

**Energy, Work, Electricity
MOCK EXAM**

- 1** The mass of a truck is 10000 kg and is rolling up a hill at a constant speed. The power of the truck is 230 HP and the angle of the slope is 8° . If the value of the friction force is 6000 N, find the speed of the truck

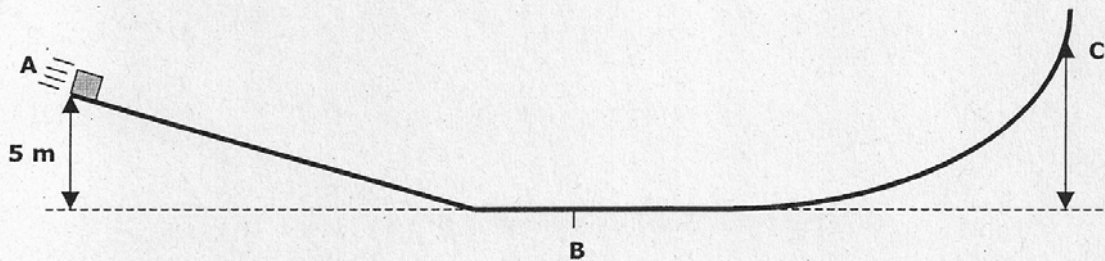
1 HP = 736 W

- 2** We let a body move down a slope of 20° . The mass of the body is 5 kg and the distance travelled is 6 m. The final velocity reached by the body (after travelling that distance) is 3 m/s. Use mechanical energies to find

- a) the coefficient of friction
b) the total work by the forces on that body

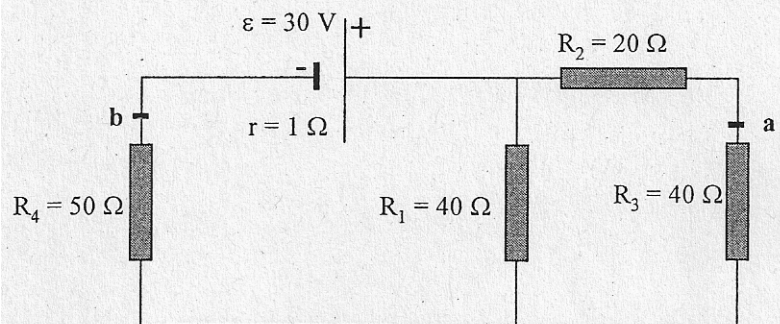
- 3** The friction force in this exercise is negligible. If the initial speed of the body is 6 m/s, determine:

- a) the speed at B
b) the altitude at C (the body stops at that point)



- 4** In this circuit, determine:

- a) the equivalent resistance
b) the electric power supplied by the battery
c) the potential difference between a and b



- 5** A lamp has the following characteristics: 300 W of power and 220 V of potential difference. Determine:

- a) the resistance of the lamp
b) the energy dissipated by the lamp in two months if that lamp works 4 hrs every day