Quiz (Occurrence and Discovery of Metals)

1. *P*, *Q* and *R* are three different metals. When each of the ores of these metals is heated strongly in air, only the ore of *Q* gives a solid with metallic lustre. When ores of *P* and *R* are heated with powdered carbon respectively, the ore of *R* gives a solid with metallic lustre. It is found that, *P* can only be extracted from its molten ore by electrolysis.

    (a) Arrange the metals in order of decreasing ease of extraction from their ores, i.e. the easiest first.

    (b) Deduce the order of discovery of the metals, the earliest first. Explain your answer briefly.

2. The table below lists some information about iron and gold:

Metal	Year of discovery	Relativeabundance (%)
Iron	3000 B.C.	5.0
Gold	5000 B.C.	0.0000004

    Explain the following statements:
    (a) Gold is rare but it was discovered much earlier than iron.

    (b) Gold is expensive although it exists as free element in nature.

3. Aluminium is commonly used to make soft drink cans. Used aluminium cans are usually collected for recycling.
    (a) Explain why aluminium is usually used to make soft drink cans.

    (b) What is meant by 'recycling metals'?

    (c) Aluminium is the most abundant metal in the Earth's crust. However, it is still important to recycle aluminium. Give TWO reasons why aluminium is recycled.

Suggested Answer

1. (a) Q, R, P

   (b) Q, R, P. The more easily a metal can be extracted, the earlier it is discovered.

2. (a) Gold is less reactive than iron. It can be easily obtained by physical method.

   (b) This is because gold is very rare.

3. (a) This is because aluminium has low density, non-toxic, very malleable and corrosion resistant.

   (b) Recycling metals means melting down used metals and using them again.

   (c) Any TWO of the following:
      - It saves metal resources.
      - It saves energy and other resources such as electricity, water and fuels.
      - It reduces metal waste and land used for waste disposal.
      - It reduces pollution arising from the mining and extraction of metals.