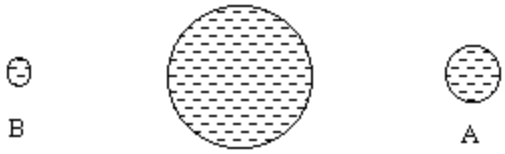
Conceptual Physics **Name_____**

Chapter 34 Review

1. What is true about the value of the electric potential energy per charge for any charged object at a particular location?

2. What is electric potential?

3. Below are shown two charged objects near a highly charged sphere. The two objects are the same distance away from the large sphere, but object A has three times as much charge as object B.



a) How does the electric potential energy of object A compare to the electric potential energy of object B?

b) How does the electric potential of object A compare to the electric potential of object B?

4. What unit is used to measure electric potential?

5. A charged object is placed at a location that has an electric potential of 25 volts. The amount of charge on the object is 2 coulombs. What is the total electric potential energy of the charged object?

6. When you rub your head with an inflated balloon to give it a static charge, the voltage of the charged balloon can be as high as 5000 V. Why is this statically charged balloon not a danger?

7. What happens when there is a difference in electric potential between two ends of a conductor?

8. a) What condition is necessary for the sustained flow of water through a pipe?
b) What analogous condition is necessary for the sustained flow of charge through a conductor?

9. What is electric current, and in what units is it measured?

10. When does charge flow through a wire? When does it stop?

11. Volts, amperes and ohms are three common units used when working with electrical circuits. What are each of these units used for?

12. Suppose 3 coulombs of charge flow through a wire in one second. What is the current in the wire?

13. Suppose a 2.5 A current flows through a wire for three seconds. How many coulombs of charge have passed through the wire during this time?

14. When electrons are flowing through a wire, what is the net charge on the wire?

15. What is electrical resistance? What 4 factors determine the resistance of an object and explain how they affect the resistance.

16. What do the terms ac and dc mean when referring to electric current? What is a source of ac current? What is a source of dc current?

17. Why is ac current more popular for home use than dc current?

18. What is electric power?

19. A 30 W light bulb is connected to a 120 V power line. What is the current through the bulb?

20. Suppose the bulb in question 19 is on for 100 hours. How many kilowatt-hours of electricity does it use? Of the power company charges $0.11 per kilowatt-hour, how much will it cost ?