Quiz 4: Power

1. Power is the

- A. same as force.
- B. rate of doing work.
- C. same as energy.
- D. same as work.

2. You are assigned the task of moving bricks, one at a time, from the ground to a platform that is 2 m high. Moving the first 50 bricks takes 3.5 min. If you use more power to move the next 50 bricks, you will

- A. increase the time required.
- B. decrease the time required.
- C. increase the work you do.
- D. decrease the work you do.

3. The SI unit of power is the

- A. watt.
- B. horsepower.
- C. joule.
- D. kilowatt.

4. A construction crane lifts a large steel beam that weighs 12 000 N a distance of 30 m in 60 s. Calculate the power of the crane.

- A. 6000 W
- B. 21 600 000 W
- C. 24 000 W
- D. 6.7 W

5. Without stopping, a certain elevator can lift a load of passengers a distance of 30 m in 25 s. After a new motor is installed, the elevator can lift the same load 30 m in only 18 s. This difference is evidence that the new motor has more _____ than the old motor had.

- A. mass
- B. power
- C. work
- D. weight

6. A motor with a power rating of 11.2 kW is used to move a truck a distance of 68 m. If the total work done on the truck is 4.85×10^{6} J, how much time does the motor require to move the truck?

- A. 29 400 s
- B. 2.31×10^{-3} s
- C. 433 s
- D. 13.5 s

7. An electric motor can lift a 455 kg object at a velocity of 3.50 m/s. What is the power rating of the motor?

- A. 15 600 W
- B. 1590 W
- C. 1280 W
- D. 162 W