Name:_____

Ground Rules

1. This is a sample exam. The purpose of this document is to give you an idea of the subject material and format of the real exam. Note, there may be material on the real exam that is not covered in this exam. There may also be material on this exam that you do not find in the real exam. Use this sample exam with caution.

2. The real exam is partially open book. You may have access to your textbook and any other notes you have made in your own handwriting. You may not use any other materials, including other textbooks, sample exams, study guides, or notes written in anyone else's handwriting. ***You may not bring this sample exam into the real exam.***

3. This is a multiple choice exam. Choose the best answer for each question. You will be given a computer scan sheet to mark your answers on. There are 20 questions, each counting equally. There are 4 given answers for each question, A, B, C and D. There is a fifth answer you can give, which is E, "I don't know". You will receive 5 points for each correct answer, 1 points for each "I don't know" and 0 (zero) points for each incorrect answer.

4. Answers are given at the end. **I would strongly advise you to work through the test completely before looking at the answers**. ***One of the answers at the end is wrong. Try to figure out which one!***

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1) A rock is dropped from a great height. Ignore air resistance. If the acceleration due to gravity is 32 ft/s^2, then after 3.0 s the rock's speed is
A) 32 ft/s B) 96 ft/s C) 144 ft/s D) 288 ft/s

2) A rock is dropped from a great height. Ignore air resistance. If the acceleration due to gravity is 32 ft/s^2, then after 3.0 s the rock's acceleration is
A) 32 ft/s^2 B) 96 ft/s^2 C) 144 ft/s^2 D) 288 ft/s^2

3) A rock is dropped from a great height. Ignore air resistance. If the acceleration due to gravity is 32 ft/s^2 , then after 3.0 s the rock has fallen
A) 32 ft B) 96 ft C) 144 ft D) 288 ft

4) A rock is thrown straight up into an the air. Ignore air resistance. At the highest point of the rock's flight, the rock's velocity and acceleration are

	A	B	C	D	E
Velocity	9.8 m/s upward	Zero	Zero	9.8 m/s downward	9.8 m/s downward
Acceleration	9.8 m/s^2 downward	Zero	9.8 m/s^2 downward	Zero	9.8 m/s^2 downward

5) An elevator car moves upward at constant speed. The *net* force on the car is
A) up. B) zero. C) down. D) Not enough information is given to determine.

6) A car moves along a level road in a straight line at constant speed. The *net* force on the car is
A) forward. B) zero. C) backward. D) Not enough information is given to determine.

7) A 60 kg woman, acted upon by a force of 600 N accelerates at a rate of
A) 36,000 m/s^2 B) 10 m/s^2 C) 1 m/s^2 D) 0.1 m/s^2

8) You fill the tank of your car with 9 gallons of gasoline. How many liters did you put in?
A) 34.2 B) 7.48 C) 0.95 D) 1000

9) A rock on Earth has mass M and weight W. One the Moon, the acceleration due to gravity is 1/6 what it is on Earth. On the moon, the object's mass and weight are, respectively,
A) M, W B) M, W/6 C) M/6, W D) M/6, W/6

10) The space shuttle has a mass of 9.9×10^4 kg. What is its weight in pounds when it is on the ground?
A) 2.2×10^2 lbs B) 2.2×10^3 lbs C) 2.2×10^4 lbs D) 2.2×10^5 lbs

11) A man with a weight of 600 N is standing on a scale in an elevator. The scale registers 660 N. The elevator is
A) moving upward at constant speed.
B) accelerating upward at about 1 m/s^2.
C) moving downward at constant speed.
D) accelerating downward at about 1 m/s^2.

12) You are driving down a straight stretch of highway. The best way to determine your *instantaneous* speed would be to
A) determine the distance you travel for your entire trip, and divide by the time taken.
B) measure the time between mile markers, and divide the distance between mile markers (1 mile) by the time taken.
C) look at your speedometer.
D) take your foot off the gas pedal. See how long it takes you to come to a stop and how far you travel during that time. Divide the distance by the time.

13) Your 3 bedroom house has 2100 ft^2 of living space. How many square meters are there?
A) 656 B) 640 C) 2.3×10^4 D) 195

14) The force required for an object to undergo simple harmonic motion is called
A) a reaction force.
B) a spring force.
C) a restoring force.
D) a gravitational force.

15) A 500 kg satellite is 50,000 km from the center of the earth. What is the gravitational force on it?
A) 80 N. B) 4900 N. C) 8.0×10^7 N. D) 4.0×10^9 N.

16) A bicycle rider goes around a circular track at a constant speed of 10 m/s. The radius of the track is 50 m. His acceleration is
A) zero because he goes at constant speed. B) 2 m/s^2 C) 10 m/s^2 D) 500 m/s^2

17) Consider figure 1.28 in your textbook. Ignoring the caption, this graph could depict
A) a car accelerating smoothly from rest.
B) a runner moving at constant speed in a straight line.
C) an object in simple harmonic motion.
D) a train coming to a stop at a station.

18) At an average speed of 40 km/h, how far can you go in 5 hours?
A) 8 km B) 20 km C) 40 km D) 200 km

19) For a cinderblock on a table which is bigger, the kinetic or maximum static frictional force?
A) Static
B) Kinetic
C) They are equal.
D) The answer depends on how much the cinderblock weighs.

20) A car is moving forward, and the brakes are applied. Which of the following is true?
A) The car's velocity vector points forward, and its acceleration vector points forward.
B) The car's velocity vector points forward, and its acceleration vector points backward.
C) The car's velocity vector points backward, and its acceleration vector points forward.
D) The car's velocity vector points backward, and its acceleration vector points backward.

Answers:

Q	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	B	A	C	C	B	B	B	A	B	D	B	C	D	C	A	B	A	D	C	B