

**Conceptual Physics, 12e (Hewitt)**  
**Chapter 1 About Science**

1.1 Multiple-Choice Questions

- 1) Science is a body of knowledge that  
A) describes order in nature.  
B) is an ongoing human activity.  
C) condenses knowledge into testable laws.  
D) all of the above  
E) none of the above

Answer: D

Diff: 1

Topic: Scientific Measurements

- 2) To a fair approximation, Early Greeks knew the  
A) size of Earth.  
B) size of the Moon.  
C) Earth-Moon distance.  
D) all of the above

Answer: D

Diff: 1

Topic: Scientific Measurements

- 3) When the Sun shines on the Moon, the Moon casts a shadow  
A) at all times.  
B) that is tapered.  
C) that sometimes falls on Earth.  
D) all of the above

Answer: D

Diff: 1

Topic: Scientific Measurements

- 4) Eratosthenes first learned about the position of the Sun in mid-summer by  
A) consulting library information.  
B) setting up a stick at Syene.  
C) setting up a stick at Alexandria.  
D) setting up sticks at both Syene and Alexandria.  
E) none of the above

Answer: A

Diff: 2

Topic: Scientific Measurements

- 5) Eratosthenes' measurements of Earth's size involved
- A) a deep well in Syene.
  - B) a pillar's shadow in Alexandria.
  - C) surveying the distance between Alexandria and Syene.
  - D) all of the above

Answer: D

Diff: 2

Topic: Scientific Measurements

- 6) When we see a half Moon in the sky, the lines between Earth, Moon, and Sun
- A) are equal in length.
  - B) are parallel to one another.
  - C) form a right triangle.
  - D) all of the above

Answer: C

Diff: 2

Topic: Scientific Measurements

- 7) Spots of sunlight on the ground cast through openings between leaves in trees above are actually
- A) images of the Sun.
  - B) part of a solar eclipse.
  - C) due to refraction of sunlight.
  - D) all of the above

Answer: A

Diff: 1

Topic: Scientific Measurements

- 8) A simple method of measuring the distance between the Earth and the Moon is to place in your line of sight to the Moon a
- A) magnifying glass.
  - B) coin.
  - C) telescope.
  - D) meterstick.

Answer: B

Diff: 2

Topic: Scientific Measurements

- 9) The safest way to view an image of the Sun is to use
- A) a telescope.
  - B) binoculars.
  - C) a pinhole.
  - D) colored sunglasses.

Answer: C

Diff: 2

Topic: Scientific Measurements

- 10) The scientific method is most effective in
- A) making hypotheses.
  - B) gaining, organizing, and applying new knowledge.
  - C) discovering new things.
  - D) making theories.
  - E) performing experiments.

Answer: B

Diff: 1

Topic: Scientific Methods

- 11) An educated scientific guess is a
- A) hypothesis.
  - B) theory.
  - C) either of these
  - D) neither of these

Answer: A

Diff: 1

Topic: Scientific Methods

- 12) Facts in the field of science
- A) are absolute.
  - B) are changeable.
  - C) mean very little.
  - D) are more important than theories.

Answer: B

Diff: 1

Topic: Scientific Methods

- 13) The synthesis of a large collection of information that contains well-tested and verified hypotheses about certain aspects of the world is known as a scientific
- A) fact.
  - B) hypothesis.
  - C) law or principle.
  - D) theory.
  - E) none of the above

Answer: D

Diff: 1

Topic: Scientific Methods

- 14) A theory in the field of science is
- A) an educated guess.
  - B) less than a fact.
  - C) a synthesis of a large body of well-tested knowledge.
  - D) unchangeable.

Answer: C

Diff: 1

Topic: Scientific Methods

- 15) When a dishonest scientist reports false information, he or she  
A) as in many other professions, will be excused by the scientific community.  
B) gets no second chance in the scientific community.  
C) is elevated in the scientific community.

Answer: B

Diff: 1

Topic: Scientific Methods

- 16) Which of the following is a scientific statement?  
A) candy Bon Bons contain no sugar  
B) there are things we will never know about  
C) matter is filled with undetectable particles  
D) there are parts of the universe that will never be discovered by humans  
E) none of the above

Answer: A

Diff: 1

Topic: Scientific Methods

- 17) For a scientific hypothesis to be valid, there must be a test for proving it  
A) right.  
B) wrong.  
C) conclusively one way or the other.

Answer: B

Diff: 1

Topic: Scientific Methods

- 18) The statement, "There are regions beneath Earth's crust that will always be beyond the reach of scientific investigation" is  
A) a fact.  
B) speculation.  
C) a hypothesis.  
D) a scientific statement.  
E) a theory.

Answer: B

Diff: 1

Topic: Scientific Methods

- 19) Pseudoscience is best characterized as being  
A) new age.  
B) an alternate view to be taken seriously.  
C) fake.  
D) all of the above

Answer: C

Diff: 1

Topic: Scientific Methods

20) Science, art, and religion normally need not contradict one another because

- A) all three involve different domains.
- B) choosing the right one means no need to heed the other two.
- C) choosing religion and art means no need to heed science.
- D) choosing science means no need to heed religion and art.

Answer: A

Diff: 1

Topic: Science, Art, and Religion

21) A truly educated person is knowledgeable about

- A) science.
- B) the arts.
- C) religion.
- D) all of the above

Answer: D

Diff: 1

Topic: Science, Art, and Religion

22) Science and technology are

- A) responsible for all the good in the world.
- B) responsible for all the bad in the world.
- C) actually one and the same.
- D) fundamentally different from each other.

Answer: D

Diff: 1

Topic: Science and Technology

23) Technology is a tool that can

- A) be socially beneficial.
- B) be socially harmful when abused.
- C) lead to a better world.
- D) all of the above

Answer: D

Diff: 1

Topic: Science and Technology

24) The most basic of the sciences of physics, chemistry, and biology is

- A) physics.
- B) chemistry.
- C) biology.
- D) none of the above

Answer: A

Diff: 1

Topic: Physics-the Basic Science

25) Which of the following involves passion, talent, and intelligence?

A) art

B) literature

C) music

D) science

E) all of the above

Answer: E

Diff: 1

Topic: Physics-the Basic Science