

Oxidation and Reduction Answers

- 1 (a) C is oxidized and O_2 is reduced
(b) Na is oxidized and H_2 is reduced
(c) Mg is oxidized and Cu^{2+} is reduced
(d) Zn is oxidized and H^+ is reduced
(e) Mg is oxidized and H^+ is reduced
- 2 (a) O_2 is the oxidizing agent and C is the reducing agent
(b) H_2 is the oxidizing agent and Na is the reducing agent
(c) $CuSO_4$ is the oxidizing agent and Mg is the reducing agent
(d) HCl is the oxidizing agent and Zn is the reducing agent
(e) HNO_3 is the oxidizing agent and Zn is the reducing agent
- 3 (a) $C \rightarrow C^{4+} + 4e^-$
 $O_2 + 4e^- \rightarrow 2O^{2-}$
(b) $Na \rightarrow Na^+ + e^-$
 $H_2 + 2e^- \rightarrow 2H^-$
(c) $Mg \rightarrow Mg^{2+} + 2e^-$
 $Cu^{2+} + 2e^- \rightarrow Cu$
(d) $Zn \rightarrow Zn^{2+} + 2e^-$
 $2H^+ + 2e^- \rightarrow H_2$
(e) $Mg \rightarrow Mg^{2+} + 2e^-$
 $2H^+ + 2e^- \rightarrow H_2$

4

- a) +1
b) +3
c) +5
d) +6
e) -2
f) +4
g) +2
h) +4
i) +5
j) +2
k) +6
l) +2
m) +4
n) +5
o) +4
p) -2
q) +3
r) +2
s) +1
t) -1