

1. Alessandro **Volta**
2. Michael **Faraday**
3. Nikola **Tesla** or Galileo **Ferraris**
4. Georg Simon **Ohm**
5. Heinrich **Hertz**
6. 0: electrostatic fields are conservative
7. Glass, Fur, Amber, Gold, Plastic Wrap  
(1 point if three are in the correct location, 2 for all correct)
8. Static discharge
9.  $\frac{1}{20\pi\epsilon_0}$ : Coulomb's Law or Gauss's Law
10.  $30\epsilon_0\epsilon_r$ :  $C = \frac{\epsilon_0\epsilon_r A}{d}$
11. Rectifier
12. Inverter
13. Skin Effect:  $\frac{1}{2}$  credit for Eddy Currents
14. False: AC is directly generated
15. True: induction requires changing magnetic field, so AC
16.  $500\sqrt{2}$ :  $V_{\text{RMS}} = \frac{V_{\text{peak}}}{\sqrt{2}}$
17. 6.25:  $I = \frac{Q}{t}$
18. 90:  $V = -\int_L E \cdot dl$
19. 1.07:  $R = \frac{\rho l}{A}$
20. 27:  $P = \frac{V^2}{R}$
21. 7500:  $E = \frac{1}{2} QV$
22. 4.5:  $I = \frac{V}{R}$
23. Gauss's Law for Magnetism
24. 3:  $\Phi \propto Ni$
25. 36.7:  $V \propto N$
26. North:  $F = qV \times B$
27. Fuse
28. Electroluminescence
29. 1
30. 1.6:  $\tau = RC$
31. N: P has one more valence electron
32. P to N: semiconductor diodes