

材料科學與奈米技術

Practice Worksheet

A. Vocabulary - Write the English word

Write the correct English word for each Chinese meaning.

1. 奈米技術 (n.) _____
2. 奈米粒子 (n.) _____
3. 聚合物 (n.) _____
4. 複合材料 (n./adj.) _____
5. 合金 (n.) _____
6. 半導體 (n.) _____
7. 結晶的 (adj.) _____
8. 非晶質的 (adj.) _____
9. 彈性 (n.) _____
10. 拉伸的 (adj.) _____
11. 導電性 (n.) _____
12. 絕緣體 (n.) _____
13. 超導體 (n.) _____
14. 腐蝕 (n.) _____
15. 疲勞 (n.) _____

B. Grammar - Choose the correct answer

1. _____ is a single-atom-thick layer of carbon with extraordinary properties.
(A) Graphene (B) Polymer
(C) Alloy (D) Colloid
2. The _____ strength of the material determines how much pulling force it can withstand.
(A) tensile (B) thermal
(C) optical (D) magnetic
3. _____ materials can return to their original shape after being deformed.
(A) Shape memory (B) Amorphous
(C) Brittle (D) Porous

4. Chemical vapor _____ is used to create thin films on semiconductor wafers.
(A) deposition (B) diffraction
(C) extrusion (D) sintering
5. The _____ of the new alloy was tested under extreme temperature conditions.
(A) durability (B) viscosity
(C) purity (D) colloid
6. _____ draws inspiration from nature to design innovative materials.
(A) Biomimicry (B) Spectroscopy
(C) Lithography (D) Calibration
7. A _____ is used as a base surface for depositing thin films.
(A) substrate (B) reagent
(C) solvent (D) filament
8. _____ cells convert sunlight directly into electrical energy.
(A) Photovoltaic (B) Piezoelectric
(C) Thermoelectric (D) Crystalline
9. Even minor _____ can ruin an entire semiconductor manufacturing batch.
(A) contamination (B) degradation
(C) corrosion (D) fracture
10. The material's _____ structure gives it unique optical properties.
(A) nanostructure (B) microstructure
(C) infrastructure (D) superstructure

C. Listening - Go to learn.chparenting.com to listen

1. 研究者開發了什麼？
(A) A new solar panel design
(B) A graphene membrane for water purification
(C) A method to produce graphene cheaply
2. EUV 技術能做什麼？
(A) Chips as small as 2 micrometers
(B) Chips with features as small as 2 nanometers
(C) Chips that cost 2 billion dollars
3. 這種新塑膠的特點是什麼？
(A) It takes six years to decompose.
(B) It decomposes in six months when composted.
(C) It is made from petroleum.
4. 這種合金有什麼特性？
(A) An alloy that changes color
(B) An alloy that returns to its original shape
(C) An alloy that is lighter than air

5. 量子點技術的突破是什麼？

- (A) 30% cheaper manufacturing
- (B) 30% more energy efficient displays
- (C) 30% larger screen sizes

D. Reading - Go to learn.chparenting.com to read the passage

1. When was graphene first isolated?

- (A) 1994
- (B) 2004
- (C) 2014
- (D) 2024

2. How does graphene compare to steel in strength?

- (A) 50 times stronger
- (B) 100 times stronger
- (C) 200 times stronger
- (D) 500 times stronger

3. What medical application of graphene is mentioned?

- (A) Surgical instruments
- (B) Targeted drug delivery
- (C) Artificial organs
- (D) Blood testing

4. What is a major challenge in commercializing graphene?

- (A) It is too heavy.
- (B) Large-scale production is difficult.
- (C) It cannot conduct electricity.
- (D) It is not flexible enough.

5. What concern about graphene remains unresolved?

- (A) Its color
- (B) Its long-term health effects
- (C) Its discovery date
- (D) Its atomic structure

