Question-15
What is chemical process used for obtaining a metal from its oxide?
Solution:

$$ZnO + C \longrightarrow Zn + CO$$

$$PbO + C \longrightarrow Pb + CO$$

Question-16
Name two metals, which can form hydrides with metals.
Solution:
Sodium and calcium form stable hydrides on reacting with hydrogen.

Question-17
Does every mineral have a definite and a fixed composition? Explain.
Solution:
Yes, every mineral has a definite and a fixed composition. Minerals are widely distributed in the earth's crust in the form of oxides, carbonates, sulphides, sulphates, nitrates, etc. These minerals are formed as a result of chemical changes taking place during the formation of earth.

Question-18
Explain the meaning of malleable and ductile.
Solution:
Malleable is being able to be beaten/hammered into thin sheets.
Ductile is being able to be drawn into thin wires.

Question-19

i. Write the electron dot structures for sodium, oxygen and magnesium.
ii. Show the formation of MgO and Na2O by the transfer of electrons.
iii. What are the ions present in these compounds?

Solution:

i. Sodium: $Na\cdot$

Oxygen: $\cdot\ddot{O}\cdot$

Magnesium: $\dot{M}g\cdot$

ii. Formation of Magnesium oxide

When magnesium reacts with oxygen, the magnesium atom transfers its two outermost electrons to an oxygen atom. By losing 2 electrons, the magnesium atoms form a magnesium ion (Mg^{2+}) and by gaining 2 electrons, the oxygen atom forms an oxide ion (O^{2-}).

$Mg: + \ddot{O}: \longrightarrow MgO$

Formation of Sodium oxide

Two sodium atoms transfer their 2 outermost electrons to an oxygen atom. By losing two electrons, the two sodium atoms form two sodium ions ($2Na^+$). And by gaining two electrons, the oxygen atom forms an oxide ion (O^{2-}.)

iii. The ions present in sodium oxide compound (Na_2O) are sodium ions ($2Na^+$) and oxide ions (O^{2-}).

The ions present in Magnesium oxide compound (MgO) are magnesium ions Mg^{2+} and oxide ions (O^{2-}).

Question-20

You must have seen tarnished copper vessels being cleaned with lemon or tamarind juice. Explain why these sour substances are effective in cleaning the vessels.

Solution:

The sour substances such as lemon (or tamarind juice) contain acids. These acids dissolve the coating of copper oxide or basic copper carbonate present on the surface of tarnished copper vessels and make them shining red-brown again.

Question-21

Give an example of a metal which-

i. is a liquid at room temperature.

ii. can be easily cut with a knife.

iii. is the best conductor of heat.

iv. is a poor conductor of heat.

Solution:

i. Mercury is in liquid state at room temperature.

ii. Sodium and potassium are soft metals which can be easily cut with a knife.

iii. Silver is the best conductor of electricity.

iv. Mercury is a poor conductor of heat.

********** END **********