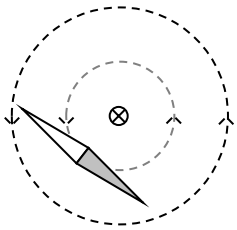
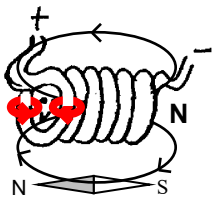
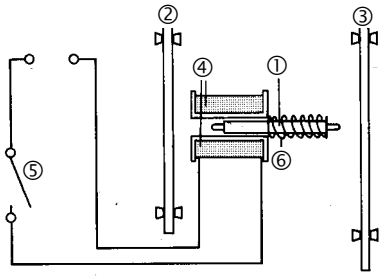
1. a) and b)



2. a) and b)



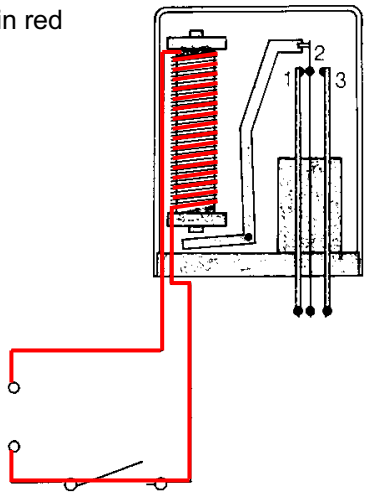
3. a)



① iron rod
② “ding” plate
③ “dong” plate
④ coil
⑤ button
⑥ spring

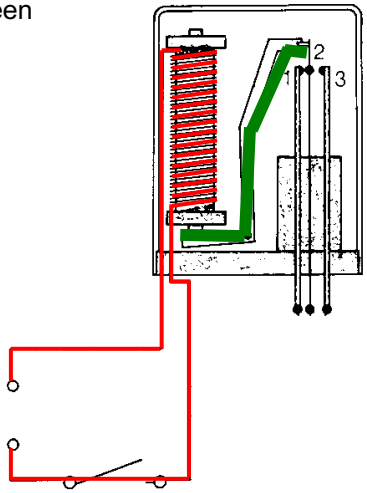
b) Pushing the button closes the circuit and a current passes through the coil. The magnetic field inside the coil pulls the iron rod into the coil. The iron rod hits the “ding” plate. Releasing the button opens the electric circuit and the current in the coil ceases to flow. The magnetic field inside the coil disappears, and so does the magnetic force pulling the iron rod into the coil. The spring pushes the iron rod out of the coil. The iron rod hits the “dong” plate.

4. a) drawn in red



If a current passes through the coil it becomes magnetic and thus attracts the iron lever.

b) drawn in green

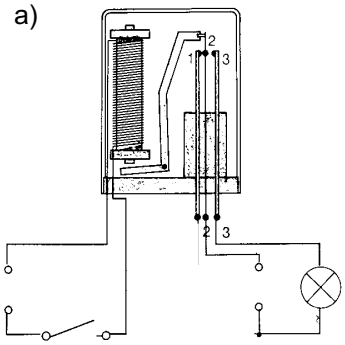


c) 2 and 3

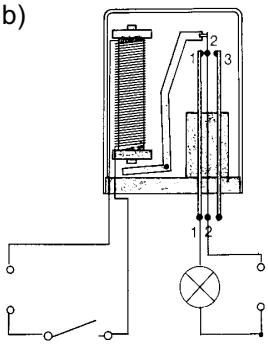
d) 1 and 2

e) No, aluminium is not a ferromagnetic material and thus cannot become magnetic. No magnetic force will act on it when a current passes through the coil.

5. a)



b)



c)