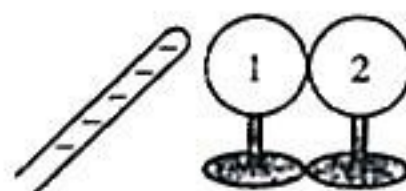
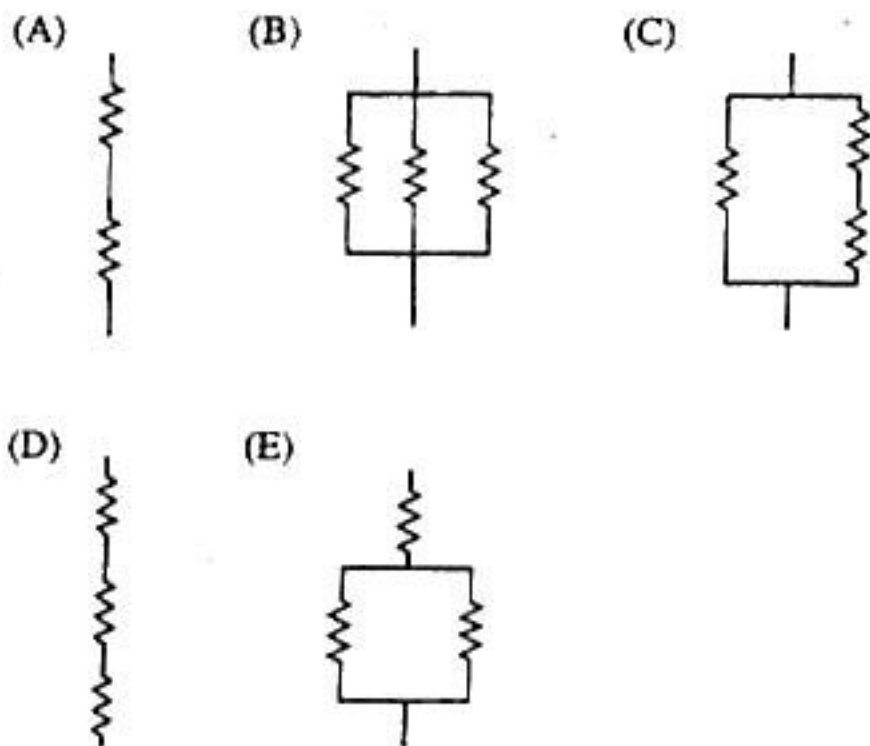


36. A resistor R and a capacitor C are connected in series to a battery of terminal voltage V_0 . Which of the following equations relating the current I in the circuit and the charge Q on the capacitor describes this circuit?

- (A) $V_0 + QC - I^2R = 0$
- (B) $V_0 - \frac{Q}{C} - IR = 0$
- (C) $V_0^2 - \frac{1}{2} \frac{Q^2}{C} - I^2R = 0$
- (D) $V_0 - C \frac{dQ}{dt} - I^2R = 0$
- (E) $\frac{Q}{C} - IR = 0$

37. Which of the following combinations of 4Ω resistors would dissipate 24 W when connected to a 12 V battery?



38. Two initially uncharged conductors, 1 and 2, are mounted on insulating stands and are in contact, as shown above. A negatively charged rod is brought near but does not touch them. With the rod held in place, conductor 2 is moved to the right by pushing its stand, so that the conductors are separated. Which of the following is now true of conductor 2?
- (A) It is uncharged.
 - (B) It is positively charged.
 - (C) It is negatively charged.
 - (D) It is charged, but its sign cannot be predicted.
 - (E) It is at the same potential that it was before the charged rod was brought near.