**ACROSS**

1. The element in Na₂Cr₂O₇ with an oxidation number +7 (14.2)
2. The oxidation state of a pure substance (4.2)
3. A toy that spins (CK)
4. The oxidation state of phosphorous in Ca₃(PO₄)₂ (14.1)
5. When an element gains electron it has undergone ___ (14.1)
6. Prefix multiplier for 10¹⁰ (MT1.3)
7. The electrode where oxidation takes place (14.3)
8. The process where an element looses an electron (14.1)
9. Prefix multiplier for 10⁻⁶ (MT1.3)
10. When an element undergoes reduction it becomes more ___ (14.1)
11. When an element undergoes oxidation it becomes more ___ (14.1)
12. In the reaction, Al + Fe₂O₃ → Fe + Al₂O₃, ___ is oxidized (14.1)
13. In the reaction, Al + Fe₂O₃ → Fe + Al₂O₃, ___ is reduced (14.1)
14. Which element has an oxidation number of + 5? (CK)
15. Group IA-III A elements have an oxidation number equal to their ___ (2WWS, 14.2)
16. The oxidation number for sulfate is the same as the charge of the ___ (14.1)
17. The pure substance that contains the element that was reduced in a redox reaction is called the ___ agent (14.1)
18. In a typical alkaline battery the base is a ___ paste (14.5)
19. Each part of a battery known as a half ___ (14.3)
20. Constructed so that the oxidation reaction and reduction reactions are separated by barrier and connected by a wire (14.3)
21. Footwear recommended for deep snow (CK)
22. Electricity from a ___ is a flow of electrons released from a redox reaction (14.3)
23. Another name for oxidation number is oxidation ___ (14.2)
24. Greek prefix for two (3.5)
25. The pure substance that was reduced in a redox reaction is a(n) oxidation ___ (14.2)
26. The sound a cow makes (CK)
27. Prefix multiplier for 10⁻³ (MT1.3)
28. The name of this compound: C₂H₅OH (14.5)
29. A solid material that conducts electricity (14.3)
30. A common porcine (CK)
31. The oxidation state of manganese in KMnO₄ (14.1)
32. The pure substance that contains the element that was reduced in a redox reaction is called the ___ agent (14.1)

**DOWN**

1. This equation, 2 Fe + 3 O₂ → Fe₂O₃ chemical equation for the ___ of iron (14.7)
2. The oxidation state of carbon in carbon monoxide (2WWS, 14.1)
3. Prefix multiplier for 10³ (MT1.3)
4. For ionic compounds the oxidation state is the ___ of the ion (4.2)
5. Prefix multiplier for 10⁻¹ (MT1.3)
6. The oxidation state of magnesium in Mg₃(AsO₄)₂ has the oxidation number of five (14.1)
7. The pure substance that contains the element that was reduced in a redox reaction is called the ___ agent (14.1)
8. Describes the systems that require a base for the reaction to proceed (14.5)
9. The oxidation state of sulfur in CaS (2WWS, 14.1)
10. A superscript used as an electron accounting tool is called a(n) oxidation ___ (14.2)
11. Greek prefix for one (3.5)
12. In the reaction, 3 Zn + 2 Fe(NO₃)₃ → 3 Zn(NO₃)₂ + Fe, which element has an oxidation number of + 5? (14.1)
13. The oxidation state of sulfur in CaS (2WWS, 14.1)
14. The first step in ___ a redox equation is to write the half-reactions (14.4)
15. ___ ions are often required to balance complicated redox reactions(14.5)
16. The pure substance that contains the element that was reduced in a redox reaction is a(n) oxidation ___ (14.2)
17. Prefix multiplier for 10⁻³ (MT1.3)
18. The final step in balancing a redox reaction is to balance the number of ___ transferred (14.4)
19. The oxidation state of phosphorus in Ca₃(PO₄)₂ (2WWS, 14.1)
20. The first step in ___ a redox equation is to write the half-reactions (14.4)
21. An example of a ___ reaction (14.1)
22. In a typical alkaline battery the base is a ___ paste (14.5)
23. The name of this compound: C₂H₅OH (14.5)
24. The electrode where reduction takes place (14.3)
25. In a typical alkaline battery the base is a ___ paste (14.5)
26. The sound a cow makes (CK)
27. In a typical alkaline battery the base is a ___ paste (14.5)
28. The electrode where oxidation takes place (14.3)
29. The oxidation number for nitrogen in KNO₃ (14.2)
30. In a typical alkaline battery the base is a ___ paste (14.5)
31. The oxidation number for nitrogen in KNO₃ (14.2)

**Al = Ask instructor if you can’t find; CK = Common Knowledge; MT = Math Toolbox; WWS = Words With Space(s); WWD = Words with dash(es).**