
The Magic of Ceramics -- Study Guide, Chapter 4

1. Explain why a metal is opaque, but some ceramics and plastics are transparent.
2. Explain the meaning of refraction.
3. Approximately how much glass is produced each year in the world?
4. Why is glass so special?
5. What inventions made fiber-optic communications possible?
6. Why is an optical fiber better than copper wire?
7. How many nanometers thick is a human hair?
8. How much of the electromagnetic spectrum is visible to our eyes?
9. Explain how electrons and light interact in a ceramic to cause color.
10. Explain why a ruby appears red to us.

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11. Explain why silicon is opaque and also why it is able to convert sunlight to electricity.
 12. What is phosphorescence?
 13. Name a couple examples of phosphorescent ceramics.
 14. What is an electroluminescent lamp?
 15. What is a light emitting diode (LED)?
 16. Why are LEDs important?
 17. When was the first laser invented?
 18. What was the role of ceramics in the first laser?
 19. What is a photodiode sensor?
 20. How is it combined with PLZT to make flash-blindness goggles possible?
 21. What is the float glass process and why was it so important?