**Bonding and Periodicity – Hmk 2 (Ans)**

**1.**

 (a) (electrostatic forces of) attraction / held together by
interactions between **(1)**

positive ions / cations / nuclei **not** just metal ions **(1)**

 and delocalised or free (outer shell) electrons / ‘sea’ of
electrons /
cloud of electrons **(1)** 3

allow 2 marks for ‘electrons can flow’

(b) *conductivity* clear indication that electrons are mobile / can move **(1)**

 electrons / carry charge / care charge carriers / move in same
direction **not** ‘so current can flow’

allow 2 marks for ‘electrons can flow’

 *malleability*: cations / positive ions / atoms in the lattice are
all identical / the same size / (planes of) ions (atoms) can slide
easily over one another **(1)**

 attractive forces in the lattice are the same whichever ions
(atoms) are adjacent / attractive forces remain the same throughout
the lattice **(1)** 4

(c) more electrons delocalised / more outer shell electrons **(1)**

in aluminium compared with magnesium / reference to
Al3+ **and** Mg2+ **(1)** 2

[9]

A = 7

B = 6

C = 5

D = 4

E = 3