Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: Particle Model Of Matter (High Demand)

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Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Mark Schemes

Q1.

(a) loft insulation

1

energy saved in 10 years £600

1

net saving (600 – 110) £490

1

OR

hot water jacket

1

energy saved in 10 years £140

1

This is the highest percentage saving on cost

1

(b) transferred to environment / surroundings

1

as heat / thermal energy

1

[5]

Q2.

(a) (i) the outlet mark

hot water rises **or** floats up
do not accept heat rises

the inlet mark

1

cold water replacing any drawn off comes in at the bottom and does not mix with hot **or** cool the hot water
do not accept descriptions of a convection current

1

(ii) only heats top (of tank) **or** a small volume
credit heats less water

1

no mixing occurs with cold because hot water is less dense **or** water is a poor conductor

no mixing because cold water is more dense

1

(b) radiation (losses from tank)

do not accept reflection of heat

1

lower from light **or** white **or** shiny surfaces

credit they are poor radiators for both marks

1

[6]

Q3.

(a) so it is a good insulator

ignore references to efficiency

allow low (rate of) energy / 'heat' transfer

*do **not** accept prevents energy transfer*

1

(b) <u>air</u> is a(n) (good) insulator

allow <u>air</u> is a poor conductor

1

(so) air reduces conduction

*do **not** allow stops conduction*

1

trapped air / air bubbles reduce(s) / stop(s) convection

1

(c) any **three** from:

- ice-pack is (much) colder than the cool box contents
- ice-pack reduces the (overall) <u>temperature</u> of the cool box / air (in the cool box)
- ice pack requires a lot of energy to heat up / increase temperature / change temperature

  allow 'heat' for energy
- ice-pack requires heating up before the cool box contents warm up

  allow 'heat' for energy

  allow ice-pack takes a long time to heat up / increase temperature / change temperature
- ice-pack cools the air which becomes more dense and sinks

  allow ice-pack cools the air and causes (a) convection (current)

  accept energy / □heat' is needed to melt the (contents of the) ice-pack

3

[7]