Basics of Materials Science

Materials Science · Practice Test · 25 Questions

1. Which property describes a material's ability to be drawn into a thin wire?

A) Malleability
B) Ductility
C) Hardness
D) Brittleness

2. Which of the following is a natural polymer?

A) Nylon
B) Polystyrene
C) Cellulose
D) Polyethylene

3. What is the process of heating and cooling a metal to change its internal structure?

A) Annealing
B) Casting
C) Welding
D) Galvanizing

4. Which material is an example of a ceramic?

A) Copper
B) Glass
C) Rubber
D) Steel

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

A) Toughness
B) Elasticity
C) Hardness
D) Density

6. Which element is the primary component of steel?

A) Aluminium
B) Iron
C) Titanium
D) Zinc

7. What type of material is known for having a repeating crystalline structure?

A) Amorphous solid
B) Gas
C) Metal
D) Liquid

8. Which material property allows a metal to be hammered into thin sheets?

A) Malleability
B) Ductility
C) Viscosity
D) Transparency

9. Which of these is a composite material?

A) Pure Gold
B) Concrete
C) Oxygen
D) Plastic

10. What is the main advantage of using alloys over pure metals?

A) They are always cheaper
B) They are easier to melt
C) They often have superior strength or corrosion resistance
D) They are always heavier

11. Which of these materials is an excellent electrical insulator?

A) Copper
B) Gold
C) Rubber
D) Silver

12. What is the primary material used to produce glass?

A) Clay
B) Silica sand
C) Limestone
D) Graphite

13. Which of the following is a thermoplastic material?

A) Epoxy
B) Bakelite
C) Polyethylene
D) Vulcanized rubber

14. What is the study of materials at the scale of 1 to 100 nanometres called?

A) Nanotechnology
B) Geology
C) Botany
D) Astrophysics

15. Which property describes how much a material stretches under tension?

A) Elasticity
B) Conductivity
C) Magnetism
D) Lustre

16. Which of these materials is known for being lightweight and corrosion-resistant, often used in aircraft?

A) Lead
B) Aluminium
C) Cast iron
D) Mercury

17. What is the definition of a 'superconductor'?

A) A material that never breaks
B) A material that conducts electricity with zero resistance
C) A material that is magnetic at room temperature
D) A material that is both a liquid and a solid

18. Which of these is a characteristic property of metals?

A) They are generally transparent
B) They are excellent thermal conductors
C) They are usually brittle
D) They are always insulators

19. What is the main function of 'galvanising' steel?

A) To make it magnetic
B) To increase its density
C) To prevent rust
D) To make it transparent

20. What material is commonly used to make the conductive tracks on a computer motherboard?

A) Plastic
B) Wood
C) Copper
D) Glass

21. Which of these materials is known for its extreme hardness and is used in cutting tools?

A) Tungsten carbide
B) Lead
C) Gold
D) Rubber

22. What happens to most metals when they are heated?

A) They contract
B) They expand
C) They become brittle
D) They lose their magnetism

23. Which material is best known for its high strength-to-weight ratio in carbon-fibre composites?

A) Carbon
B) Iron
C) Clay
D) Sand

24. What are materials that can return to their original shape after being stretched called?

A) Elastomers
B) Ceramics
C) Metals
D) Glasses

25. Which of the following is a property of amorphous solids like glass?

A) They have a distinct melting point
B) They lack a long-range ordered atomic structure
C) They are always opaque
D) They are easily magnetised