MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Science is a body of knowledge that
   A) is an ongoing activity of humans.
   B) condenses knowledge into testable laws.
   C) describes order in nature.
   D) All of the above choices are correct.
   E) None of the above choices are correct.

2) Which of the following is a scientific hypothesis, according to the text's working definition?
   A) There are parts of the Universe we will never know about.
   B) There is no life on Mars.
   C) There are things we will never know about.
   D) Matter is filled with undetectable particles.
   E) None of the above.

3) What item or items were stolen in a fraternity house Feynman was in?
   A) Beer keg
   B) Group pictures of the fraternity
   C) All slide rules
   D) A door
   E) English literature texts

4) A scientific statement that can never be changed is a scientific
   A) law.
   B) theory.
   C) principle.
   D) hypothesis.
   E) None of the above choices are correct.

5) As an object freely falls downward near the Earth, its
   A) speed increases
   B) acceleration increases.
   C) inertia decreases
   D) all of the above
   E) none of the above
6) Whirl a rock at the end of a string on a frictionless ice-covered pond and it follows a circular path. If the string breaks, the tendency of the rock is to
A) stop moving
B) continue to follow a circular path.
C) follow a straight line path
D) all of the above
E) none of the above

7) The gain in speed each second for a freely-falling (no air resistance) object is about
A) 0.
B) 10 m/s.
C) 20 m/s.
D) 5 m/s.
E) depends on the initial speed

8) A truck is moving at constant velocity. Inside the storage compartment, a rock is dropped from the midpoint of the ceiling and strikes the floor below. The rock hits the floor
A) behind the midpoint of the ceiling.
B) ahead of the midpoint of the ceiling.
C) exactly below the midpoint of the ceiling.
D) More information is needed to solve this problem.
E) none of these

9) A moving body must undergo a change in
A) direction. B) distance. C) velocity. D) acceleration E) position.

10) When a rocket ship accelerating in outer space runs out of fuel it
A) accelerates for a short time, slows down, and eventually stops.
B) stops suddenly
C) no longer accelerates.
D) accelerates for a short time, then slows down to a constant velocity.
E) continues to accelerate until something stops it

11) Which of the following is not a vector quantity?
A) acceleration
B) speed
C) velocity
D) displacement
E) all are vector quantities

12) A car maintains a constant velocity of 100 km/hr for 10 seconds. During this interval its acceleration is
A) zero. B) 1000 km/hr. C) 110 km/hr. D) 10 km/hr-s E) 10 km/hr.
13) The muzzle velocity of a bullet fired from a new rifle is 100 m/s. Neglecting air resistance, at the end of one second a bullet fired straight up into the air will have traveled a distance of
A) 105 m. B) 100 m. C) 95 m. D) 5 m. E) none of these

14) A man leans over the edge of a cliff and throws a rock upward at 5 m/s. Neglecting air resistance, two seconds later the rock's speed is
A) zero. B) 5 m/s. C) 15 m/s. D) 10 m/s. E) none of the above.

15) One half second after starting from rest, a freely-falling object will have a speed of about
A) 20 m/s. B) 10 m/s. C) 2.5 m/s. D) 5 m/s. E) none of these

16) If one object has twice as much mass as another object, it also has twice as much
A) velocity. B) inertia. C) acceleration due to gravity. D) volume. E) all of these

17) A 10-N falling object encounters 4 N of air resistance. The net force on the object is
A) 4 N. B) 0 N. C) 6 N. D) 10 N. E) 14 N

18) The maximum acceleration of a car while towing a second car twice its mass, compared to its acceleration with no car in tow, is
A) one third. B) one half. C) one fourth. D) the same. E) none of these

19) An object falls freely from rest on a planet where the acceleration due to gravity is twice as much as it is on Earth. In the first 5 seconds it falls a distance of
A) 500 m. B) 150 m. C) 100 m. D) 250 m. E) none of these

20) Disregarding air drag, how fast must you toss a ball straight up in order for it to take 2 seconds to return to the level from which you tossed it?
A) 7.5 m/s B) 20 m/s C) 10 m/s D) 15 m/s E) 5 m/s

21) Ten seconds after starting from rest, a car is moving at 40 m/s. What is the car's acceleration in meters per second per second?
A) 400 B) 4.0 C) 0.25 D) 40 E) 10

22) A 1000-kg automobile enters a freeway on-ramp at 30 m/s and accelerates uniformly up to 50 m/s in a time of 10 seconds. How far does the automobile travel during that time?
A) 400 m B) 200 m C) 100 m D) 300 m E) 500 m
23) A 10-kilogram block with an initial velocity of 10 m/s slides 10 meters across a horizontal surface and comes to rest. It takes the block 2 seconds to stop. The stopping force acting on the block is about
A) 10 N. B) 50 N. C) 5 N. D) 25 N. E) none of these

24) BEGINNINGLE HERE ARE THE EXTRA CREDIT QUESTIONS

An astronaut on another planet drops a 1-kg rock from rest and finds that it falls a vertical distance of 2.5 meters in one second. On this planet, the rock has a weight of
A) 1 N. B) 2 N. C) 3 N. D) 4 N. E) 5 N.

25) Frank Wilczek used which of these as an analogy for the most fundamental nature of matter and energy as we know it today?
A) Trees in a forest
B) Pointlike particles
C) A miniature solar system.
D) Bricks in a building
E) Musical Vibrations

26) Which of the following was NOT a part of either of the replicas of medieval weapon the Trebouchet constructed for the NOVA special?
A) lead counterweights
B) sights for aiming
C) a wooden axle allowing the arms to swing
D) wheels on the bottom
E) a counterweight made of a wooden bucket filled with dirt or rocks

27) An object starts at rest and moves with acceleration which INCREASES at 2 meters per second per second, every second. How far has it moved after 6 seconds?
A) 72 m B) 18 m C) 108 m D) 36 m E) 12 m

28) Chris Mooney described which is these as the main problem with science journalism?
A) Not enough attention to medical research
B) Concentration on fringe views in an effort to provide "balance"
C) No views presented other than those of mainstream scientists
D) Too much emphasis on space missions
E) Not enough access to top secret research