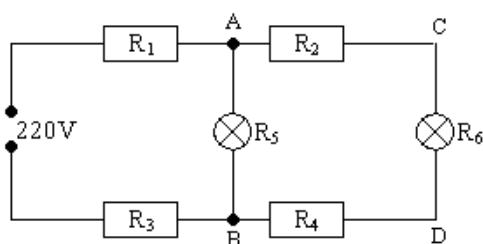1. Find voltage in the clamps of the bulbs AB and CD. $R_1=R_2=R_3=R_4=4\ \Omega$, $R_5=R_6=10\ \Omega$.

10 points

2. A package is thrown vertically up with the speed of 18 m/s from the landing air balloon which steady speed is 2 m/s. What the distance between the air balloon and the package will be at the time when the package gaining height reaches its highest point? How much time it will take falling package to pass the air balloon?

11 points

3. A little ball is tied to a thread, fixed to the ceiling of the carriage of the moving train. The speed of the train decelerates from 54 to 36 km/h in 3.3 s. What is the angle of the thread with the little ball and the vertical line?

8 points

4. Two bodies of equal mass of $m_1=m_2=100g$ are hung at the ends of a weightless and non-elastic thread. The thread is thrown over the weightless disc. An additional package of 10 g mass is placed on one of the bodies. Calculate the force with which the package affects the body, and the force affecting the axis of the disc.

10 points

5. A squared timber of 5 kg mass, tied by non-elastic and weightless thread, which is thrown over the disc, to another squared timber of 2 kg mass is placed on an inclined plane forming a 36° angle. Find the acceleration and the direction of the movement of the squared timbers and the force of the tension of the thread. The coefficient of the friction between the first squared timber and the inclined plane is 0.1. Do not pay attention to the mass of the disc and to the friction of the thread to it.

11 points