The Magic of Ceramics -- Study Guide, Chapter 6

1. What are the primary carriers of electricity in a metal wire?

2. What is the pressure that forces electricity to travel through a metal wire?

3. What term is used to describe the amount of electricity that flows through a wire?

4. How do we control the amount of electricity that flows through a wire and an electrical circuit?

5. What happens if electricity is forced through a wire or material that is an electrical resistor?

6. What are some important applications of this effect?

7. What is a semiconductor?

8. What was the importance of the vacuum tube?

9. When was it invented?

10. When was the radio widely available to the average person?

11. When was black and white TV introduced? Color TV?

12. What were the limitations of vacuum tubes?

13. When was the transistor invented?

14. Explain why the transistor was such an important breakthrough.

15. Explain the importance of the integrated circuit (IC).

16. Explain the difference between LSI and VLSI.

17. What products did VLSI make possible?

18. Describe the complexity of a silicon chip such as used for your desktop computer.

19. What is “doping”?

20. List the key steps in fabrication of an IC chip.

21. Describe a “hybrid package” and its purpose.

22. What is an important task for a capacitor?

23. How does a ceramic “block filter” make the cellular phone possible?

24. Why were ceramic superconductors considered such an important breakthrough?

25. What are some applications of ceramic magnets?