

PrioRity ConsUlt
Science Encompasses Test

Instructions:

- This test consists of 50 multiple-choice questions.
- Choose the best answer for each question.

Questions:

1. Which of the following is an abiotic component of an ecosystem? A) Producer B) Decomposer C) Sunlight D) Consumer
2. What type of chemical bond involves the sharing of electrons between atoms? A) Ionic bond B) Covalent bond C) Metallic bond D) Hydrogen bond
3. Convert 500 milliliters to liters. A) 0.005 L B) 0.05 L C) 0.5 L D) 5 L
4. If a force of 10 N is applied to an object over a distance of 5 m, what is the work done? A) 2 J B) 0.5 J C) 50 J D) 15 J
5. Which of the following units is used to measure force? A) Pascal B) Joule C) Newton D) Watt
6. What is the formula for calculating pressure? A) Force $\times$ Area B) Force / Area C) Mass $\times$ Acceleration D) Work / Time
7. A mixture where the components are uniformly distributed and indistinguishable is called a: A) Heterogeneous mixture B) Homogeneous mixture C) Suspension D) Colloid
8. Which of the following is a biotic factor? A) Temperature B) Water C) Bacteria D) Soil pH
9. What is the standard international unit for length? A) Centimeter B) Inch C) Meter D) Kilometer
10. What happens to the pressure of a gas if its volume decreases, assuming constant temperature? A) Increases B) Decreases C) Remains the same D) Becomes zero
11. The transfer of energy through an ecosystem primarily begins with: A) Consumers B) Decomposers C) Producers D) Carnivores
12. An atom that gains or loses electrons becomes a(n): A) Molecule B) Isotope C) Ion D) Compound
13. What is the unit for work done? A) Watt B) Newton C) Joule D) Pascal
14. A push or a pull acting on an object is defined as: A) Work B) Energy C) Force D) Pressure
15. Which of these is a pure substance? A) Air B) Saltwater C) Gold D) Milk
16. The relationship between different organisms in an ecosystem that interact with each other for food is called a: A) Biome B) Food web C) Habitat D) Niche
17. What type of bond is formed when electrons are transferred from one atom to another? A) Covalent bond B) Ionic bond C) Metallic bond D) Hydrogen bond
18. How many millimeters are in 1 meter? A) 10 B) 100 C) 1,000 D) 10,000
19. A machine that reduces the force needed to perform work is called a: A) Complex machine B) Simple machine C) Motor D) Generator
20. What is the relationship between force, mass, and acceleration? A) Force = Mass / Acceleration B) Force = Acceleration / Mass C) Force = Mass $\times$ Acceleration D) Mass = Force $\times$ Acceleration
21. The amount of force applied over a given area is known as: A) Work B) Power C) Pressure D) Energy
22. A substance formed when two or more elements are chemically combined in a fixed ratio is called a: A) Mixture B) Element C) Compound D) Solution
23. The total living and non-living components in a particular area make up a(n): A) Population B) Community C) Ecosystem D) Biome

24. Which of the following elements typically forms covalent bonds? A) Sodium B) Chlorine C) Carbon D) Potassium
25. What instrument is used to measure temperature? A) Barometer B) Anemometer C) Thermometer D) Hydrometer
26. What is the power if 100 J of work is done in 10 seconds? A) 1 J B) 10 W C) 1000 W D) 100 W
27. The force of attraction between objects with mass is called: A) Magnetic force B) Electrical force C) Gravitational force D) Frictional force
28. Why does a sharp knife cut better than a blunt knife? A) It applies more force. B) It has a larger surface area. C) It exerts more pressure due to a smaller area. D) It has less mass.
29. What is a key characteristic of a solution? A) Components are easily separable by filtration. B) It is always opaque. C) It is a homogeneous mixture. D) Particles settle over time.
30. Decomposers play a crucial role in an ecosystem by: A) Producing their own food. B) Consuming other organisms. C) Recycling nutrients back into the ecosystem. D) Regulating temperature.
31. The strongest type of chemical bond is generally considered to be: A) Hydrogen bond B) Van der Waals forces C) Covalent bond D) Ionic bond
32. To measure the volume of an irregularly shaped object, you can use the: A) Measuring tape B) Measuring cylinder (displacement method) C) Balance scale D) Stopwatch
33. Which of the following scenarios involves negative work being done? A) Pushing a box across the floor. B) Lifting a weight upwards. C) Lowering a weight slowly. D) Holding a heavy object stationary.
34. What is the net force on an object in equilibrium? A) Maximum B) Minimum C) Zero D) Varies
35. The pressure exerted by a fluid increases with: A) Decreasing depth B) Increasing depth C) Decreasing density D) Decreasing temperature
36. Which of these is a method for separating immiscible liquids? A) Evaporation B) Filtration C) Decantation D) Distillation
37. What is the primary source of energy for most ecosystems on Earth? A) Geothermal energy B) Chemical energy C) Solar energy D) Wind energy
38. In a chemical reaction, atoms are: A) Created or destroyed B) Transformed into different elements C) Rearranged D) Always lose electrons
39. What is the correct way to read the volume of a liquid in a measuring cylinder? A) Read from the top of the meniscus. B) Read from the bottom of the meniscus. C) Read from the highest point of the liquid. D) Read from the side of the cylinder.
40. The rate at which work is done is defined as: A) Energy B) Force C) Power D) Momentum
41. According to Newton's Third Law, for every action, there is an equal and opposite: A) Force B) Momentum C) Acceleration D) Velocity
42. Atmospheric pressure is measured using a: A) Manometer B) Barometer C) Altimeter D) Hydrometer
43. Which of the following is a physical method for separating a mixture? A) Combustion B) Electrolysis C) Chromatography D) Rusting
44. A group of organisms of the same species living in the same area is called a: A) Community B) Ecosystem C) Population D) Niche
45. How many valence electrons does a noble gas typically have (excluding Helium)? A) 2 B) 4 C) 6 D) 8
46. The scientific method often begins with: A) Forming a conclusion B) Conducting an

- experiment C) Making an observation D) Developing a theory
47. When an object is moving at a constant velocity, the net force acting on it is: A) Increasing
B) Decreasing C) Zero D) Non-zero and constant
48. Which of the following best describes the principle of conservation of energy? A) Energy can be created and destroyed. B) Energy is always lost as heat. C) Energy can be transferred or transformed, but not created or destroyed. D) Energy is only conserved in mechanical systems.
49. A colloid is a type of mixture where: A) Particles are very large and settle quickly. B) Particles are completely dissolved. C) Particles are dispersed but do not settle, often exhibiting the Tyndall effect. D) Components are chemically bonded.
50. Biodiversity refers to the: A) Number of different ecosystems in a region. B) Variety of life on Earth. C) Total amount of biomass in an ecosystem. D) Stability of an ecosystem.

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Marking Scheme

1. C) Sunlight
2. B) Covalent bond
3. C) 0.5 L
4. C) 50 J
5. C) Newton
6. B) Force / Area
7. B) Homogeneous mixture
8. C) Bacteria
9. C) Meter
10. A) Increases
11. C) Producers
12. C) Ion
13. C) Joule
14. C) Force
15. C) Gold
16. B) Food web
17. B) Ionic bond
18. C) 1,000
19. B) Simple machine
20. C) Force = Mass × Acceleration
21. C) Pressure
22. C) Compound
23. C) Ecosystem
24. C) Carbon
25. C) Thermometer
26. B) 10 W
27. C) Gravitational force
28. C) It exerts more pressure due to a smaller area.
29. C) It is a homogeneous mixture.
30. C) Recycling nutrients back into the ecosystem.
31. C) Covalent bond
32. B) Measuring cylinder (displacement method)
33. C) Lowering a weight slowly.
34. C) Zero

- 35. B) Increasing depth
- 36. C) Decantation
- 37. C) Solar energy
- 38. C) Rearranged
- 39. B) Read from the bottom of the meniscus.
- 40. C) Power
- 41. A) Force
- 42. B) Barometer
- 43. C) Chromatography
- 44. C) Population
- 45. D) 8
- 46. C) Making an observation
- 47. C) Zero
- 48. C) Energy can be transferred or transformed, but not created or destroyed.
- 49. C) Particles are dispersed but do not settle, often exhibiting the Tyndall effect.
- 50. B) Variety of life on Earth.