2020 IUT Admission Test(SOCIE) Physics Examination(Sample)

<Essay Types> Applicants should write detailed solving process. If there is no solution, you will receive 0 points regardless of the correct answer.

 \odot The point for each question is indicated next to each question number.

 \bigcirc Be sure to use SI units (the international system of units) for all physical quantities.

1. [10 points]

How much electrical energy is converted into heat in 1.0 minute by a 50-ohm resistor carrying 0.2 A of current?

2. [10 points]

A vehicle moves in a straight line from rest and reaches the velocity of 20 m/s in 1 min. What is the average acceleration of the vehicle in the first 1 min?

3. [10 points]

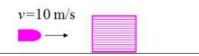
A car moves from rest with a constant acceleration of 5 m/s^2 . How long does it take to travel the distance of 40 m?

4 [20 points]

A rod 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 rod and the lens is 10 cm.

5. [20 points]

A block of wood is placed on the frictionless floor. The bullet with a mass of 1 kg is horizontally fired into the block of wood. The bullet embeds in the wood block, and they slides together with the speed of 2 m/s. If the initial speed of fired bullet is 10 m/s, what is the mass of the wood block before collision?



6. [30 points]

The graph shown below illustrates the force acting on a 0.5-kg object when it moves along a horizontal position, x from 0 to 10 m. If the initial speed at x = 0 is 4.0 m/s, determine the speed of the object when it reaches the final position, x = 10 m.

