

Questions on Electronics.

1. In general, how is noise defined?
2. What is the difference between white noise, pink noise and Grey noise?
3. What are three basic types of dynamic microphones?
4. What physical principles are used in the construction of a dynamic microphone?
5. Explain the phase problem of dynamic microphones.
6. How do a magnetic microphone and a dynamic ribbon microphone differ?
7. Explain the piezoelectric effect. How is it used to make a microphone?
8. How is sound recorded on a vinyl album?
9. Explain the difference and similarities between cylinder recordings and vinyl recordings.
10. How is sound that has been recorded on a vinyl album played back?
11. Why shouldn't you leave your vinyl records in your car?
12. Explain three disadvantages that vinyl as a sound recording medium has?
13. How is sound recorded on magnetic tape, what physical principle is being used?
14. Describe the mechanism for playing back music recorded on a magnetic tape.
15. What is the difference between a read head and a write head with respect to magnetic tape?
16. What are some of the draw backs with using magnetic tapes as a recording medium?
17. What is one way to suppress noise on magnetic tapes?
18. What is the difference between analog and digital recording?
19. What is the first step in digital to analog conversion?
20. Describe how an analog sine wave is digitized.
21. Describe some examples of analog recording.
22. CD technology needed the development of the laser in order to work. Explain.
23. Under a microscope a CD is found to have tiny divots in its surface. What is the purpose of these?
24. How do compact discs record digital information?
25. What is the main difference between blue and red lasers?
26. What is the significance of the quality of the Blu-Ray disc? What makes it different from other disc recordings?
27. Why can blue-ray players hold more information?
28. What is the Nyquist frequency?
29. What role does the sample rate play in digital to analog conversion?
30. What role does bit depth play in digital to analog conversion?
31. Explain the concept of bit rate.
32. How can digital sound be recorded and stored while taking up less space?
33. What does MIDI stand for and how does it work?
34. In what way are transistors similar to vacuum tubes? How are they different?
35. Briefly explain the differences between the different types of distortion (amplitude, harmonic, frequency, and phase distortion).
36. Why do some musicians still use tube amplifiers over solid-state amplifiers?
37. Explain the difference between bass speakers and tweeters. What are some similarities?
38. How is it that the process an electrostatic speaker uses is the *opposite* of an electrostatic microphone?
39. Why is most sound recording and reproduction in stereo?
40. Why do recording studios add reverberation to a recording?
41. Name a few potential problems with single and two-speaker systems.
42. Why is it that free-standing speakers do not sound very good, especially for lower frequencies?
43. List and explain at least three ways to solve the problem of destructive interference between the back and front of a speaker.
44. Discuss a few ways we prevent destructive interference between the back and front of speakers.
45. What are the three basic forms of sound transmission? Explain one in detail, including its advantages and disadvantages.
46. Is there a way to record, transmit, and replay sounds exactly as they were heard originally? Explain.