**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