

Mark schemes

Q1.

- (a) (total atoms =) 30

1

(percentage =)

$$\frac{6}{30} \times 100$$

*allow correct use of an incorrectly determined
total number of atoms*

1

= 20 (%)

1

- (b) sizes

*allow diameters
do **not** accept shapes*

1

slide (over each other)

allow move over each other

1

- (c) (as the percentage by mass of tin increases the) melting point (of solder)
-
- decreases

1

to 183 °C

*allow a value in the range 182-184 °C
allow to 62% (tin)*

1

then increases

1

- (d) 232 °C

1

- (e) the atoms gain energy and their arrangement becomes less ordered

1

[10]

Q2.

- (a) any **one** from:
- unreactive
allow does not react with air / water / skin
allow does not tarnish
 - appearance
allow aesthetic reasons
 - easily shaped
allow malleable
allow easily moulded
ignore references to cost
ignore references to hardness / strength
ignore references to melting / boiling point
- 1
- (b) any **two** from:
- bubbles
 - moves
 - floats
 - melts
allow forms a ball
 - disappears
allow catches fire
- 2
- (c) copper is harder
- 1
- copper is less reactive
- 1
- (d) **Level 2:** Some logically linked reasons are given. There may also be a simple judgement.
- 3-4
- Level 1:** Relevant points are made. They are not logically linked.
- 1-2
- No relevant content**
- 0
- Indicative content**
- copper is the better conductor
 - so heats food more quickly
 - copper has the higher density
 - so the pan is heavier
 - copper costs more per kilogram
 - so the pan is more expensive to buy
 - simple judgement