

DUAL PASSAGE READING DRILL

Questions 22–31 are based on the following passages.

Passage 1 is adapted from Edwin E. Slosson, M.S., Ph.D., *Easy Lessons in Einstein: A discussion of the more intelligible features of the theory of relativity*. Published in 1920 by Harcourt, Brace and Howe. Passage 2 is adapted from D.J. McAdam, *Einstein's Relativity: A criticism*. Published in 1922 by Richard G. Badger.

Passage 1

All three of Newton's laws of motion are now questioned and the world is called upon to unlearn the lesson which
 Line Euclid taught it that parallel lines never
 5 meet. According to Einstein they may meet. According to Newton the action of gravitation is instantaneous throughout all space. According to Einstein no action can exceed the velocity of light. If the
 10 theory of relativity is right there can be no such thing as absolute time or way of finding whether clocks in different places are synchronous. Our yardsticks may vary according to how we hold them and the
 15 weight of a body may depend upon its velocity. The shortest distance between two points may not be a straight line. These are a few of the startling implications of Einstein's theory of relativity.
 20 According to Einstein the size and shape of any body depends upon the rate and direction of its movement. For ordinary speeds the alteration is very slight, but it becomes considerable at rates
 25 approaching the speed of light, 186,000 miles a second. If, for instance, you could shoot an arrow from a bow with a velocity of 160,000 miles a second, it would shrink to about half its length, as measured by
 30 a man remaining still on earth. A man traveling along with the arrow could discover no change. No force could bring

the arrow or even the smallest particle of matter to a motion greater than the
 35 speed of light, and the nearer it comes to this limit the greater the force required to move it faster. This means that the mass of a body, instead of being absolute and unalterable as we have supposed,
 40 increases with the speed of its movement. Newton's laws of dynamics are therefore valid only for a matter in motion at such moderate speeds as we have to deal with in our experiments on earth and in our
 45 observations of the heavenly bodies. When we come to consider velocities approximating that of light the ordinary laws of physics are subject to an increasing correction.

Passage 2

If it does those alarming things claimed
 50 for it, distort our bodies, make our clocks unreliable, shorten our yard-sticks, we ought to study it to see if we can invent some counter irritant.
 55 Yet a glance through books that have been written from Slosson and Harlow at one end to Eddington, Cunningham and Einstein himself at the other, seems to discourage serious study. "In the history
 60 of science, the year 1919 is not likely to be known as the year of the overthrow of the German Empire, but as the year of the overthrow of Newton's law of gravitation.
 It is scarcely an exaggeration to say
 65 that Einstein hitched the earth to space or the moon and jerked it up to hit Newton's apple. (Though he speaks of a stone falling.)

To any who may be disposed to

70 question his claim, he can say you are not
 one of the eleven. He is reported to have
 said that “not *twelve* men in the world
 can read and understand fully his book.”
 This, probably, is a surer way to protect his
 75 device than even an international patent.
 Also it is a good way to thwart the critic.
 The eleven men who break in will not give
 it away, and those outside dare not criticize
 what they cannot read. Besides, *eleven*
 80 apostles is the standard, even another one
 might be dangerous.

Maybe this astronomer would honestly
 tell him that his yard-stick would contract
 one-hundredth of the thickness of a cat’s
 85 hair, and if the cloth did not change and
 the yard-stick did, when he had measured
 two million yards of cloth he would gain
 an inch.

It is a little provoking that not alone
 90 sensational writers, whom we could
 disregard, but men of learning and who
 seem to speak with authority, speak of our
 bodies, yard-sticks and clocks as if they
 had found something seriously wrong
 95 affecting them.

22

The author of Passage 1 takes a position
 that he would most likely describe as

- A) critical of the stated implications of Einstein’s theory.
- B) sensational and unworthy of serious study.
- C) analogous description to provide a frame of reference.
- D) dismissive of Newton’s laws.

23

Which choice provides the best evidence
 for the answer to the previous question?

- A) Lines 1–5 (“All three . . . meet”)
- B) Lines 26–30 (“If . . . earth”)
- C) Lines 55–59 (“Yet a . . . study”)
- D) Lines 89–95 (“It is . . . them”)

24

The primary purpose of the first
 paragraph of Passage 1 (lines 1–19) is to

- A) introduce the basic elements of Newton’s laws of motion.
- B) rebuff arguments against the new ideas mentioned in the paragraph.
- C) contrast familiar assumptions with unexpected assertions.
- D) qualify a claim by providing an appropriate context.

25

Which of the following hypothetical situations most nearly matches the illustration in the second paragraph (lines 20–49) of Passage 1?

- A) An archer shoots an arrow at 200 miles per hour in a competition and the arrow appears much smaller to a watching crowd
- B) A comet traveling at 170,000 miles a second appears the same size to both an observer on the comet and one on a nearby planet
- C) A speck of dust travels at 190,000 miles a second, and appears as different sizes from different frames of reference
- D) A grain of sand traveling at 175,000 miles a second appears as different sizes from different frames of reference

26

As used in line 54, “irritant” most nearly means

- A) problem.
- B) itch.
- C) devastation.
- D) salve.

27

The rhetorical effect of the sentence in lines 79–81 (“Besides, *eleven* . . . dangerous”) is to

- A) imply that if more than eleven people worked with Einstein, there would be an unacceptable margin of error in the calculations.
- B) demonstrate the fervor with which Einstein promotes and protects his theories.
- C) suggest, through a religious example, that those who attempt to refute Einstein’s theories are betraying the progress of science.
- D) emphasize through a reference the author’s stance that trusting Einstein’s theories requires faith.

28

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 69–71 (“To any . . . eleven”)
- B) Lines 74–75 (“This . . . patent”)
- C) Lines 77–79 (“The eleven . . . read”)
- D) Lines 89–95 (“It is . . . them”)

29

The author of Passage 1 would most likely respond to the claim in lines 89–95 (“It is . . . them”) of Passage 2 by

- A) countering that relatable examples do more to educate than to harm.
- B) agreeing that there is nothing wrong with our yard-sticks and clocks.
- C) arguing that the discrepancies in yard-sticks and clocks change aspects of everyday life.
- D) adding that more study should be done before accepting any new theories.

30

The opinions of the author of Passage 1 and the author of Passage 2 differ in that the author of Passage 2

- A) disagrees with Einstein’s theories and supports Newton’s laws, while the author of Passage 1 discards Newton’s laws for Einstein’s theories.
- B) disagrees with those who use mundane analogies to describe Einstein’s theories, while the author of Passage 1 utilizes such methods.
- C) acknowledges limits to his argument, while the author of Passage 1 does not.
- D) believes that Einstein’s theories have no application, while the author of Passage 1 believes those theories apply to sports and travel on earth.

31

Both authors would most likely agree that

- A) Einstein’s theories are unsound.
- B) Einstein’s theories are of significant value.
- C) application of Einstein’s theories is not always necessary.
- D) exaggerations of Einstein’s theories should be restricted.