Emerging Tech Driving Economic Shifts: AI, Biotech, and Nanotech's Market I

Scientific Discoveries · Practice Test · 12 Questions

1. Which technology is increasingly being used to develop crops that are more resistant to disease and have higher yields, significantly impacting the agricultural sector?

A) Quantum Computing
B) Artificial Intelligence
C) CRISPR and Gene Editing
D) Synthetic Biology

2. What is a key application of nanotechnology in consumer electronics, enhancing device functionality and performance?

A) Improving battery life through advanced materials
B) Making devices waterproof with nanoparticle coatings
C) Increasing screen resolution with quantum dots
D) Developing self-healing screen materials

3. Which emerging field utilizes engineered microbes as cellular machines to produce bio-based chemicals and biodegradable materials, promoting a shift towards circular economies?

A) Nanotechnology
B) Quantum Computing
C) Synthetic Biology
D) Artificial Intelligence

4. The decreasing cost of sequencing a human genome has been a major driver for advancements in which of the following medical fields?

A) Nanomedicine
B) Gene Therapy and Precision Medicine
C) Regenerative Medicine
D) Telemedicine

5. Which sector is experiencing rapid growth and attracting significant investment, with projections suggesting it could reach $1.8 trillion by 2040, driven by reusable rockets and satellite networks?

A) Renewable Energy
B) Artificial Intelligence
C) Space Exploration
D) Biotechnology

6. What is a primary impact of advancements in renewable energy technologies, such as solar and wind power, on the global energy market?

A) Increased reliance on fossil fuels
B) Dominance over fossil fuels in electricity generation in some areas
C) Higher production costs compared to traditional energy sources
D) Decreased investment in energy storage solutions

7. Which of the following is a significant economic impact of advancements in artificial intelligence (AI) on businesses?

A) Decreased productivity due to automation
B) Reduced demand for data analysis
C) Enhanced productivity and efficiency through task automation
D) Limited applications in decision-making processes

8. Nanomaterials are being engineered to exhibit exceptional mechanical strength, electrical conductivity, and flexibility, with vast applications in which of the following sectors?

A) Agriculture and food production
B) Aerospace, electronics, and energy storage
C) Textile and fashion industry
D) Construction and civil engineering

9. The global CRISPR gene editing market was valued at approximately $3.2 billion in 2023 and is projected to grow significantly. What is a primary driver of this market growth?

A) Decreasing demand for genetic research tools
B) Limited applications in medicine and agriculture
C) Increasing R&D investments and adoption in drug discovery and diagnostics
D) Stagnation in biotechnology advancements

10. What is the primary role of quantum computing in current market trends, according to recent analyses?

A) Replacing all classical computing tasks
B) Solving complex optimization and simulation problems in hybrid workflows
C) Increasing the cost of cloud services
D) Becoming obsolete due to advancements in AI

11. Synthetic biology holds the promise to revolutionize industrial activities and create new ones. Which of these is a direct benefit or application of synthetic biology?

A) Producing petroleum-based plastics more efficiently
B) Developing biodegradable materials and bio-based chemicals
C) Increasing reliance on petrochemicals in manufacturing
D) Creating less efficient agricultural yields

12. The rapid advancements in material science, especially in nanotechnology, are leading to the development of materials with enhanced properties for various applications. Which of these is an example of such an application?

A) Development of heavier and less durable car components
B) Creation of lighter, stronger materials for aerospace and automotive industries
C) Introduction of less efficient solar cells
D) Production of fabrics with reduced stain resistance