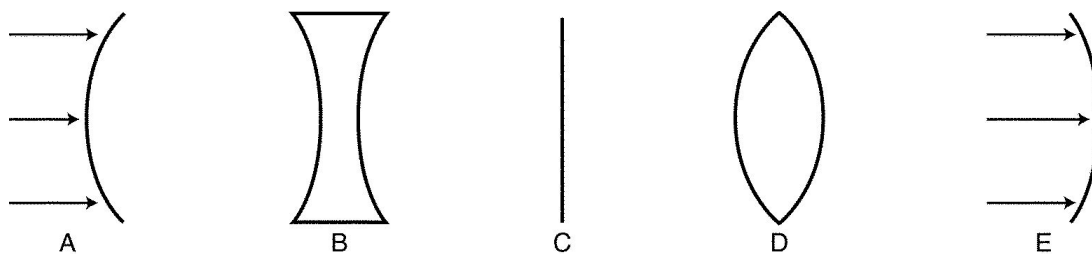


Study Guide
Final Exam
Physics 2

1. Which type of wave has the particles move in the same direction as the wave? **(Ch25)**
2. Which type of wave has the particles move perpendicular to the wave motion? **(Ch25)**
3. What characteristic of waves measures energy? **(Ch25)**
4. What is the source (cause) of wave motion? **(Ch25)**
5. In a wave with a constant speed, if the wavelength increases, what happens to the frequency? **(Ch25,27)**
6. What is the distance between equal wave parts called? **(Ch25)**
7. Time for one complete cycle is called? **(Ch25)**
8. What type of interference occurs when a crest and trough coincide? **(Ch25)**
9. Draw and label a standing wave. **(Ch25)**
10. When a wave loses energy (heat) what characteristic is also reduced? **(Ch25)**
11. What are beats? **(Ch26)**
12. Describe the doppler effect? **(Ch25,26)**
13. What type of wave is sound? **(Ch26)**
14. When a specific sound makes another object vibrate: What is this called? **(Ch26)**
15. What makes EM waves different from Mechanical waves? **(Ch27)**
16. How fast do EM waves travel in comparison to each other? In comparison to sound? **(Ch27)**
17. List the EM waves from longest to shortest wavelength? **(Ch27)**
18. What EM wave has wavelengths slightly longer than visible light? **(Ch27)**
19. What type of material will light pass, not pass, and partial pass through? **(Ch27)**
20. What type of wave is an x-ray or gamma ray? **(Ch27)**
21. Which EM wave is used in medical imaging? **(Ch27)**
22. What are the primary and secondary colors of light and pigments? **(Ch28)**
23. Which group of colors are used for color addition and subtraction? **(Ch28)**
24. List the color addition and subtraction "problems". **(Ch28)**
25. What are complementary color combinations? **(Ch28)**
26. What is the normal line? **(Ch29)**
27. What causes an object to appear bent when it is in a glass of water? **(Ch29)**
28. What is the law of reflection? **(Ch29)**
29. What causes a wave to bend and why does this occur? **(Ch29)**
30. How does the speed of light change as light moves from air into water? Or from water into air? **(Ch29)**
31. How big does a mirror need to be in order to see your entire image? **(Ch29)**
32. List the image characteristics formed from a diverging lens? **(Ch30)**
33. What are the characteristics of a converging lens? **(Ch30)**
34. List the most common rays used to draw a ray diagram. **(Ch29,30)**
35. List the image characteristics formed from the lens of your eye. **(Ch30)**
36. What type of glasses are needed to correct nearsightedness and farsightedness? **(Ch30)**
37. If two objects are rubbed together and one becomes positive, what charge does the other become? **(Ch32)**
38. What is the charge of an electron and a proton? **(Ch32)**
39. How do like and unlike charges react to each other? **(Ch32)**
40. Accumulation of electric charge is called? **(Ch32)**
41. Explain why a rubber balloon will stick to a wall when it has been rubbed on your hair. **(Ch32)**

42. If charge is doubled for each of two given charges and the distance remains unchanged, what happens to the force?(Ch32)
43. If the distance is doubled or tripled what happens to the force between charged objects?(Ch32)
44. What is Coulomb's Law?(Ch32)
45. When an object becomes charged without contact, what is this called?(Ch32)
46. What is Ohm's Law?(Ch34)
47. What does electrical resistance depend on?(Ch34)
48. What are the basic components needed for an electrical circuit?(Ch35)
49. What devices are used to open an overloaded circuit?(Ch35)
50. Describe the difference between an open and closed circuit.(Ch35)
51. What are the basic symbols used draw a circuit diagram?(Ch35)
52. What type of circuit allows only one path for current to flow?(Ch35)
53. What type of circuit allows more than one path for current to flow?(Ch35)
54. How does overall resistance vary when resistors are in series vs. parallel?(Ch35)
55. How does current, voltage, resistance change in a series/parallel circuit when more devices are added?(Ch35)
56. What happens when one light bulb burns out in a series circuit? What about in a parallel circuit?(Ch35)
57. What happens in a short circuit?(Ch35)
58. What are the three variables involved in a circuit? Define them and their units?(Ch35)
59. What causes an object to be magnetic?(Ch36)
60. How are magnetic fields lines typically drawn?(Ch36)
61. What are the three types of meters made from an electromagnetic?(Ch36)
62. How do the poles of magnets respond to each other?(Ch36)
63. What are the parts of an electromagnet?(Ch36)
64. What is electromagnetic induction?(Ch37)
65. What is a transformer and what quantities does it affect?(Ch37)
66. What energy changes does an electric motor provide?(Ch37)
67. What energy changes does a generator provide?(Ch37)
68. Be able to identify the following surfaces and describe how light reacts with them:(Ch29,30)



EQUATIONS

Total Resistance Series Circuit(Ch35)

Total Resistance Parallel Circuit(Ch35)

Both equations for Velocity of a wave (Both EM and non-EM)(Ch25,26,27)

Ohm's Law

Electrical Power

Practice Problems

1. Calculate the frequency for a wave with a period of 5s.
2. A wave travels 10 m at 2 m/s. How long does this take?
3. Sound waves in air travel at about 330 m/s. Calculate the wavelength of a 2.5 Hz sound wave.
4. Find the new force between two charges if the original force is 24 N when the charges are separated by a distance of 10 meters but are now separated by a new distance of 20 meters.
5. What is the resistance in a circuit with a 12 v battery and a current of 3 amps?
6. A 10Ω resistor is connected to a 12 v battery. Calculate the current.
7. A 20Ω resistor has a 4 A current through it. What is the voltage across the resistor?
8. How much power is used by a 24 V battery that draws 2 A of current?
9. An electric blanket is rated at 240W. How much current is used when plugged into a 120 v outlet?
10. What is the total resistance of a 10Ω and 30Ω resistor wired in series?
11. What is the total resistance of a 20Ω and 10Ω resistor wired in parallel?