Name : …….. Class : 4 Francis Date : 02.08.2021

Quiz 5.6 : Metallic Bond

1. Figure shows the symbol of aluminium, Al.

$^{27}_{13}Al$

Aluminium atoms can only vibrate and rotate at fixed positions in the electric wire made of aluminium . Which of the following statements explains why aluminium can conduct electricity?

A. Aluminium wire contains free moving aluminium ions, Al^{3+} that carry electrical charges
B. All valence electrons in aluminium atoms move freely in the sea of electron delocalised electrons.
C. Aluminium atoms are held by strong metallic bonds
D. Aluminium atom donates electron and produces electric current

2. Which of the following statement is true about a metallic bond?

A. Formation of metallic bond is electrostatic force between positively-charged metal ions and sea of delocalized electron.
B. Formation of metallic bond involve transfer or sharing of electrons between atoms.
C. Formation of metallic bond involve transfer electrons between metal atom to a non-metal atom.
D. A metal atom becomes partial positive charge after donating its valence electron.

3. How a metallic bond is formed in metals?

- The valence electron of metal atoms can be easily …… and …… in solid state.
- Positively charged metal ions are formed.
- All delocalised valence electrons can move freely within the metal structure to form an ……..
- The electrostatic force between the …….. and the

……..form metallic bonds.

4. Using aluminium, Al metal as example, explain how metal can conduct electricity.

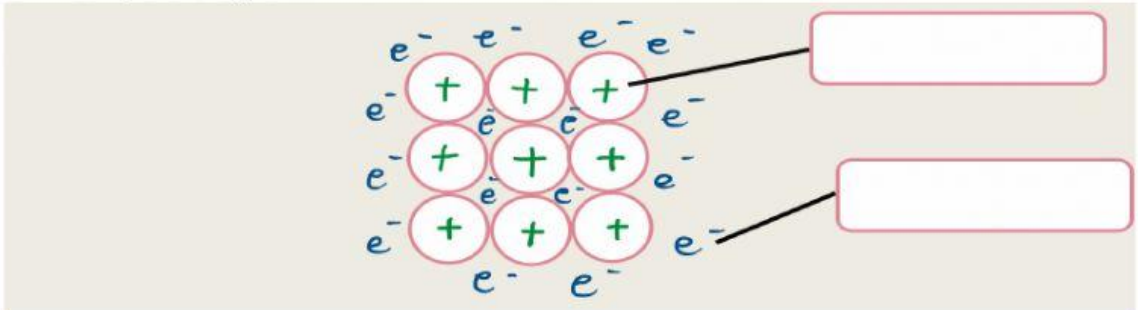
- Aluminium metal has valence electrons that are easily **delocalised** to form

……

- These delocalised electrons can move freely and carry charges from the

……terminal to the …… terminal and conduct electricity.

5. Label incomplete diagram.



Metallic bond is ..... formed between ..... and .....

in the **sea of electrons.**