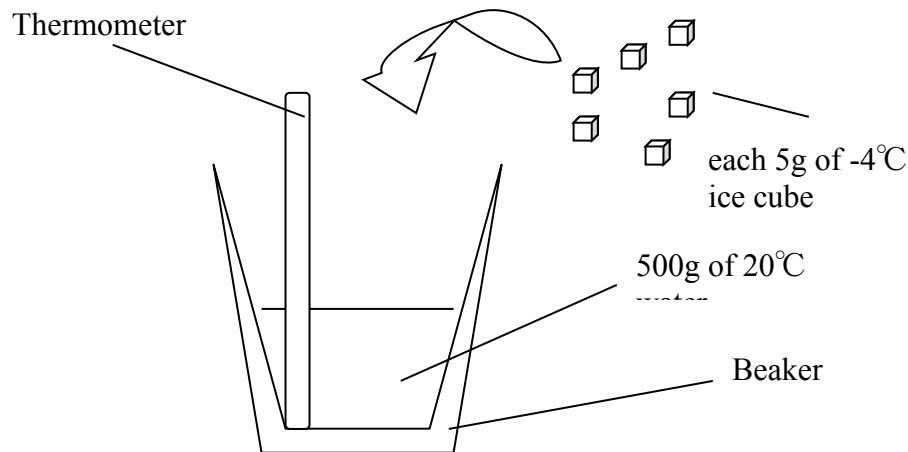


Physics Mock Ex. 1

By Christina Cham

1. A 10 kg mass is hanging with a 75m elastic string and released from a building of height of 150m. Air resistant is neglectable. (Let the gravitational potential energy of the mass be zero at the top of the building)
 - a) The mass is released from rest at the top of the building. What is the net force acting on the mass at the beginning? (2 marks)
 - b) What is the velocity when it travels from its starting position to 75m from the ground? (2 marks)
 - c) The string is extended for 25m before the mass stopped. Describe the energy conservation through out the motion. (Including gravitational potential energy and kinetic energy of the mass, elastic potential energy of the string) Also, state the energies of each of the above at the beginning, at the position 75m from the ground and the end of the motion. (9 marks)

2.



The above experiment is set up find out the specific latent of fusion of ice. Given the specific heat capacity of water and ice are $4200 \text{ Jkg}^{-1}\text{C}^{-1}$ and $2100 \text{ Jkg}^{-1}\text{C}^{-1}$.

- After adding 10 ice cube, the final temperature of the mixture drop to 15°C .
What is the specific latent heat of fusion of the ice in this experiment?
(3 marks)
- How is the experimental result different from the actual one? State the reason behind and two methods to minimize the error.
(3 marks)
- The whole mixture is being heated by a Bunsen burner after the mixture of ice and water reached 15°C . Calculate the power of the Bunsen burner if it takes 5 minutes to vaporize the mixture into gas? (Given the specific latent heat of vaporization of water is $2.26 \times 10^6 \text{ J kg}^{-1}$)
(3 marks)