2022 IUT Admission Test(SOCIE Scholarship)

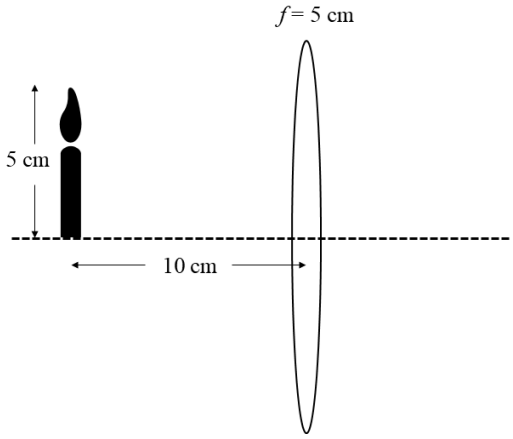
Physics Examination(Sample)

<Multiple choice Types> There is only one correct answer per each question. Mark your answer choice on the OMR answer sheet.

○ For each correct answer, you will get the points indicated next to each question number.

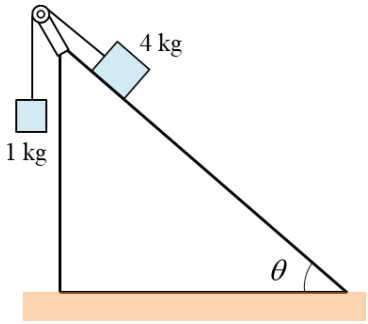
○ No penalty point is applied to an incorrect answer.

1. [4 point]
As shown in the figure, a candle of 5 cm long is imaged by a convex lens whose focal length is 5 cm. Find the size of the image when the distance between the candle and the lens is 10 cm.



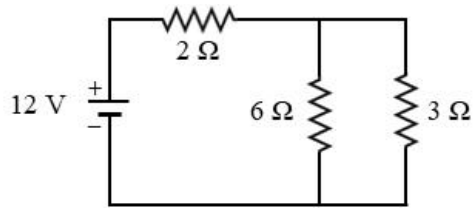
① 4 cm ② 5 cm ③ 10 cm
④ 15 cm ⑤ 20 cm

2. [5 point]
Two blocks of mass 4 kg and 1 kg are attached by a lightweight cord that passes over a frictionless pulley of negligible mass. The 4-kg block lies on a frictionless incline of angle $\theta = 30^\circ$. Find the magnitude of the acceleration of the two blocks. (Note that the magnitude of gravitational acceleration is $10\ \mathrm{m/s^2}$)



① $2\ \mathrm{m/s^2}$ ② $3\ \mathrm{m/s^2}$ ③ $4\ \mathrm{m/s^2}$
④ $5\ \mathrm{m/s^2}$ ⑤ $6\ \mathrm{m/s^2}$

3. [6 points]
In the circuit shown below, What is the power dissipated in the 6.0-Ω resistor?



① 2 W ② 4 W ③ 5 W

④ 6 W ⑤ 12 W