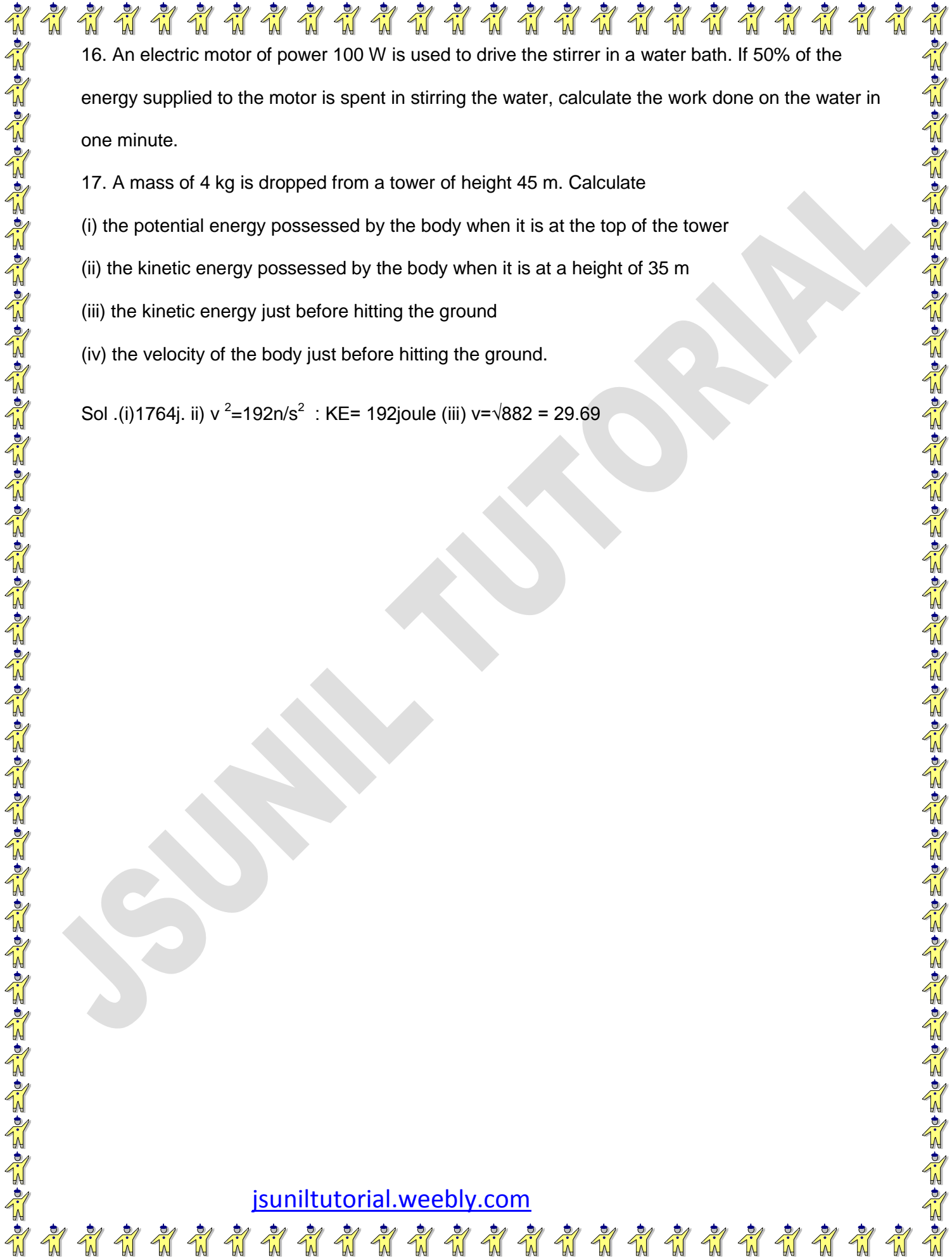


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JSUNIL TUTORIAL

CBSE TEST PAPER WORK AND ENERGY IX

1. Why is it difficult to hold a school bag having a strap made of a thin and strong string?
2. What is Archimedes' principle .What do you mean by buoyancy?
3. Why does an object float or sink when placed on the surface of water. ?
4. What is known as up thrust or buoyant force? At what factors it depends on .
- 5.. What do you mean by Relative density of silver is 10.8. The density of water is 103 kg m^3 .What is the density of silver in SI unit?
6. Define term work and energy?
7. Write an expression for the work done when a force is acting on an object in the direction of its displacement . Define 1 J of work
8. What is the work to be done to increase the velocity of a car from 30 km/ h to 60 km/ h if the mass of the car is 1500 kg?
9. Define and find expression for kinetic and potential energy.
10. Energy can only be converted from one form to another; it can neither be created or destroyed. Prove it
11. *Define power.* A boy of mass 50 kg runs up a staircase of 45 steps in 9 s. If the height of each step is 15 m, find his power. Take $g = 10 \text{ m s}^2$.
12. An electric bulb of 60 W is used for 6 h per day. Calculate the 'units' of energy consumed in one day by the bulb.
13. What are the various energy transformations that occur when you are riding a bicycle?
14. An object of mass 15 kg is moving with a uniform velocity of 4 m s^{-1} . What is the kinetic energy possessed by the object?
15. What will be the change in kinetic energy of a body when its speed is halved?



16. An electric motor of power 100 W is used to drive the stirrer in a water bath. If 50% of the energy supplied to the motor is spent in stirring the water, calculate the work done on the water in one minute.

17. A mass of 4 kg is dropped from a tower of height 45 m. Calculate

- (i) the potential energy possessed by the body when it is at the top of the tower
- (ii) the kinetic energy possessed by the body when it is at a height of 35 m
- (iii) the kinetic energy just before hitting the ground
- (iv) the velocity of the body just before hitting the ground.

Sol .(i)1764j. ii) $v^2=192n/s^2$: KE= 192joule (iii) $v=\sqrt{882} = 29.69$