AT7 Chapter 12 A0 20 Questions

Scientific Principles and Materials

1. What is the scientific method?

A. A series of steps used to solve problems and eliminate errors in automotive diagnosis.

B. A series of steps used to solve problems and eliminate errors in medical diagnosis.

C. A series of steps used to solve problems and eliminate errors in computer programming.

D. A series of steps used to solve problems and eliminate errors in cooking.

2. What method is often used to find the root cause of a problem?

A. The "three whys" method

B. The "four whys" method

C. The "five whys" method

D. The "six whys" method

3. What is torque?

A. A rotating force measured in pound-feet or Newton-meters.

B. A unit of measurement for speed

C. A type of energy used to power automobiles.

D. A measure of the force of gravity on an object.

4. What is horsepower?

A. The power produced by an engine and is measured with a dynamometer.

B. The power produced by a battery and is measured in volts.

C. The power produced by a wind turbine and is measured in watts.

D. The power produced by a solar panel and is measured in kilowatts.

5. What is kinetic energy?

A. The energy of mass in motion and is determined by an object's mass and speed

B. The energy of mass at rest and is determined by an object's size and weight.

C. The energy of light and is determined by its wavelength and frequency.

D. The energy of sound and is determined by its amplitude and frequency.

6. What is inertia?

A. The resistance to being put in motion and the tendency to remain in motion.

B. The force of gravity on an object and may be defined as the mass times the acceleration of gravity.

C. The force required to move an object and is determined by its weight and size

D. The force required to stop an object and is determined by its speed and mass.

7. How does kinetic energy increase?

A. Proportionally as weight increases.

B. Proportionally as speed increases.

C. As the square of its speed

D. All of the above

8. What are Sir Isaac Newton's three laws of motion?

A. The laws of gravity, motion, and energy.

B. The laws of force, motion, and acceleration.

C. The laws of action, reaction, and momentum.

D. The laws of speed, distance, and time

9. What are the practical consequences of the relationships between weight, speed, and kinetic energy for the brake system engineer?

A. The brake system must be powerful enough to absorb the energy required to slow or stop a vehicle

B. If vehicle A weighs twice as much as vehicle B, it needs a brake system that is twice as powerful.

C. A vehicle traveling at twice the speed has exactly four times as much kinetic energy.

D. All of the above

10. What is the primary mechanical principle used to increase application force in brake systems?

A. Friction

B. Gravity

C. Leverage

D. Magnetism

11. Which of the following is NOT one of the three types of levers?

A. First-class

B. Second-class

C. Third-class

D. Fourth-class

12. What is the unit used to measure heat?

A. Celsius

B. Fahrenheit

C. Kelvin

D. British Thermal Units (BTUs

13. How can heat energy be transferred?

A. Conduction, convection, and radiation

B. Friction, magnetism, and gravity

C. Pressure, volume, and temperature

D. Velocity, acceleration, and force

14. Which of the following is NOT a way to measure temperature?

A. Celsius

B. Fahrenheit

C. Kelvin

D. Newton

15. What is the primary purpose of a coat?

A. To keep body heat from escaping into cold air

B. To keep the body cool in hot weather

C. To protect the body from physical harm

D. To enhance physical appearance

16. Which of the following is NOT a conductor of heat?

A. Metal

B. Water

C. Air

D. Glass

17. What is the pH of water?

A. 1

B. 6

C. 7

D. 14

18. What do gas laws describe?

A. The relationship between temperature, pressure, and volume of gases in a closed container

B. The relationship between solids and liquids

C. The relationship between sound and frequency

D. The relationship between light and color

19. What is steel made from?

A. Iron with varying amounts of carbon

B. Aluminum with varying amounts of carbon

C. Copper with varying amounts of carbon

D. Zinc with varying amounts of carbon

20. What system is used to label mechanically shaped aluminum alloys?

A. The International Alloy Designation system

B. The International Aluminum Labeling system

C. The International Steel Designation system

D. The International Metal Labeling system

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1. A

2. C

3. A

4. A

5. A

6. A

7. C

8. C

9. D

10. C

11. D

12. D

13. A

14. D

15. A

16. D

17. C

18. A

19. A

20. A