at specific temperature 1

evaporation at surface - boiling in body of liquid 1
boiling the molecules have more energy than evaporation/higher energy molecules escape 1
(b) liquid molecules much closer together or vv 1
intermolecular forces therefore much greater in liquids or vv 1 2
(c) warms the room 1
1

(d) (i) P = VI seen or implied 1
I = 0.5 (A) 1
(ii) R = V/I seen or implied 1
440 (Ω) 1
Both units correct 1
5

[Total 11m]

9.

(a) time or observe when wax melts/falls or states first to melt/fall B1
first to do so or less wax left (after given time) (transfers heat best) B1