

Materials Science Fundamentals

Materials Science · Practice Test · 18 Questions

1. Which property describes a material's ability to be hammered or rolled into thin sheets without breaking?

- A) Brittleness
- B) Malleability
- C) Elasticity
- D) Hardness

2. Which of the following is classified as a composite material?

- A) Pure Gold
- B) Concrete
- C) Copper wire
- D) Diamond

3. What is the primary characteristic of a ceramic material?

- A) High electrical conductivity
- B) High heat resistance and brittleness
- C) Flexibility at room temperature
- D) Ability to be drawn into wires

4. Which metal is most commonly used in the production of beverage cans due to its low density and high corrosion resistance?

- A) Iron
- B) Lead
- C) Aluminium
- D) Mercury

5. What occurs when a metal undergoes oxidation, commonly known as rusting?

- A) It becomes stronger
- B) It loses mass
- C) It reacts with oxygen to form a new compound
- D) It changes into a plastic

6. Which material is an example of a synthetic polymer?

- A) Wood
- B) Cotton
- C) Nylon
- D) Silk

7. What term refers to the resistance of a material to surface indentation or scratching?

- A) Hardness
- B) Density
- C) Ductility
- D) Lustre

8. Which of these is a property of metals that allows them to conduct electricity?

- A) Presence of free electrons
- B) High melting point
- C) Non-crystalline structure
- D) Transparency

9. Glass is typically made by melting which primary raw material at high temperatures?

- A) Clay
- B) Sand
- C) Limestone
- D) Graphite

10. Which material type is typically characterized by long, repeating molecular chains?

- A) Metals
- B) Polymers
- C) Ceramics
- D) Minerals

11. What is the main advantage of alloying steel with chromium to create stainless steel?

- A) Increased weight
- B) Improved resistance to corrosion
- C) Greater magnetic strength
- D) Decreased melting point

12. Which term describes the amount of mass per unit volume of a material?

- A) Weight
- B) Density
- C) Volume
- D) Hardness

13. Which of these materials is considered an electrical insulator?

- A) Copper
- B) Aluminium
- C) Rubber
- D) Iron

14. What is the defining feature of a thermoplastic material?

- A) It decomposes when heated
- B) It can be melted and reshaped multiple times
- C) It remains hard at any temperature
- D) It cannot be recycled

15. Which material is extracted from bauxite ore?

- A) Iron
- B) Aluminium
- C) Copper
- D) Zinc

16. Which property describes the ability of a material to return to its original shape after being stretched or compressed?

- A) Elasticity
- B) Plasticity
- C) Brittleness
- D) Conductivity

17. Which of these is a natural fibre?

- A) Polyester
- B) Acrylic
- C) Wool
- D) Rayon

18. What is the name of the process used to increase the hardness of steel by heating and then rapidly cooling it?

- A) Quenching
- B) Annealing
- C) Tempering
- D) Galvanizing