Practice Quiz 6
(Chapter 7  Energy)

Name______________________

1) If you push for a half hour or a whole hour against a stationary wall
A) no work on the wall is done in either case.
B) half as much work is done during the half hour.
C) twice as much work is done during the half hour.
D) it is impossible to determine how much work is done.
Answer: A

2) If you push an object a given distance, while applying twice the force, you do
A) twice as much work.
B) four times as much work.
C) the same amount of work.
D) half as much work.
Answer: A

3) A job is done slowly, while an identical job is done quickly. Both jobs require the same
amount of work, but different amounts of
A) energy.            B) power.           C) effort.            D) none of these
Answer: B

4) The power required to exert 1 N force, over a distance of 1 m in 1 second is
A) 1 W.             B) 2 W.             C) 1/3 W.             D) 3 W.             E) none of these
Answer: B

5) If an object is raised twice as high, its potential energy will be
A) half as much
B) twice as much.
C) four times as much.
D) impossible to determine unless the time is given.
Answer: B

6) A 1000-kg car and a 2000-kg car are hoisted the same distance. Raising the more massive car
requires
A) less work.
B) as much work.
C) twice as much work.
D) four times as much work.
E) more than four times as much work.
Answer: C

7) An object may have potential energy because of its
A) speed.            B) acceleration.      C) momentum.        D) location.
E) none of these
Answer: D

8) A clerk can lift containers a vertical distance of 1 meter or can roll them up a 2 meter-long
ramp to the same elevation. With the ramp, the applied force required is about
A) half as much.     B) twice as much.    C) the same.        D) four times as much.
Answer: A

9) When an automobile is braked to a stop, its kinetic energy is transformed to
A) stopping energy. B) potential energy. C) energy of motion. D) energy of rest.
E) heat.
Answer: E
10) When properly used, a hydraulic press, like a wheel and axle, is capable of multiplying force input.
A) always true B) always false C) sometimes true D) sometimes false
Answer: A
11) The ball rolling down an incline has its maximum potential energy at
A) the top.
B) a quarter of the way down.
C) halfway down.
D) the bottom.
Answer: A
12) A block of ice sliding down an incline has its maximum speed at
A) the top.
B) the bottom.
C) halfway down.
D) difficult to predict without knowing the slope of the incline
E) difficult to predict without knowing the coefficient of friction
Answer: B
13) A ball rolling down an incline has its minimum speed
A) at the end of the incline.
B) half way down the incline.
C) near the top of the incline.
D) impossible to predict without knowing the ball's mass
E) impossible to predict without knowing the size of the ball
Answer: C
14) What task requires the most work; lifting a 50-kg sack 2 meters or lifting a 25-kg sack 4 meters?
A) the 50-kg sack
B) the 25-kg sack
C) Both require the same amount of work.
D) impossible to determine without knowing the contents of the sack
Answer: C
15) A TV set is pushed a distance of 2 m with a force of 20 N. How much work is done on the set?
A) 2 J B) 10 J C) 20 J D) 40 J E) 800 J
Answer: D
16) A 2-kg mass is held 4 m above the ground. What is the approximate potential energy of the mass with respect to the ground?
A) 6 J B) 8 J C) 32 J D) 80 J E) none of these
Answer: D
17) A pile driver hits the top of a telephone pole, driving it partway into the ground. The distance that the pole will sink into the ground depends on
A) the original height of the pile driver weight.
B) the original potential energy of the pile driver weight.
C) the kinetic energy of the pile driver weight when it first contacted the pole.
D) any of the above choices
Answer: D
18) One end of a long, uniform log is raised to shoulder level. Another identical log is raised at its center to the same level. Raising the second log requires about
A) the same amount of work.
B) twice as much work.
C) more than twice as much work.
Answer: B

19) A car moves 4 times as fast as another identical car. Compared to the slower car, the faster car has
A) 4 times the KE.
B) 8 times the KE.
C) 12 times the KE.
D) 16 times the KE.
Answer: D

20) Strictly speaking, more fuel is consumed by your car if an air conditioner, headlights, or even a radio is turned on. This statement is
A) totally false.
B) true only if the car's engine is running fast.
C) true only if the car's engine is running slowly.
D) true.
Answer: D

21) A woman carries a heavy box across a room at a constant speed. How much work does she do on the box while walking?
A) none
B) More information is needed about the weight of the box.
C) More information is needed about the distance walked.
D) More information is needed about the speed and the distance.
E) More information is needed about the weight, distance, and her speed.
Answer: A

22) Which has greater kinetic energy, a car traveling at 30 km/hr or a car of half the mass traveling at 60 km/hr?
A) the 30 km/hr car
B) the 60 km/hr car
C) Both have the same kinetic energy.
D) More information is needed about the distance traveled.
Answer: B

23) Consider a hydraulic press. When the input piston is depressed 20 cm, the output piston is raised 1 cm. On the same press, an input force of 1 N can lift a load of
A) 1 N.
B) 10 N.
C) 15 N.
D) 20 N.
E) All of the above are correct.
Answer: E

24) A jack system will increase the potential energy of a heavy load by 1000 J with a work input of 2000 J. The efficiency of the jack system is
A) 10%.
B) 20%.
C) 50%.
D) 80%.
E) Not enough information is given.
Answer: C
25) A car that travels twice as fast as another when braking to a stop will skid
A) twice as far.
B) four times as far.
C) depends on the mass of the cars
Answer: B
26) Neglecting air resistance, a man on a high ladder releases a ball which strikes the ground
with 100 J of kinetic energy. If he were to throw it straight upward instead, it will eventually
reach the ground with a kinetic energy of
A) 100 J.
B) more than 100 J.
C) less than 100 J.
Answer: A
27) A car's engine is 20% efficient. When cruising, the car encounters an average retarding force
of 1000 N. If the energy content of gasoline is 40 megajoules per liter, how many kilometers per
liter does the car get?
A) 14
B) 12
C) 10
D) 8
E) none of these
Answer: D
28) A flower pot of mass $m$ falls from rest to the ground below, a distance $h$. Which statement is
correct?
A) The speed of the pot when it hits the ground is proportional to $h$.
B) The KE of the pot when it hits the ground is proportional to $h$.
C) The KE of the pot when it hits the ground does not depend on $m$.
D) The speed of the pot when it hits the ground depends on $m$.
E) None of these are correct.
Answer: B
29) Whereas impulse involves the time that a force acts, work involves the
A) distance that a force acts.
B) time and distance that a force acts.
C) acceleration that a force produces.
Answer: A