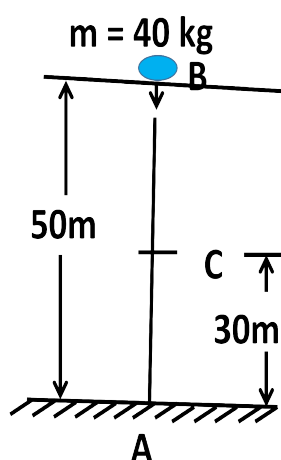


CHAPTER 4 : WORK, POWER AND ENERGY
Creative Questions (Mark - 3 or 4)

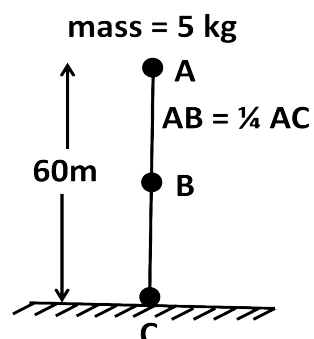
1.



Observe the above figure carefully and answer the following questions

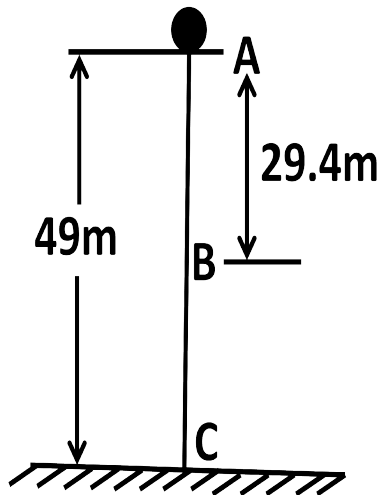
- Determine at which velocity the object will hit the ground.
- If the object is dropped freely from point B, the object follows the law of conservation of energy. Explain mathematically.

2. Observe the following figure carefully and answer the following questions



- a) If the time to lift the body at position A from the ground be 2 minutes, what power is used?
- b) Does the law of conservation of energy follow at position B and C in above stem? Evaluate mathematically.

3. A body of mass 100g is static at a point A. The body is released from that point.



- a) Determine the maximum Kinetic Energy of the body.
- b) The total energy of the body at point A and B remains the same - explain with mathematical logic.
- 4.** An electric motor of power 15kw can lift 1000kg water on a roof of height 300m in 0.5 minutes.
- a) Calculate the efficiency of the motor.
- b) Analyze mathematically the amount of energy used by the motor within that time if the efficiency is 75%.

5. A pump is used to raise 1500 litres of water per minute from a 100m deep well. The efficiency of the pump is 70%.

a) Determine the power of the pump.

b) Mathematically represent the amount of extra time required to raise 1500 litres of water if the efficiency of the pump is 60%.